

**aumüller** ■  
auf. zu. mehr.

03.2023

# PRODUCT OVERVIEW DRIVES



Interactive  
buttons



[www.aumueller-gmbh.de](http://www.aumueller-gmbh.de)

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**1****Chain drives**[To the chapter](#)**2****Spindle drives**[To the chapter](#)**3****Rack and pinion drives**[To the chapter](#)**4****Folding arm drives**[To the chapter](#)**5****Louvre drives**[To the chapter](#)**6****Locking drives**[To the chapter](#)**7****Hardware sets**[To the chapter](#)**8****Accessories drives**[To the chapter](#)

Valid from 2023-03-15

## IMPORTANT NOTE

Although we have done everything we can to ensure that the date and information within this document is correct and up-to-date as possible, we cannot guarantee that there are not any errors. Be aware that the information and data contained in this document can be altered without prior and notice.

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In pursuance of our policy of continuing product improvement, the equipment described in this publication is subject to changes without notification.

All prices quoted shall be in Euro and are Euro ex works excluding packaging costs and excluding statutory rate of value added tax.

Orders with a net value of goods of less than 100 € cannot be processed economically and will therefore be subject to a minimum quantity surcharge of 20 €.

For offers, deliveries and performances our general terms and conditions shall apply exclusively.

By pasting this product list, previous editions become invalid.

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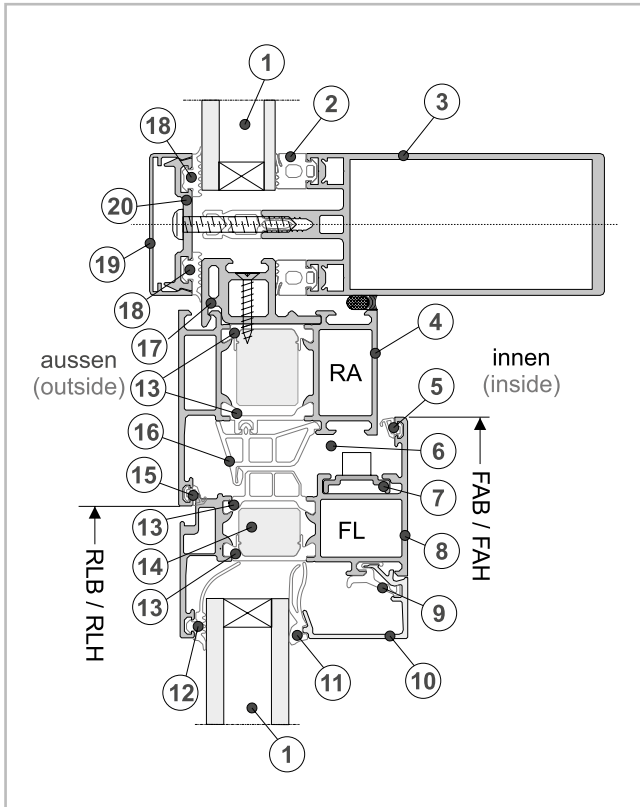
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LIST OF ABBREVIATIONS	
A2	Stainless Steel
BxHxT	Width x Height x Depth
DIN	German Institute for Standardisation
E6/C-0	Anodised finish
EN	European standard
FAB	Overall width of casement
FAH	Overall height of casement
FL	Opening casement
FM	Window assembly
FÜ	Window overlap
HSK	Main closing edge (parallel to hinge)
KLB	Clamping area
KW-Diagramm	Force path diagram
L	Left handed version
LxBxH	Length x Width x Height
LZ	Delivery time
NRWG	NSHEV – natural smoke and heat exhaust ventilation
NSK	Auxillary closing edge (sideways on hinge)
PAF	Parallel opening window
PE	Profile installation
PG	Price class
PR	Transom assembly
R	Right handed version
RA	Window frame
RAL	Central European Colour Standard
RM	Frame assembly
RWA	SHEV – smoke and heat exhaust ventilation
Solo	Solo drive
SYNC	Synchronizes running drive systems
Tandem	2 drives with run monitoring
TWIN	2 drives in one casing
Z	Drive model with feedback contact (CLOSE)
netto	Prices are not discountable

SCALE UNITS	
°C	Degree Celsius
A	Amps.
DEG	Degree angle
Kg	Kilogramms
m	Metres
min	Minutes
mm	Millimetres
N	Newton
s	Seconds
Stck.	Pieces
V	Volts
PU	Packaging units
W	Watts

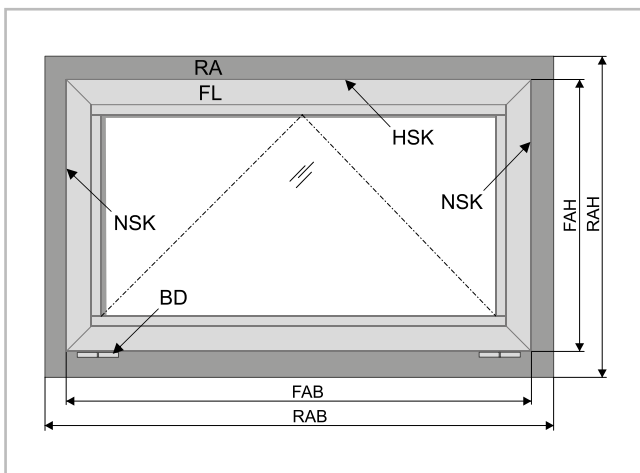
FIGURES	
€	Euro
AC	Alternating current (50Hz / 60Hz)
DC	Direct current
ED	Switching time (10 min)
F	Stroke force
I	Electrical current
L	Length
P	Elektrical capacity
s	Stroke
t	Thickness of material
U	Electric current
v	Speed





## SECTION

1	Infill (Glass structure)
2	Inner adapter seal
3	Transom profile
4	Window frame
5	Secondary seal (inside)
6	Rebate
7	Locking bar with locking bolts
8	Casement frame
9	Bead clamp
10	Glazing bead
11	Inner glazing gasket
12	Outer glazing gasket
13	Thermal break
14	Insulating material
15	Primary seal
16	Centre seal
17	Adapter frame
18	Outer adapter seal
19	Cover profile
20	Pressure plate

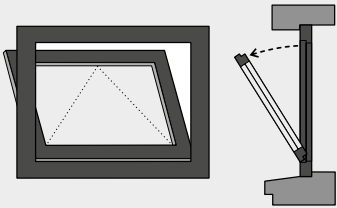


## ABBREVIATIONS WINDOWS

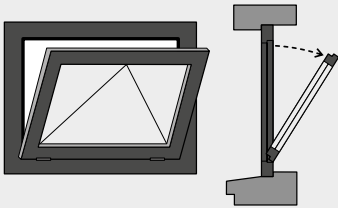
RA	Window frame
FL	Casement / Casement frame
HSK	Main closing edge
NSK	Side closing edge
BD	Sash hinge (Strip side)
FAB	Overall width of casement
FAH	Overall height of casement
RAB	Window frame width
RAH	Window frame height
RLB	Throat width
RLH	Throat height

TYPES OF WINDOWS

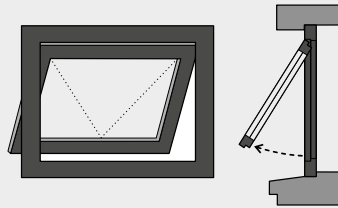
1 Bottom hung outward opening



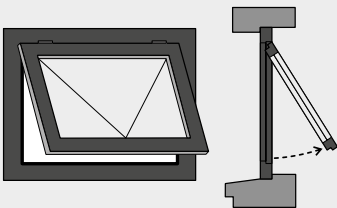
2 Bottom hung inward opening



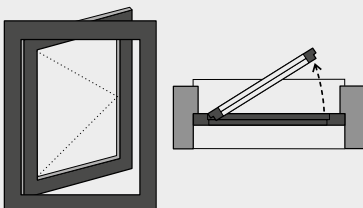
3 Top hung outward opening



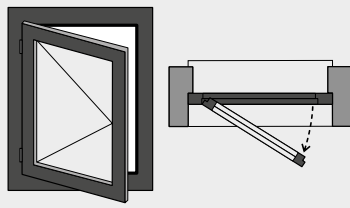
4 Top hung inward opening



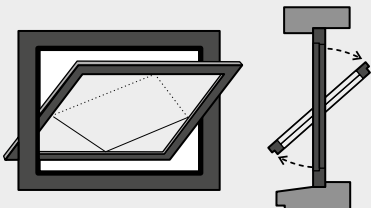
5 Side hung outward opening



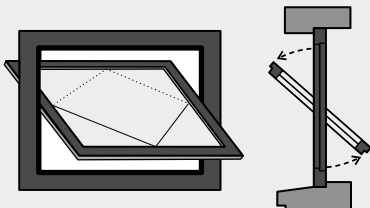
6 Side hung inward opening



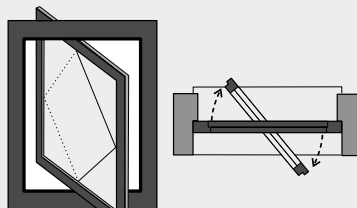
7 Horizontal pivot



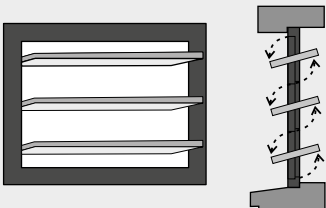
8 Horizontal pivot



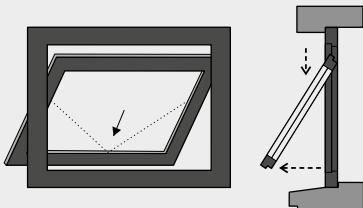
9 Vertical pivot



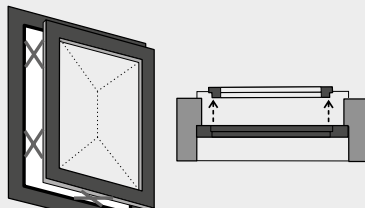
10 Louvred window



11 Friction hinged outward opening



12 Parallel slide window

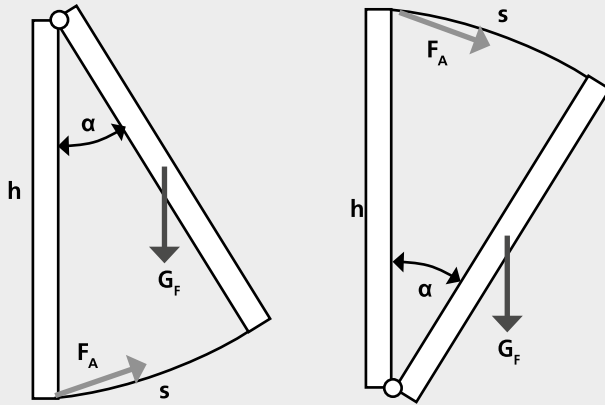


## USEFUL CALCULATIONS

**Casement weight:**  $G_F$  [Kg] =  $F_{AB}$  [m] \*  $F_{AH}$  [m] \* **Glass thickness** [mm] \* 2,5 [Kg/m<sup>2</sup>] \* 1,1

**Weight force:**  $F_G$  [N] =  $G_F$  [Kg] \* 9,81 [m/s<sup>2</sup>]

**Drive force:** top & bottom hung window

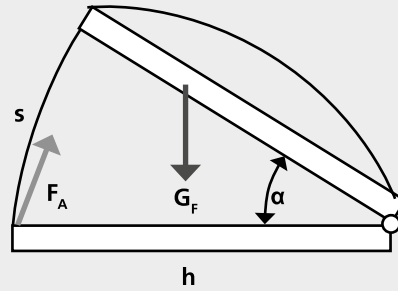


$$F_A$$
 [N] =  $G_F$  [Kg] \* 9,81 [m/s<sup>2</sup>] \*  $s$  [mm] \* 0,54 /  $h$  [mm]

**Drive stroke** if window height and opening angle are known:  
 $s$  [mm] =  $\sqrt{2 * h^2$  [mm] \* (1 -  $\cos\alpha$ [DEG])}

**Opening angle** if height and stroke are known:  
 $\alpha$  [DEG] =  $\cos^{-1}$  (1 -  $s^2$  [mm] / 2 /  $h^2$  [mm])

Roof window / Roof light



$$F_A$$
 [N] =  $G_F$  [Kg] \* 9,81 [m/s<sup>2</sup>] \* 0,54





KS2



KS2 TWIN

### KS2 CHAIN DRIVES

- Model 24V DC, S2/S12 and 230V AC, S2/S12
- Pulling/Pushing force max. 250 N (TWIN 500 N)
- Stroke length 50 – 800 mm – (with S2)  
50 – 1000 mm – programmable (with S12)
- Speed 5 – 14 mm/s – programmable (with S12)
- Housing (WxH) 42 x 26 mm, Length depending on stroke
- Opening mechanism Rigid back stainless steel sidebow roller chain
- Version R (right), L (left), TWIN, Z, Set 230V/24V
- Protection rating IP 32

KS2



KS4

### KS4 CHAIN DRIVES

- Model 24V DC, S12
- Pulling/Pushing force max. 400 N
- Stroke length 50 – 1000 mm – programmable
- Speed 5 – 14 mm/s – programmable
- Housing (WxH) 35 x 24 mm, Length depending on stroke
- Opening mechanism Rigid back stainless steel roller chain without protruding rivet heads
- Version R (right), L (left)
- Protection rating IP 32

KS4



KSA



KSA TWIN

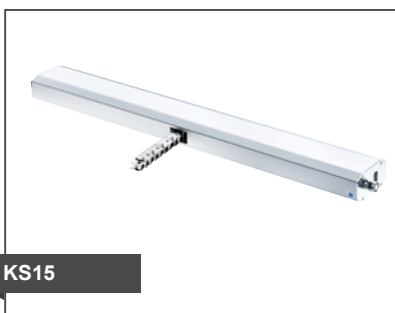


KSA D

### KSA CHAIN DRIVES

- Model 24V DC, S12 and 230V AC, S12
- Pulling/Pushing force max. 600 N (TWIN 1200 N)
- Stroke length 250 – 1500 mm – programmable (KSA)  
400 – 600 mm – programmable (KSA TWIN)  
400 – 800 mm – programmable (KSA D)
- Speed 5 – 14 mm/s – programmable
- Housing (WxH) 56 x 40 mm (D: 104 x 50 mm),  
Length depending on stroke
- Opening mechanism Rigid back stainless steel roller chain
- Version Solo, TWIN, D, Z
- Protection rating IP 32

KSA



KS15

### KS15 CHAIN DRIVES

- Model 24V DC, S12 and 230V AC, S12
- Pulling/Pushing force max. 1500 N
- Stroke length 250 – 1000 mm – programmable
- Speed 6 – 17 mm/s – programmable
- Housing (WxH) 120 x 60 mm, Length depending on stroke
- Opening mechanism High-quality, robust, nickel-plated steel chain
- Version Solo
- Protection rating IP 20

KS15

CHAIN DRIVES																		
Type	Form	Model	Stroke	Force		Speed		Stroke in	Cut-off current	Use			Location		Functions			
				Type of cut-off	Rated voltage	Range	Pushing force			Pulling force	OPEN	CLOSE	60 s	Max.	Natural ventilation	RWA	NRWG	Facade
			[V]	[mm]	[N]	[N]	[mm/s]	[mm/s]	[mm]	[A]								
KS2	Solo	S2	24	50 – 800	200 – 50	200	10,0	10,0	600	0,7	●	■	●					
			230	50 – 800	200 – 50	200	10,0	10,0	600	0,7	●	■	●					
		S12	24	50 – 1000	250 – 50	250	8,0 – 13,5	8,0	800	1,0	●	●	●	●	■	■	●	●
			230	50 – 1000	250 – 50	250	8,0	8,0	450	0,2	●		●	■	■	●	■	
	TWIN	S12	24	50 – 1000	500 – 100	500	8,0 – 13,5	8,0	600	1,4	●	●	●	■	■	●	●	
	KS4	Solo	S12	24	50 – 1000	400 – 50	400	8,0 – 13,5	8,0	800	1,2	●	●	●	●	■	●	●
KSA	Solo	S12	24	250 – 1500	600 – 50	600	8,0 – 13,5	8,0	800	1,2	●	●	●	●	■	●	●	
			230	250 – 1500	600 – 50	600	8,0	8,0	800	0,2	●		●	●	●	●		
	TWIN	S12	24	400 – 600	1200 – 600	1200	8,0 – 12,0	8,0	600	2,4	●	●	●	●	■	●	●	
	D	S12	24	400 – 800	1200 – 400	1200	8,0 – 13,5	8,0	800	2,4	●	●	●	●	■	●	●	
KS15	Solo	S12	24	250 – 1000	1500	1500	6,0 – 17,0	6,0	800	5,0	●	●	●	●	■	●	●	
		S12	230	250 – 1000	1500	1500	6,0 – 17,0	6,0	800	5,0	●	●	●	●	■	●	●	

LEGEND

- suitable
- not recommended
- S2 internal load dependend cut-off switch
- S12 internal Intelligent Control Electronics for synchronised run and programmable functions
- 8,0 – 13,5 force and speed depend on the stroke



### PRODUCT FEATURES KS2

- For natural ventilation, smoke and heat exhausting systems and ferralux® NRWG (EN12101-2)
- Versions R (right) or L (left) or TWIN
- Aluminium housing anodized or optionally in RAL colors
- High-quality stainless steel sidebow roller chain, without protruding rivet heads
- Slim line body that suits concealed fitting within profiles
- Rigid drive mounting on frame without brackets
- Programmable parameters of Intelligent Control Electronics S12
  - Synchronised multi-operation and sequence control without add. devices
  - Electronic soft-start, soft-close and soft-stop at end of stroke control
  - Stroke, force, speed
  - Rebate control
- Suitable for operation with M-COM for the automatic configuration of synchronised run of multi drive systems and sequence control

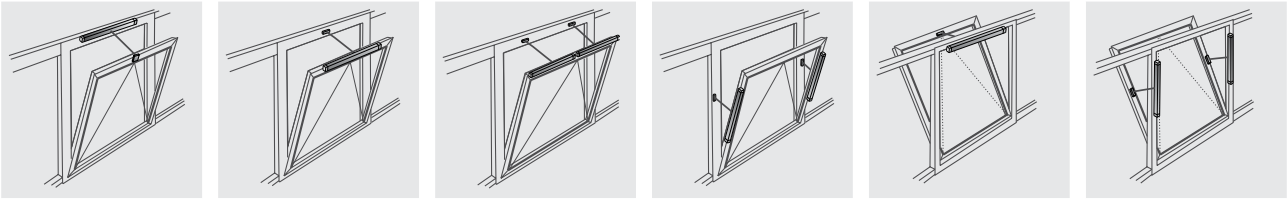
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804.

The LCA results of the different product types are listed at the end of this product catalogue.

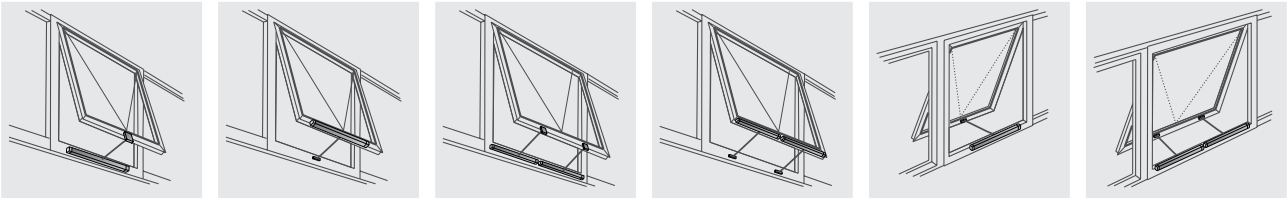
The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

**FACADE**

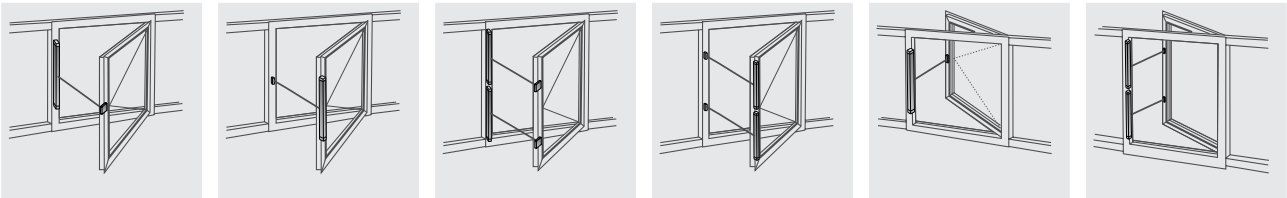
Bottom-hung



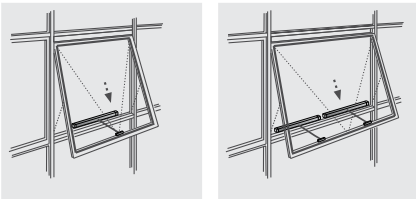
Top-hung



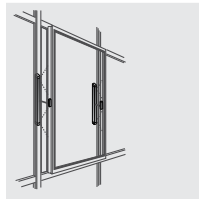
Side-hung



Friction hinged

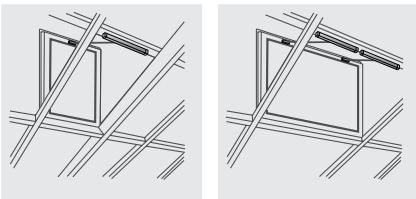


Parallel outward opening

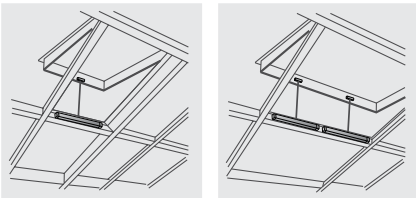


**ROOF**

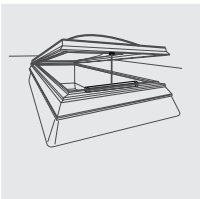
Bottom-hung



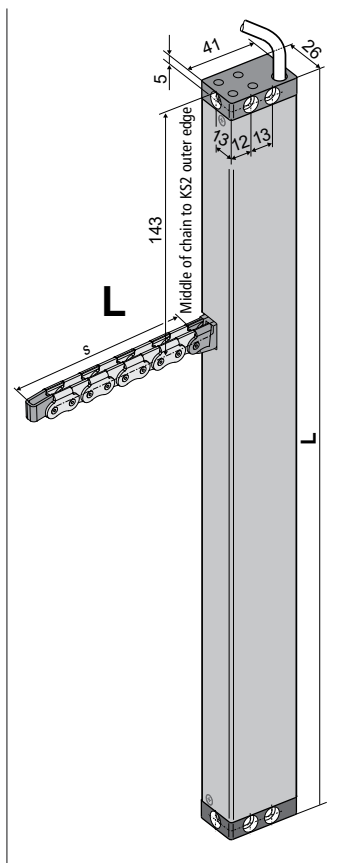
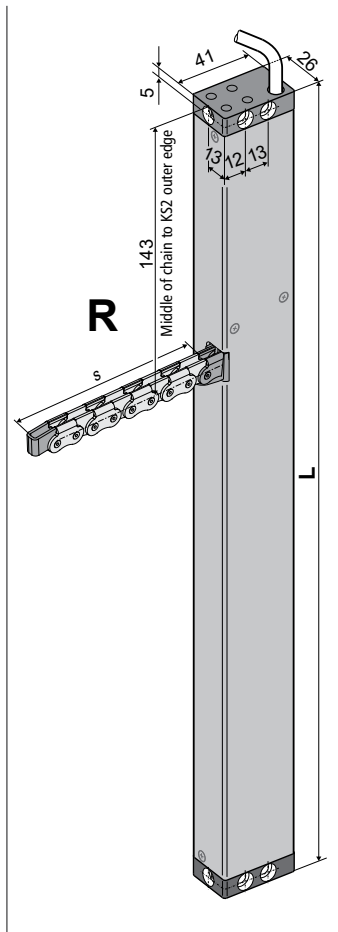
Top-hung



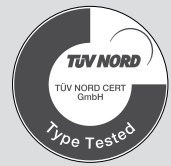
Sky light





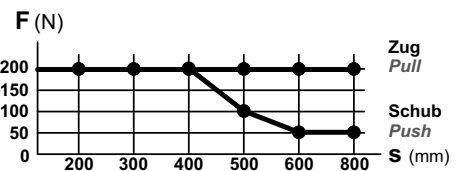


- Application: Natural ventilation as single-drive
- Internal load dependent cut-off switch S2 in OPEN / CLOSE direction



### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	0,5 A
<b>I<sub>A</sub></b>	Cut-off current	0,7 A
<b>P<sub>N</sub></b>	Rated power	12 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>Z</sub></b>	Pulling force max.	200 N
<b>F<sub>A</sub></b>	Pushing force max.	

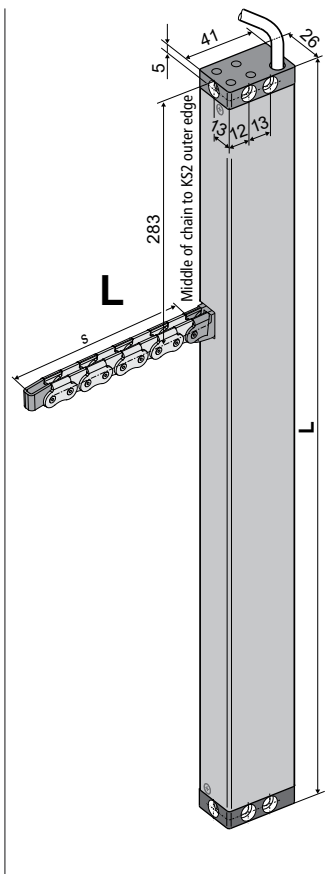
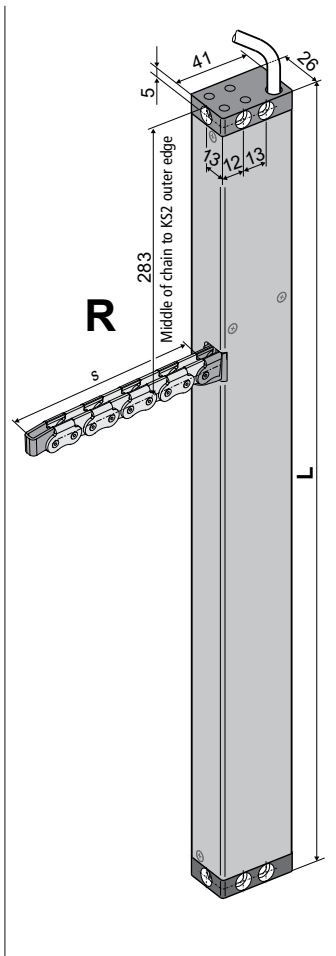


s > 600 mm only for pulling application

<b>F<sub>H</sub></b>	Pullout force	1.800 N (fastening depended)
	Chain	Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.
	Connecting cable	non-halogen, grey 3 x 0,5 mm <sup>2</sup> , ~ 3 m
<b>v</b>	Speed	↗ 10,0 mm/s ↘ 10,0 mm/s
<b>s</b>	Stroke	50 – 800 mm
<b>L</b>	Length	see order data
	Sound pressure level	≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
200	335	KS2 200 S2 24V R	E6/C-0	1	<b>521120</b>	
		KS2 200 S2 24V L	E6/C-0	1	<b>521420</b>	
300	380	KS2 300 S2 24V R	E6/C-0	1	<b>521130</b>	
		KS2 300 S2 24V L	E6/C-0	1	<b>521430</b>	
400	430	KS2 400 S2 24V R	E6/C-0	1	<b>521140</b>	
		KS2 400 S2 24V L	E6/C-0	1	<b>521440</b>	
500	545	KS2 500 S2 24V R	E6/C-0	1	<b>521150</b>	
		KS2 500 S2 24V L	E6/C-0	1	<b>521450</b>	
600	545	KS2 600 S2 24V R	E6/C-0	1	<b>521160</b>	
		KS2 600 S2 24V L	E6/C-0	1	<b>521460</b>	
800	625	KS2 800 S2 24V R	E6/C-0	1	<b>521180</b>	
		KS2 800 S2 24V L	E6/C-0	1	<b>521480</b>	

OPTIONS			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>			
5 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501034</b>	
10 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501036</b>	



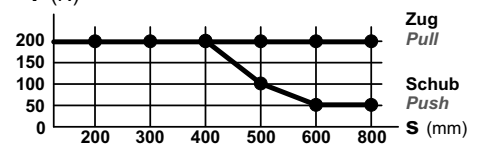
- Application: Natural ventilation as single-drive
- Internal load dependent cut-off switch S2 in OPEN / CLOSE direction
- Parallel connection up to 8 drives in one group

### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	230 V AC (50 Hz)
<b>I<sub>N</sub></b>	Rated current	0,13 A
<b>I<sub>A</sub></b>	Cut-off current	0,2 A
<b>P<sub>N</sub></b>	Rated power	30 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60°C
<b>F<sub>Z</sub></b>	Pulling force max.	200 N

**F<sub>A</sub>** Pushing force max.

**F (N)**

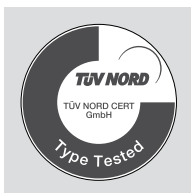


s > 600 mm only for pulling application

<b>F<sub>H</sub></b>	Pullout force	1.800 N (fastening depended)
	Chain	Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.
	Connecting cable	non-halogen, grey 6 x 0,75 mm <sup>2</sup> , ~ 3 m
<b>v</b>	Speed	10,0 mm/s  10,0 mm/s
<b>s</b>	Stroke	50 – 800 mm
<b>L</b>	Length	see order data
	Sound pressure level	≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
200	475	KS2 200 S2 230V R	E6/C-0	1	<b>494920</b>	
		KS2 200 S2 230V L	E6/C-0	1	<b>494720</b>	
300	520	KS2 300 S2 230V R	E6/C-0	1	<b>494930</b>	
		KS2 300 S2 230V L	E6/C-0	1	<b>494730</b>	
400	570	KS2 400 S2 230V R	E6/C-0	1	<b>494940</b>	
		KS2 400 S2 230V L	E6/C-0	1	<b>494740</b>	
500	685	KS2 500 S2 230V R	E6/C-0	1	<b>494950</b>	
		KS2 500 S2 230V L	E6/C-0	1	<b>494750</b>	
600	685	KS2 600 S2 230V R	E6/C-0	1	<b>494960</b>	
		KS2 600 S2 230V L	E6/C-0	1	<b>494760</b>	
800	765	KS2 800 S2 230V R	E6/C-0	1	<b>494980</b>	
		KS2 800 S2 230V L	E6/C-0	1	<b>494780</b>	

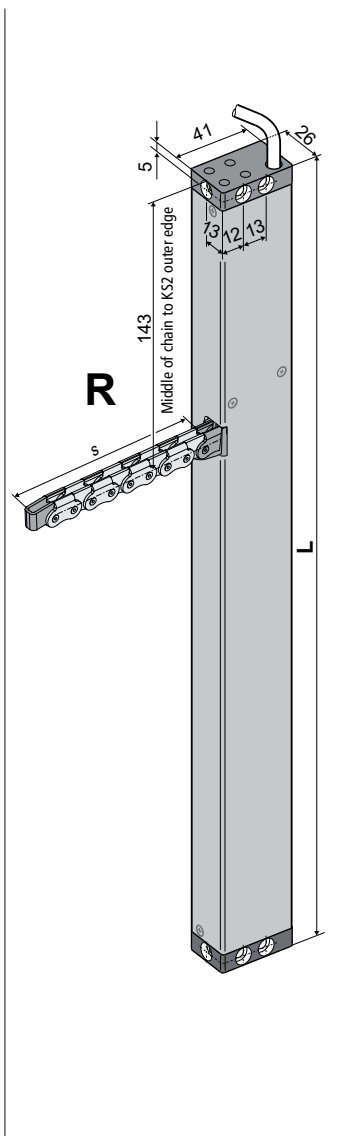
OPTIONS			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>			
5 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>		<b>501164</b>	
10 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>		<b>501166</b>	



- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Z-Version: Programmable feedback limit position „OPEN“ and „CLOSE“ (max. 24 V, 500 mA)

### 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<sub>N</sub>** Rated voltage 24 V DC (19 V ... 28 V)

**I<sub>N</sub>** Rated current 0,7 A

**I<sub>A</sub>** Cut-off current 1,0 A

**P<sub>N</sub>** Rated power 17 W

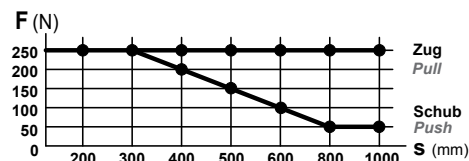
**DC** Duty cycle 5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)

Protection rating IP 32

Ambient temperature range -5 °C ... +60 °C

**F<sub>Z</sub>** Pulling force max. 250 N

**F<sub>A</sub>** Pushing force max.



s > 600 mm only for pulling application

**F<sub>H</sub>** Pullout force 1.800 N (fastening depended)

Chain Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.

Connecting cable non-halogen, grey 3 x 0,5 mm<sup>2</sup>, ~ 3 m  
non-halogen, grey 5 x 0,5 mm<sup>2</sup>, ~ 3 m (Z version)

**v** Speed  
 s ≤ 400 8,0 mm/s 8,0 mm/s  
 s > 400 – 600 12,0 mm/s 8,0 mm/s  
 s > 600 13,5 mm/s 8,0 mm/s

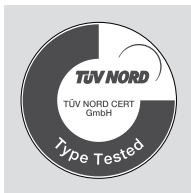
**s** Stroke 50 – 1000 mm

**L** Length see order data

Sound pressure level ≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
200	335	KS2 200 S12 24V R	E6/C-0	1	<b>521620</b>	
		KS2 200 S12 24V Z R	E6/C-0	1	<b>521623</b>	
300	380	KS2 300 S12 24V R	E6/C-0	1	<b>521630</b>	
		KS2 300 S12 24V Z R	E6/C-0	1	<b>521633</b>	
400	430	KS2 400 S12 24V R	E6/C-0	1	<b>521640</b>	
		KS2 400 S12 24V Z R	E6/C-0	1	<b>521643</b>	
500	545	KS2 500 S12 24V R	E6/C-0	1	<b>521650</b>	
		KS2 500 S12 24V Z R	E6/C-0	1	<b>521653</b>	
600	545	KS2 600 S12 24V R	E6/C-0	1	<b>521660</b>	
		KS2 600 S12 24V Z R	E6/C-0	1	<b>521663</b>	
800	625	KS2 800 S12 24V R	E6/C-0	1	<b>521680</b>	
		KS2 800 S12 24V Z R	E6/C-0	1	<b>521683</b>	

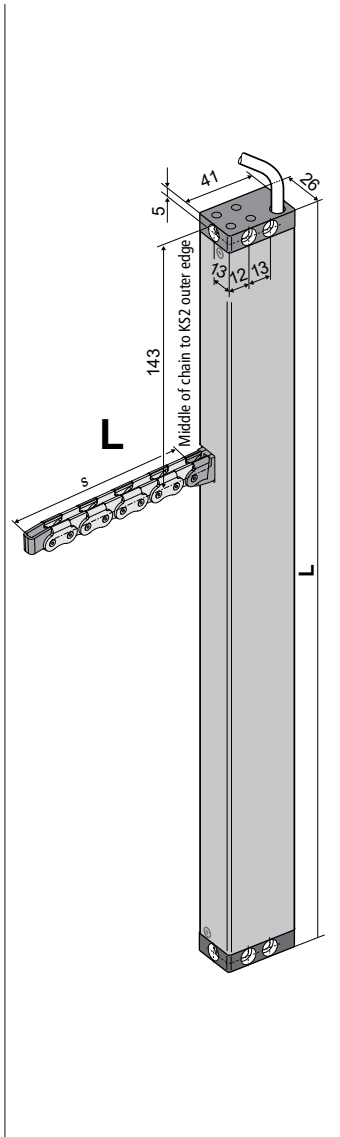
OPTIONS						
Special model		PU/pcs.	Part.-No.			
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>					<b>516030</b>	
Specify at order stage:		1 – 20	<b>516004</b>			
		21 – 50	<b>516004</b>			
		51 – 100	<b>516004</b>			
		from 101	<b>516004</b>			
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>					<b>501034</b>	
10 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>					<b>501036</b>	
5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>					<b>501054</b>	
10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>					<b>501056</b>	
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12					<b>524190</b>	
Programming drives 24V / 230V S12					<b>524180</b>	
<b>Optional accessories</b>			PU/pcs.	Part.-No.		
M-COM Configuration module for synchronised multi-drive systems				1	<b>524177</b>	



- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Z-Version: Programmable feedback limit position „OPEN“ and „CLOSE“ (max. 24 V, 500 mA)

### 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<sub>N</sub>** Rated voltage 24 V DC (19 V ... 28 V)

**I<sub>N</sub>** Rated current 0,7 A

**I<sub>A</sub>** Cut-off current 1,0 A

**P<sub>N</sub>** Rated power 17 W

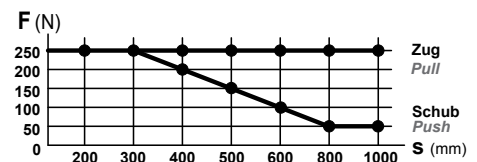
**DC** Duty cycle 5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)

Protection rating IP 32

Ambient temperature range range -5 °C ... +60 °C

**F<sub>Z</sub>** Pulling force max. 250 N

**F<sub>A</sub>** Pushing force max.



s > 600 mm only for pulling application

**F<sub>H</sub>** Pullout force 1.800 N (fastening depended)

Chain Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.

Connecting cable non-halogen, grey 3 x 0,5 mm<sup>2</sup>, ~ 3 m  
non-halogen, grey 5 x 0,5 mm<sup>2</sup>, ~ 3 m (Z version)

**v** Speed

s ≤ 400	8,0 mm/s	8,0 mm/s
s > 400 – 600	12,0 mm/s	8,0 mm/s
s > 600	13,5 mm/s	8,0 mm/s

**s** Stroke 50 – 1000 mm

**L** Length see order data

Sound pressure level ≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
200	335	KS2 200 S12 24V L	E6/C-0	1	<b>521720</b>	
		KS2 200 S12 24V Z L	E6/C-0	1	<b>521723</b>	
300	380	KS2 300 S12 24V L	E6/C-0	1	<b>521730</b>	
		KS2 300 S12 24V Z L	E6/C-0	1	<b>521733</b>	
400	430	KS2 400 S12 24V L	E6/C-0	1	<b>521740</b>	
		KS2 400 S12 24V Z L	E6/C-0	1	<b>521743</b>	
500	545	KS2 500 S12 24V L	E6/C-0	1	<b>521750</b>	
		KS2 500 S12 24V Z L	E6/C-0	1	<b>521753</b>	
600	545	KS2 600 S12 24V L	E6/C-0	1	<b>521760</b>	
		KS2 600 S12 24V Z L	E6/C-0	1	<b>521763</b>	
800	625	KS2 800 S12 24V L	E6/C-0	1	<b>521780</b>	
		KS2 800 S12 24V Z L	E6/C-0	1	<b>521783</b>	

OPTIONS						
Special model		PU/pcs.	Part.-No.			
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>				<b>516030</b>		
Specify at order stage:		1 – 20		<b>516004</b>		
		21 – 50		<b>516004</b>		
		51 – 100		<b>516004</b>		
		from 101		<b>516004</b>		
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>				<b>501034</b>		
10 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>				<b>501036</b>		
5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>				<b>501054</b>		
10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>				<b>501056</b>		
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12				<b>524190</b>		
Programming drives 24V / 230V S12				<b>524180</b>		
<b>Optional accessories</b>			PU/pcs.	Part.-No.		
M-COM Configuration module for synchronised multi-drive systems			1	<b>524177</b>		

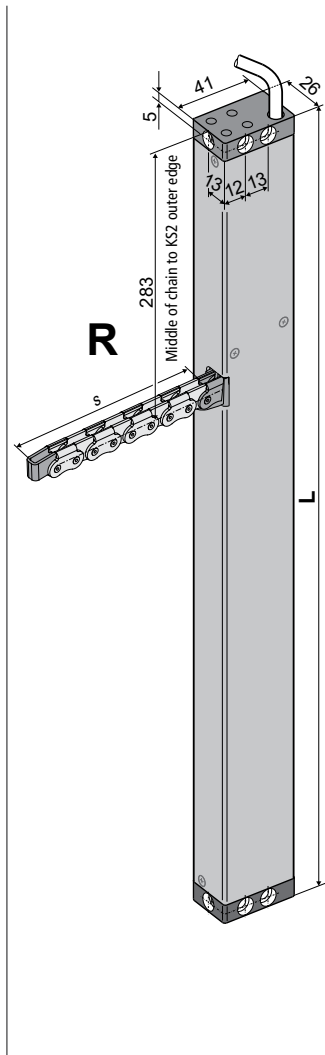




- Application: natural ventilation
- Internal Intelligent Control Electronics S12
- Parallel connection up to 8 drives in one group
- Z-Version: Programmable feedback limit position „OPEN“ and „CLOSE“ (max. 24 V, 500 mA)

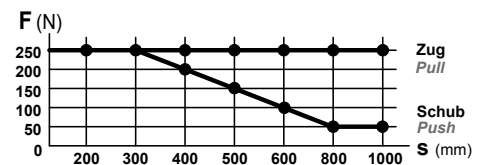
### Options

- Programmable synchronised run (max. 4 drives) and special functions  
(Attention: not possible with Z-version)



### TECHNICAL DATA

$U_N$	Rated voltage	230 V AC (50 Hz)
$I_N$	Rated current	0,13 A
$I_A$	Cut-off current	0,2 A
$P_N$	Rated power	30 W
<b>DC</b>	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.	250 N
$F_A$	Pushing force max.	



s > 600 mm only for pulling application

$F_H$	Pullout force	1.800 N (fastening depended)
	Chain	Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.
	Connecting cable	non-halogen, grey 6 x 0,75 mm <sup>2</sup> , ~ 3 m
$v$	Speed	$v_{\text{pull}} = 8,0 \text{ mm/s}$ $v_{\text{push}} = 8,0 \text{ mm/s}$
$s$	Stroke	50 – 1000 mm
$L$	Length	see order data
	Sound pressure level	≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
200	475	KS2 200 S12 230V R	E6/C-0	1	<b>494020</b>	
		KS2 200 S12 230V Z R	E6/C-0	1	<b>494023</b>	
300	520	KS2 300 S12 230V R	E6/C-0	1	<b>494030</b>	
		KS2 300 S12 230V Z R	E6/C-0	1	<b>494033</b>	
400	570	KS2 400 S12 230V R	E6/C-0	1	<b>494040</b>	
		KS2 400 S12 230V Z R	E6/C-0	1	<b>494043</b>	
500	685	KS2 500 S12 230V R	E6/C-0	1	<b>494050</b>	
		KS2 500 S12 230V Z R	E6/C-0	1	<b>494053</b>	
600	685	KS2 600 S12 230V R	E6/C-0	1	<b>494060</b>	
		KS2 600 S12 230V Z R	E6/C-0	1	<b>494063</b>	
800	765	KS2 800 S12 230V R	E6/C-0	1	<b>494080</b>	
		KS2 800 S12 230V Z R	E6/C-0	1	<b>494083</b>	

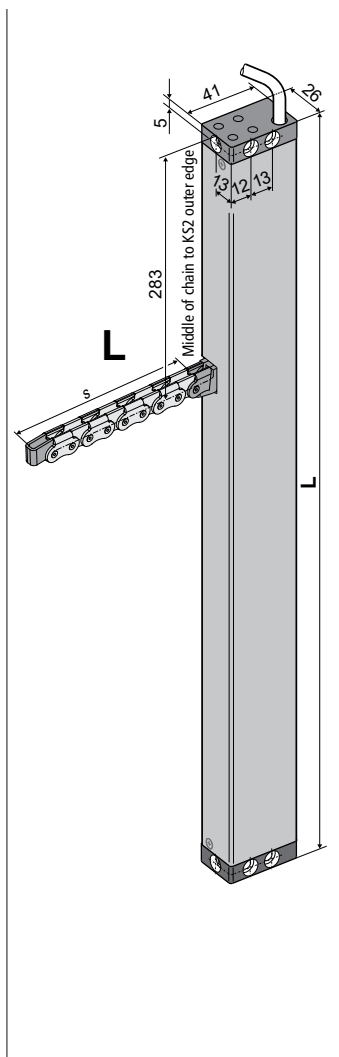
OPTIONS						
Special model		PU/pcs.	Part.-No.			
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>				<b>516030</b>		
Specify at order stage:		1 – 20		<b>516004</b>		
		21 – 50		<b>516004</b>		
		51 – 100		<b>516004</b>		
		from 101		<b>516004</b>		
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>				<b>501164</b>		
10 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>				<b>501166</b>		
<b>Microprocessor programming S12</b>						
Programming synchronised multi-drive systems 230V S12 (each drive)				<b>495588</b>		
Electronic stroke reduction 230V S12				<b>495590</b>		
Programming drives 24V / 230V S12				<b>524180</b>		



- Application: natural ventilation
- Internal Intelligent Control Electronics S12
- Parallel connection up to 8 drives in one group
- Z-Version: Programmable feedback limit position „OPEN“ and „CLOSE“ (max. 24 V, 500 mA)

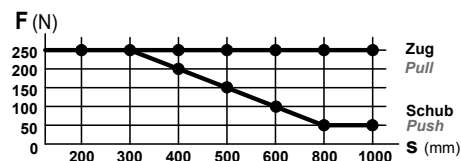
### Options

- Programmable synchronised run (max. 4 drives) and special functions (Attention: not possible with Z-version)



### TECHNICAL DATA

$U_N$	Rated voltage	230 V AC (50 Hz)
$I_N$	Rated current	0,13 A
$I_A$	Cut-off current	0,2 A
$P_N$	Rated power	30 W
<b>DC</b>	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.	250 N
$F_A$	Pushing force max.	

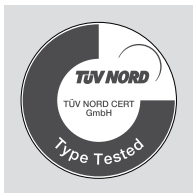


s > 600 mm only for pulling application

$F_H$	Pullout force	1.800 N (fastening depended)
	Chain	Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.
	Connecting cable	non-halogen, grey 6 x 0,75 mm <sup>2</sup> , ~ 3 m
$v$	Speed	$\nabla = 8,0$ mm/s $\curvearrowright = 8,0$ mm/s
$s$	Stroke	50 – 1000 mm
$L$	Length	see order data
	Sound pressure level	≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
200	475	KS2 200 S12 230V L	E6/C-0	1	<b>494120</b>	
		KS2 200 S12 230V Z L	E6/C-0	1	<b>494123</b>	
300	520	KS2 300 S12 230V L	E6/C-0	1	<b>494130</b>	
		KS2 300 S12 230V Z L	E6/C-0	1	<b>494133</b>	
400	570	KS2 400 S12 230V L	E6/C-0	1	<b>494140</b>	
		KS2 400 S12 230V Z L	E6/C-0	1	<b>494143</b>	
500	685	KS2 500 S12 230V L	E6/C-0	1	<b>494150</b>	
		KS2 500 S12 230V Z L	E6/C-0	1	<b>494153</b>	
600	685	KS2 600 S12 230V L	E6/C-0	1	<b>494160</b>	
		KS2 600 S12 230V Z L	E6/C-0	1	<b>494163</b>	
800	765	KS2 800 S12 230V L	E6/C-0	1	<b>494180</b>	
		KS2 800 S12 230V Z L	E6/C-0	1	<b>494183</b>	

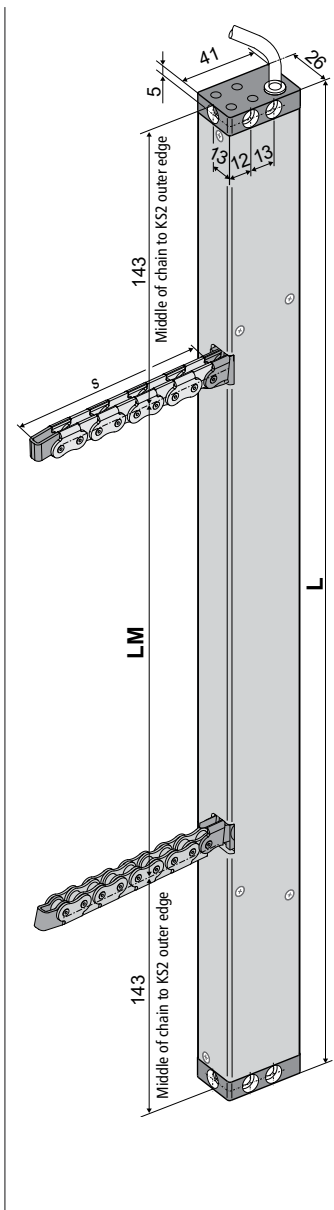
OPTIONS						
Special model		PU/pcs.	Part.-No.			
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>				<b>516030</b>		
Specify at order stage:		1 – 20		<b>516004</b>		
		21 – 50		<b>516004</b>		
		51 – 100		<b>516004</b>		
		from 101		<b>516004</b>		
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>				<b>501164</b>		
10 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>				<b>501166</b>		
<b>Microprocessor programming S12</b>						
Programming synchronised multi-drive systems 230V S12 (each drive)				<b>495588</b>		
Electronic stroke reduction 230V S12				<b>495590</b>		
Programming drives 24V / 230V S12				<b>524180</b>		



- Application: natural ventilation, RWA
- Internal Intelligent Control Electronics S12
- Z-Version: Programmable feedback limit position „OPEN“ and „CLOSE“ (max. 24 V, 500 mA)

### 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<sub>N</sub>** Rated voltage 24 V DC (19 V ... 28 V)

**I<sub>N</sub>** Rated current 1,4 A

**I<sub>A</sub>** Cut-off current 2,0 A

**P<sub>N</sub>** Rated power 34 W

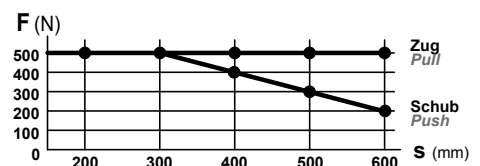
**DC** Duty cycle 5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)

Protection rating IP 32

Ambient temperature range -5 °C ... +60 °C

**F<sub>Z</sub>** Pulling force max. 500 N

**F<sub>A</sub>** Pushing force max.



**F<sub>H</sub>** Pullout force 2 x 1.800 N (fastening depended)

Chain Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.

Connecting cable non-halogen, grey 3 x 0,5 mm<sup>2</sup>, ~ 3 m  
non-halogen, grey 5 x 0,5 mm<sup>2</sup>, ~ 3 m (Z version)

**v** Speed  $s \leq 400$  8,0 mm/s 8,0 mm/s  
 $s > 400 - 600$  12,0 mm/s 8,0 mm/s

**s** Stroke 50 – 600 mm

**L** Length see order data

**LM** Distance in between chains see order data

Sound pressure level  $\leq 70$  dB (A)

ORDER DATA							
s [mm]	L [mm]	LM [mm]	Version	Finish	PU/pcs.	Part.-No.	
200	640	354	KS2 TWIN 200 S12 24V	E6/C-0	1	<b>521820</b>	
			KS2 TWIN 200 S12 24V Z	E6/C-0	1	<b>521823</b>	
400	830	544	KS2 TWIN 400 S12 24V	E6/C-0	1	<b>521840</b>	
			KS2 TWIN 400 S12 24V Z	E6/C-0	1	<b>521843</b>	
500	1060	774	KS2 TWIN 500 S12 24V	E6/C-0	1	<b>521850</b>	
			KS2 TWIN 500 S12 24V Z	E6/C-0	1	<b>521853</b>	
600	1060	774	KS2 TWIN 600 S12 24V	E6/C-0	1	<b>521860</b>	
			KS2 TWIN 600 S12 24V Z	E6/C-0	1	<b>521863</b>	

OPTIONS			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>			
5 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501034</b>	
10 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501036</b>	
5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501054</b>	
10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501056</b>	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 24V S12		<b>524190</b>	
Programming drives 24V / 230V S12		<b>524180</b>	
<b>Optional accessories</b>	PU/pcs.	Part.-No.	
M-COM Configuration module for synchronised multi-drive systems	1	<b>524177</b>	

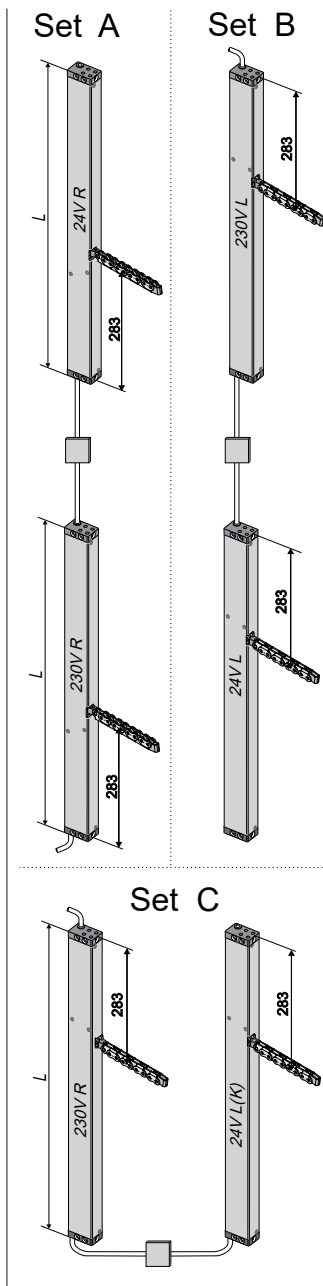


- Application: natural ventilation
- Factory-configured set includes:
  - Master: KS2 xxx S12 230V AC R / L with voltage output 24V DC
  - Slave: KS2 xxx S12 24V DC R / L with connection cable on the motor side
  - KS2 xxx S12 24V DC L-K with connection cable on the chain side

- Parallel connection up to 8 sets of drives in one group
- Junction box to be site supplied

### Options

- Programmable special functions and sequence control with locking drives (S3 / S12)
- Screw terminal connections in drive housing upon request



### TECHNICAL DATA

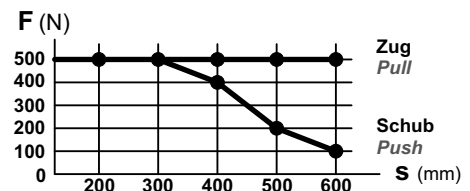
$U_N$	Rated voltage	230 V AC (50 Hz)
$I_N$	Rated current	0,15 A
$I_A$	Cut-off current	0,2 A
$P_N$	Rated power	35 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)

Protection rating IP 32

Ambient temperature range -5 °C ... +60 °C

$F_Z$  Pulling force max. 2 x 250 N

$F_A$  Pushing force max.



s > 600 mm only for pulling application

$F_H$  Pullout force 1.800 N (fastening depended)

Chain Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.

Connecting cable Master: non-halogen, grey 6 x 0,75 mm<sup>2</sup>, ~ 3 m  
3 x 0,5 mm<sup>2</sup>, ~ 3 m  
Slave: non-halogen, grey 3 x 0,5 mm<sup>2</sup>, ~ 3 m

$v$  Speed 8,0 mm/s 8,0 mm/s

$s$  Stroke 50 – 1000 mm

$L$  Length see order data

Sound pressure level ≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
200	475	KS2 200 S12 230V Set A (R/R)	E6/C-0	1	<b>494220</b>	
		KS2 200 S12 230V Set B (L/L)	E6/C-0	1	<b>494320</b>	
		KS2 200 S12 230V Set C (R/L-K)	E6/C-0	1	<b>494420</b>	
300	520	KS2 300 S12 230V Set A (R/R)	E6/C-0	1	<b>494230</b>	
		KS2 300 S12 230V Set B (L/L)	E6/C-0	1	<b>494330</b>	
		KS2 300 S12 S 230V et C (R/L-K)	E6/C-0	1	<b>494430</b>	
400	570	KS2 400 S12 230V Set A (R/R)	E6/C-0	1	<b>494240</b>	
		KS2 400 S12 230V Set B (L/L)	E6/C-0	1	<b>494340</b>	
		KS2 400 S12 230V Set C (R/L-K)	E6/C-0	1	<b>494440</b>	
500	685	KS2 500 S12 230V Set A (R/R)	E6/C-0	1	<b>494250</b>	
		KS2 500 S12 230V Set B (L/L)	E6/C-0	1	<b>494350</b>	
		KS2 500 S12 230V Set C (R/L-K)	E6/C-0	1	<b>494450</b>	
600	685	KS2 600 S12 230V Set A (R/R)	E6/C-0	1	<b>494260</b>	
		KS2 600 S12 230V Set B (L/L)	E6/C-0	1	<b>494360</b>	
		KS2 600 S12 230V Set C (R/L-K)	E6/C-0	1	<b>494460</b>	
800	765	KS2 800 S12 230V Set A (R/R)	E6/C-0	1	<b>494280</b>	
		KS2 800 S12 230V Set B (L/L)	E6/C-0	1	<b>494380</b>	
		KS2 800 S12 230V Set C (R/L-K)	E6/C-0	1	<b>494480</b>	

OPTIONS						
Special model		PU/pcs.	Part.-No.			
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>				<b>516030</b>		
Specify at order stage:			1 – 20	<b>516004</b>		
			21 – 50	<b>516004</b>		
			51 – 100	<b>516004</b>		
			from 101	<b>516004</b>		
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>				<b>501164</b>		
10 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>				<b>501166</b>		
5 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>				<b>501034</b>		
10 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>				<b>501036</b>		
5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>				<b>501054</b>		
10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>				<b>501056</b>		
<b>Microprocessor programming S12</b>						
Programming synchronised multi-drive systems 230V S12 (each drive)				<b>495588</b>		



OVERVIEW OF BRACKETS												
Typical application				1	2	3	4	5	6			
Frame bracket				K93, K94	K129, K130	K96, K96-1	No	K105A, K105B, K105S, K106	K128			
Casement bracket				F41, F35, F37, F17 (F21 with K130)		F95, F42	F95, F42	F18, F19, F20, F22	F21			
Space requirement	min.	[mm]	16 – 30	25 – 30	38	30	Note profile depth	Schüco AWS 57RO				
Overlap thickness *1		[mm]	0 – 21	0 – 21	0 – 21	0 – 21						
Opening angle *2	max.	[DEG]	35	45	60	40	60	45				
Casement weight *3	max.	[Kg]	70	60	50	70	70	70				
Window material		Alu		●	●	●	●	●	●			
		Wood		●	●	●	●	■				
		PVC		●	●	●	●					
Type of window and mounting	Bottom hung	inward	HSK	FM	●	●						
				RM			●	●				
			NSK	FM	●	●						
				RM			●	●				
			outward	HSK	RM	●	●				●	
					PR							
		NSK		RM	●	●						
				PR								
		Top hung		inward	HSK	FM	■	■				
						RM			■	■		
			NSK		FM	■	■					
					RM			■	■			
	outward		HSK		RM	■	●				■	
					PR							
			NSK	RM	■	■						
				PR								
			Side hung	inward	HSK	FM	●	●				
						RM			●	●		
	NSK				FM							
					RM							
	Roof	outward			HSK	RM	■	■				■
						PR						
			NSK	RM								
				PR								
PAF	outward		RM	●	●			●				
Concealed								●				
FAB *4	Solo	[mm]	600 – 1200									
	Sync2	[mm]	1000 – 2500									
FAH *4	Solo	[mm]	250 – 1500									
	Sync2	[mm]	250 – 2500									

### LEGEND

● suitable ■ not recommended

\*1 Window sizes and opening angles may be different.

\*2 Sample values of the opening angle evaluated on the basis of FAB/FAH for inward opening windows with drives mounted at the main closing edge. For any other window heights, for outward opening windows and for windows with drives mounted at the side edges the opening angle will vary.

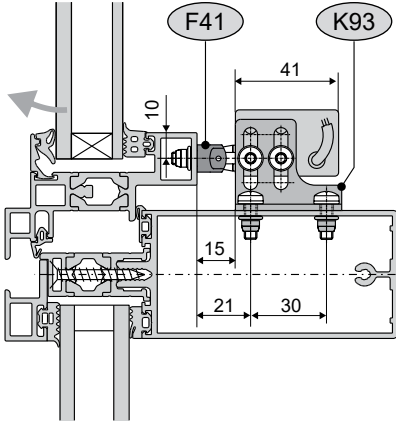
\*3 Please respect the individual geometry of the different windows. The listed max. casement weight refers to a single drive on button hung window with a max. opening angle.

\*4 Sample value of the casement dimensions for corner joints of 110 mm. The actual casement dimensions depend on length of the corner joints, profile dimensions, stroke and position of the drives.

The values of FAB/FAH are to be used analogue for side hung windows.

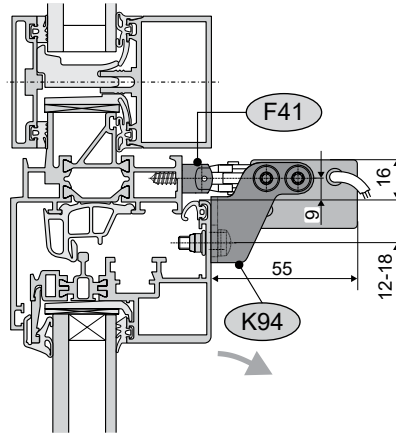
TYPICAL APPLICATIONS

1 PR, top hung outward opening



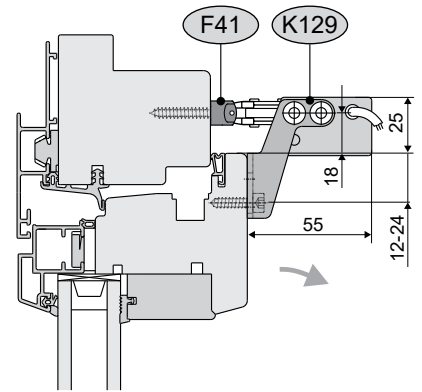
View on aluminium window

1 FM, bottom hung inward opening



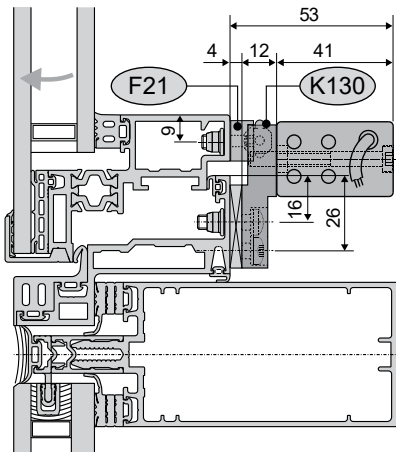
View on aluminium window

2 FM, bottom hung inward opening



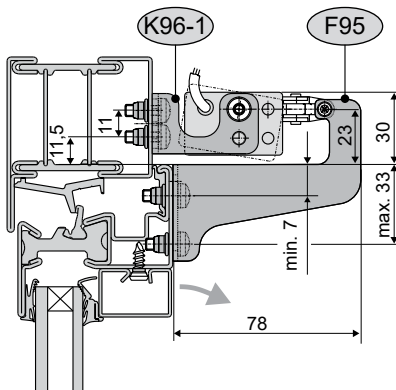
View on aluminium-wood window

2 RM, bottom hung outward opening



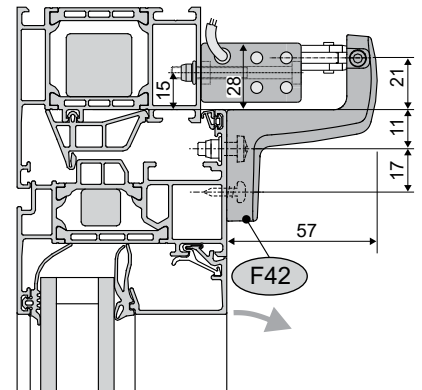
View on aluminium window

3 RM, bottom hung inward opening



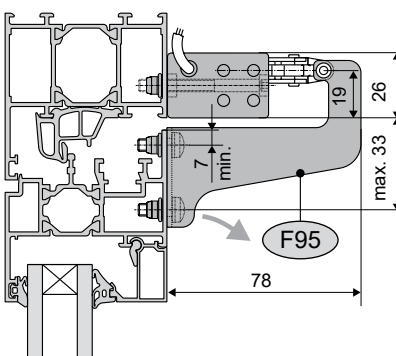
View on steel window

4 RM, bottom hung inward opening



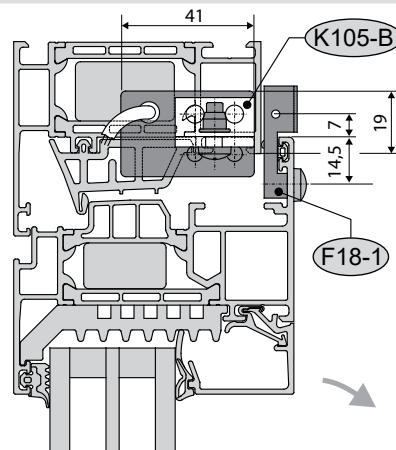
View on aluminium window

4 RM, bottom hung inward opening



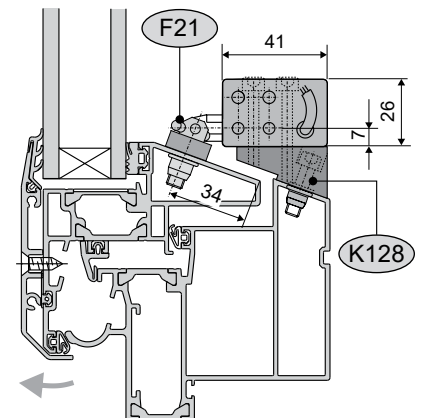
View on aluminium window

5 Concealed, bottom hung inward opening



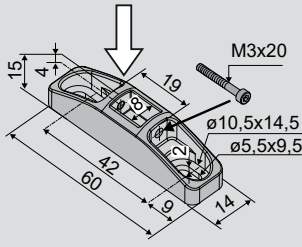
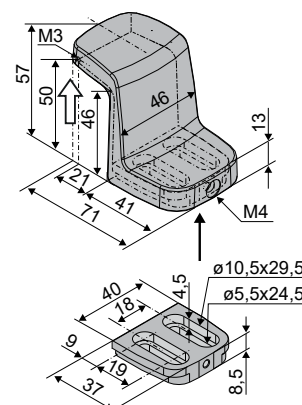
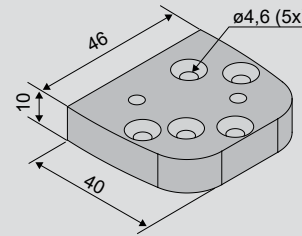
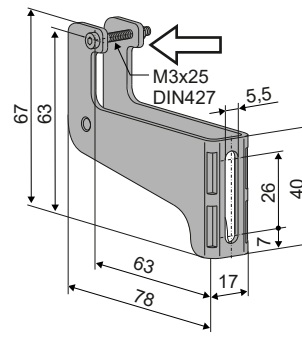
View on aluminium window

6 RM, top hung outward opening



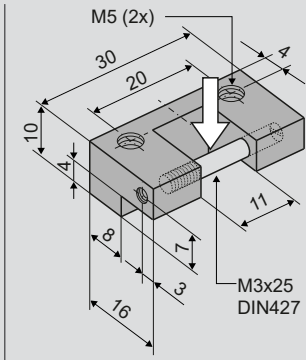
View on aluminium window (Facade)

### CASEMENT BRACKETS

<p><b>F41</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the casement profiles / window frame profiles of inward / outward opening windows, for surface mounted drives <b>KS2</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 151440</b>  <b>Material / Finish</b>            Cast aluminum, bright chrome  <b>Feature / Equipment</b>            1x screw M3x20            Drilling template</p>	
<p><b>F42</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the casement profiles of inward opening windows, for surface mounted drives <b>KS2</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 151441</b>  <b>Material / Finish</b>            Cast aluminum, bright chrome  <b>Feature / Equipment</b>            1x baseplate            1x countersunk screw M4x10            1x screw M3x25            Drilling template</p>	
<p><b>F42-Support</b></p>		<p><b>Application</b>  <b>F42-Support</b> as a compensating plate when mounting on the wooden windows and plastic windows  <b>t = 10 mm</b></p>	<p><b>Part.-No. 523961</b>  <b>Material / Finish</b>            aluminum (E6/C-0)</p>	
<p><b>F95</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the casement profiles of inward opening windows, for surface mounted drives <b>KS2</b> with <b>K96-1</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 523972</b>  <b>Material/Finish</b>            Stainless steel  <b>Feature/Equipment</b>            1x screw M3x25, spring pin M3,</p>	

## CASEMENT BRACKETS

F17

**Application**

**Concealed mounting** inside in-/outward opening face- or flush-fitted casements, fixing inside rebate below the secondary gasket with screws removable from outside, for inside the window frame profiles concealed mounted drives **KS2** with **K105**

Chain fixing in direction of the arrow

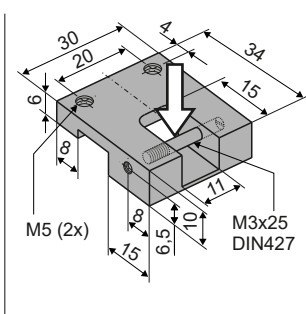
**Part.-No. 151417****Material/Finish**

aluminium  
(natural anodized)

**Feature/Equipment**

1x shaft screw M3x25,  
2x rounded head screw  
M5x10

F18

**Application**

**Partially concealed mounting** on inner profile side of inward opening face-fitted casements, fixing below the secondary gasket with screws removable from outside, for inside the window frame profiles concealed mounted drives **KS2** with **K105**

Chain fixing in direction of the arrow

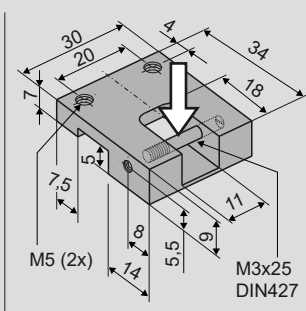
**Part.-No. 151418****Material/Finish**

aluminium  
(natural anodized)

**Feature/Equipment**

1x shaft screw M3x25,  
2x rounded head screw  
M5x10

F18-1

**Application**

**Surface mounting** on inward opening face-fitted casements, for inside the window frame profiles concealed mounted drives **KS2** with **K105**

Chain fixing in direction of the arrow

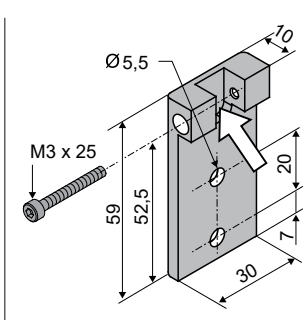
**Part.-No. 151428****Material/Finish**

aluminium  
(natural anodized)

**Feature/Equipment**

1x shaft screw M3x25  
2x rounded head screw  
M5x10

F19

**Application**

**Surface mounting** on inward opening face-fitted casements, for inside the window frame profiles concealed mounted drives **KS2** with **K105**

Chain fixing in direction of the arrow

**Part.-No. 151419****Material/Finish**

aluminium  
(natural anodized)

**Feature/Equipment**

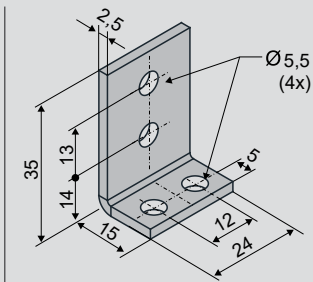
1x screw M3x25

### CASEMENT BRACKETS

<p><b>F20</b></p>	<p><b>Application</b>  <b>Surface mounting</b> on inward opening face-fitted casements, for inside the window frame profiles concealed mounted drives <b>KS2</b> with <b>K105</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 151420</b></p> <p><b>Material/Finish</b> aluminium (natural anodized)</p> <p><b>Feature/Equipment</b> 1x shaft screw M3x25, 2x rounded head screw M5x20</p>	
<p><b>F21</b></p>	<p><b>Application</b>  <b>Surface mounting</b> on the casement/window frame profiles on the main/side closing edge of in-/outward opening windows, for surface mounted drives <b>KS2</b> with <b>K128, K130</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 151421</b></p> <p><b>Material/Finish</b> aluminium (natural anodized)</p> <p><b>Feature/Equipment</b> 1x spring pin Ø 3 mm</p>	
<p><b>Optional accessories</b></p>			
<p><b>B1</b> for skylight Eternit</p>		<p><b>Part.-No. 151422</b></p>	
<p><b>K128</b> for Schüco AWS 57RO</p>		<p><b>Part.-No. 523974</b></p>	
<p><b>F35</b></p>	<p><b>Application</b>  <b>Surface mounting</b> on the horizontal side of deep casement profiles of outward opening (friction hinged) windows, for surface mounted drives <b>KS2</b> with <b>K93, K94, K129, K130</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 151425</b></p> <p><b>Material/Finish</b> aluminium (natural anodized)</p> <p><b>Feature/Equipment</b> 1x shaft screw M3x25</p>	
<p><b>F37</b></p>	<p><b>Application</b>  <b>Surface mounting</b> on the horizontal side of deep casement profiles of outward opening (friction hinged) windows, for surface mounted drives <b>KS2</b> with <b>K93, K94, K129, K130</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 151424</b></p> <p><b>Material/Finish</b> aluminium (natural anodized)</p> <p><b>Feature/Equipment</b> 1x shaft screw M3x25</p>	

## FRAME BRACKETS

## K105-B



## Application

**Concealed mounting** inside the window frame profiles of in-/outward opening windows, for rigid fixing of concealed drives **KS2** with **F17, F18, F19, F20**

## Part.-No. 523977

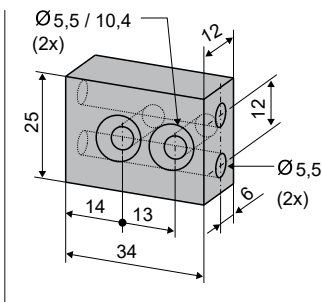
## Material/Finish

Stainless steel

## Feature/Equipment

2x angle brackets,  
4x rounded head screw  
M5x10,  
4x washer A 5,3

## K105-A



## Application

**Concealed mounting** inside the window frame profiles of in-/outward opening windows, for rigid fixing of concealed drives **KS2** with casement brackets **F17**, (FAH min. 700 mm)

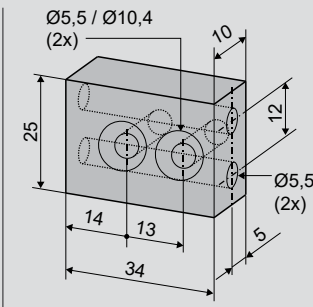
## Part.-No. 523975

## Material/Finish

aluminium  
(natural anodized)

## Feature/Equipment

2x angle brackets

K105-A  
-W77

## Application

**Concealed mounting** inside the window frame profiles of in-/outward opening windows, for rigid fixing of concealed drives **KS2** with casement brackets **F18-1**, (FAH min. 400 mm)

## Part.-No. 523965

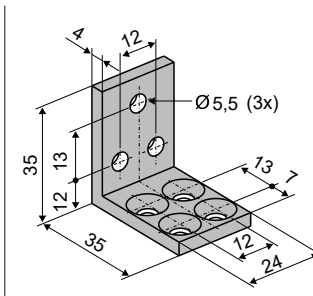
## Material/Finish

aluminium  
(natural anodized)

## Feature/Equipment

2x angle brackets

## K106



## Application

**Concealed mounting** inside the window frame profiles of in-/outward opening windows, for rigid fixing of concealed drives **KS2** with **F19** (FAH min. 700 mm), **F20** (FAH min 500 mm)

## Part.-No. 523976

## Material/Finish

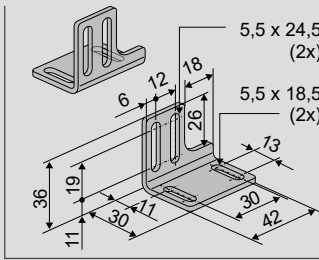
aluminium  
(natural anodized)

## Feature/Equipment

2x angle brackets,  
4x countersunk screw  
M5x10

### FRAME BRACKETS

**K93**



**Application**

**Surface mounting** on the transom/mullion profiles of outward opening windows, for rigid fixing of surface mounted drives **KS2** with **F41**

**Part.-No. 523916**

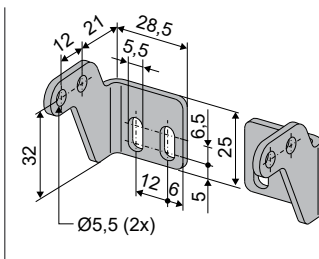
**Material/Finish**

Stainless steel

**Feature/Equipment**

4x allen screw M5x10,  
4x washer A 5,3

**K94**



**Application**

**Surface mounting** on the casement/window frame profiles of in-/outward opening windows, for rigid or swivelling fixing of drives **KS2** with **F41, F35, F37**

**Part.-No. 523921**

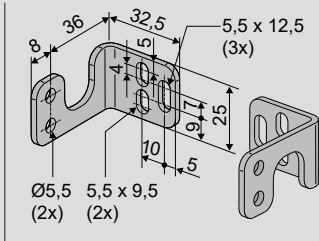
**Material/Finish**

Stainless steel

**Feature/Equipment**

4x torx screw M5x10  
4x washer A 5,3  
2x torx screw M5x16

**K96-1**



**Application**

**Surface mounting** on the casement profiles of inward opening windows, for rigid or swivelling fixing of drives **KS2** with **F95**

**Part.-No. 523997**

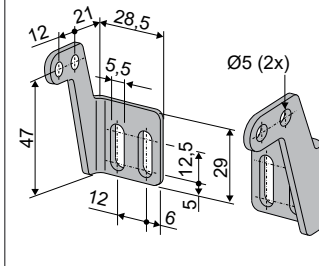
**Material/Finish**

Stainless steel

**Feature/Equipment**

4x torx screw M5x10,  
2x torx screw M5x16,  
4x washer A 5,3

**K129**



**Application**

**Surface mounting** on the casement/window frame profiles of in-/outward opening windows, for rigid or swivelling fixing of drives **KS2** with **F41, F35, F37**

**Part.-No. 523969**

**Material/Finish**

Stainless steel

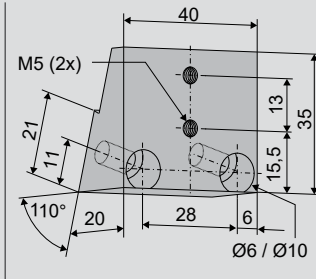
**Feature/Equipment**

4x torx screw M5x10,  
4x washer A 5,3

## SPECIFIC APPLICATIONS

## ROOF WINDOWS | SCHÜCO AWS 57RO

K128



## Application

**Support for F21** for mounting of drives **KS2** on the casement profiles of outward opening roof windows  
**Schüco AWS 57RO**

Part.-No. 523974

## Material/Finish

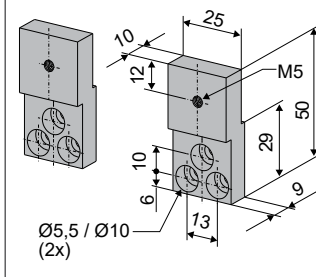
aluminium  
(natural anodized)

## Feature/Equipment

4x cylinder head screw  
M5x10

## FRICTION HINGED WINDOW | SCHÜCO AWS 102 SK

K130



## Application

**Surface mounting** on the window frame profiles of the main closing edge of outward opening friction hinged windows series **Schüco AWS102**, for rigid fixing of drives **KS2** with **F21**

Part.-No. 523968

## Material/Finish

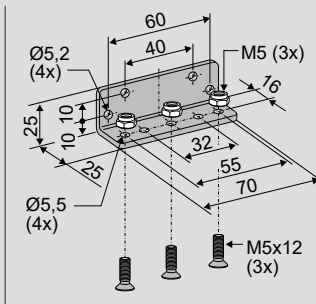
aluminium  
(natural anodized)

## Feature/Equipment

2x cylinder head screw  
M5x45

## SKYLIGHT DOME

B1



## Application

**Mounting angle** for mounting of drives **KS2** with **F41** and **KSA** with **F14** on skylight domes

Part.-No. 151422

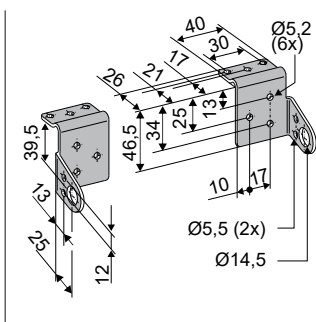
## Material/Finish

Stainless steel

## Feature/Equipment

3x countersunk-head screw  
M5x12,  
3x nut M5

K125



## Application

**Surface mounting** on the upstand of skylight domes, for fixing of drives **KS2** and **KSA** with **B1**

Part.-No. 523979

## Material/Finish

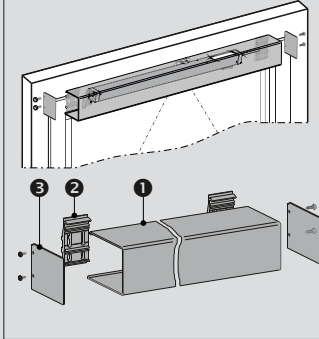
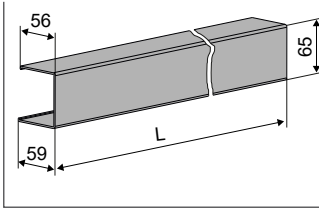
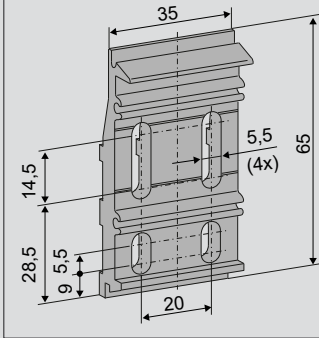
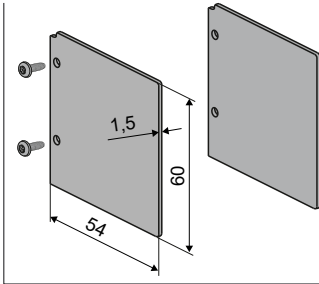
Stainless steel

## Feature/Equipment


4x screw M5x10



### OPTIONAL ACCESSORIES

Cover profile set				
<b>AP KS2</b> 	<b>Application</b> <b>Cover profile</b> for surface mounted drives <b>KS2</b> with brackets <b>K94, K129, K130</b> . Profile length adjustable to the length of the drives (end caps recommended) or of the casement (without end caps)	<b>Material/Finish</b> see detailed description of componets <b>Feature/Equipment</b> incl. profile brackets, <b>without</b> end caps		
	<b>L = 1,5 m</b> (incl. 2x profile bracket)	<b>Part.-No. 523952</b>		
	<b>L = 2,0 m</b> (incl. 3x profile bracket)	<b>Part.-No. 523954</b>		
	<b>L = 2,9 m</b> (incl. 4x profile bracket)	<b>Part.-No. 523956</b>		
Cover profile				
	<b>1</b> <b>Cover profile</b> for drives <b>KS2</b> for cutting on site  Price per metre	<b>Part.-No. 523951</b> <b>Material/Finish</b> aluminium (natural anodized) <b>Feature/Equipment</b> <b>without</b> profile brackets and end caps		
Profile bracket				
	<b>2</b> <b>Profile bracket</b> for <b>KS2</b> cover profile <b>&lt; 2 m length: 2 pieces</b> <b>&gt; 2 m length: 3 – 4 pieces</b>	<b>Part.-No. 523948</b> <b>Material/Finish</b> aluminium (natural anodized) <b>Feature/Equipment</b> 1 piece (for fixing the cover profile)		
End caps				
	<b>3</b> <b>End caps</b> for <b>KS2</b> cover profile	<b>Part.-No. 523950</b> <b>Material/Finish</b> aluminium (natural anodized) <b>Feature/Equipment</b> 2 pieces + 4x screw M3x12 (taptite)		

## OPTIONAL ACCESSORIES

Main control unit			
<b>M-COM</b>		<p><b>Application</b></p> <p>Configuration module for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt;12 mA</p> <p><b>Drive type:</b> S12</p>	<p><b>Part.-No. 524177</b></p> <p><b>Protection rating</b> IP30 rubber envelope</p> <p><b>Ambient temperature range</b> 0 °C ... + 70 °C</p> <p><b>Dimensions</b> 45 x 17 x 6 mm</p> <p><b>Connecting wires</b> 3 wires 0,5 mm<sup>2</sup> x 50 mm</p> <p><b>Feature/Equipment</b> Printed circuit board with components and connection wires to be installed in connection box to be supplied on site</p>

Special model	PU/pcs.	Part.-No.		
<b>Casement brackets painted / powder coated in other RAL colours</b>				
<b>Lump sum for coating</b>		<b>516030</b>		
<b>Specify at order stage:</b>	1 – 20	<b>516032</b>		
	21 – 50	<b>516032</b>		
	51 – 100	<b>516032</b>		
	from 101	<b>516032</b>		
<b>Frame brackets painted / powder coated in other RAL colours</b>				
<b>Lump sum for coating</b>		<b>516030</b>		
<b>Specify at order stage:</b>	1 – 20	<b>516031</b>		
	21 – 50	<b>516031</b>		
	51 – 100	<b>516031</b>		
	from 101	<b>516031</b>		



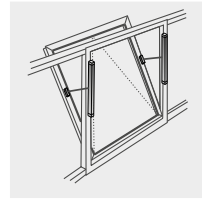
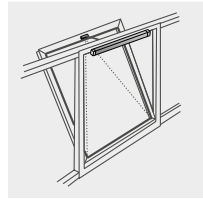
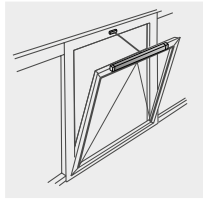
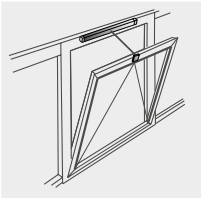
### PRODUCT FEATURES KS4

- For natural ventilation, smoke and heat exhausting systems and ferralux® NRWG (EN12101-2)
- Aluminium housing anodized or optionally in RAL colors
- High-quality stainless steel sidebow roller chain, without protruding rivet heads
- Slim line body that suits concealed fitting within profiles
- Rigid drive mounting on frame without brackets
- Feedback limit position „CLOSE“ (max. 24 V, 500 mA)
- Programmable parameters of Intelligent Control Electronics S12:
  - Feedback limit position „OPEN“ (max. 24 V, 500 mA)
  - Synchronised multi-operation and sequence control without add. devices
  - Electronic soft-start, soft-close and soft-stop at end of stroke control
  - Stroke, force, speed
  - Rebate control
- Integrated plug solution
- Compatible with the plug-in configuration modulel M-COM® Click

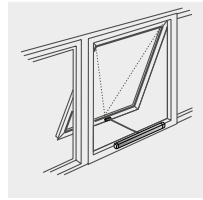
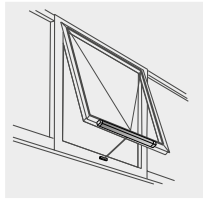
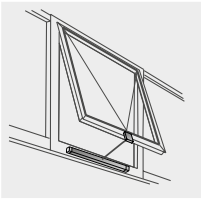
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

**FACADE**

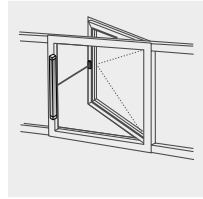
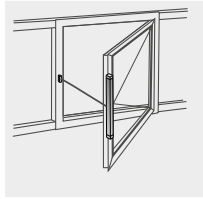
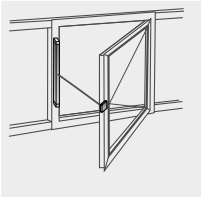
Bottom-hung



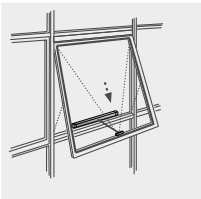
Top-hung



Side-hung

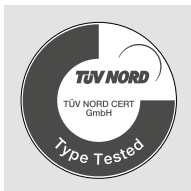


Friction hinged



Parallel outward opening





- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Feedback limit position „CLOSE“ (max. 24 V, 500 mA)

### Equipment

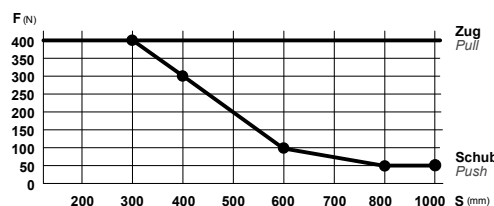
- Additional **AUMÜLLER-Click plug set** for multi-drive operation

### Options

- Programmable special functions
- Programmable feedback limit position „OPEN“ (max. 24 V, 500 mA)
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)

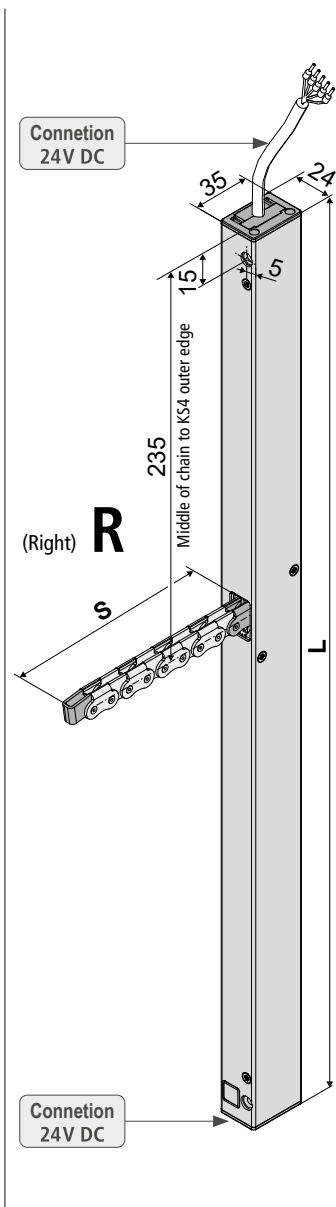
### TECHNICAL DATA

$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,9 A
$I_A$	Cut-off current	1,2 A
$P_N$	Rated power	22 W
<b>DC</b>	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.	400 N
$F_A$	Pushing force max.	

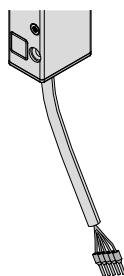


s > 600 mm only for pulling application

$F_H$	Pullout force	1.800 N (fastening depended)
	Chain	Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.
	Connecting cable	non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 2 m
$v$	Speed	$s \leq 400$ 8,0 mm/s     8,0 mm/s $s > 400 - 600$ 12,0 mm/s     8,0 mm/s $s > 600$ 13,5 mm/s     8,0 mm/s
$s$	Stroke	50 – 1000 mm
$L$	Length	see order data
	Feedback contact	limit position „CLOSE“ (max. 24 V, 500 mA)
	Sound pressure level	≤ 70 dB (A)



### OPTION

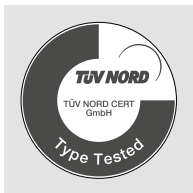


**AUMÜLLER** chain drives have an integrated cable routing with connection sockets on both housing ends. This enables the following options:

- **Wire Click** with various cabel lengths  
Part-No.: 501251 - 3 m cable length / 501252 - 5 m cable length / 501253 - 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.	
200	455	KS4 200 S12 24V R	E6/C-0	1	522020	
300	551	KS4 300 S12 24V R	E6/C-0	1	522030	
400	551	KS4 400 S12 24V R	E6/C-0	1	522040	
500	665	KS4 500 S12 24V R	E6/C-0	1	522050	
600	665	KS4 600 S12 24V R	E6/C-0	1	522060	
800	755	KS4 800 S12 24V R	E6/C-0	1	522080	
1000	868	KS4 1000 S12 24V R	E6/C-0	1	522000	

OPTIONS			
Special model	PU / pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		516030	
Specify at order stage:	1 – 20	516004	
	21 – 50	516004	
	51 – 100	516004	
	from 101	516004	
<b>Plug solution:</b>			
<b>Wire Click</b> - 3 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		501251	
<b>Wire Click</b> - 5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		501252	
<b>Wire Click</b> - 10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		501253	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 24V S12		524190	
Programming drives 24V / 230V S12		524180	
<b>Optional accessories</b>	PU / pcs.	Part.-No.	
M-COM® Click Configuration module for synchronised multi-drive systems	1	524167	
M-COM Configuration module for synchronised multi-drive systems	1	524177	



- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Feedback limit position „CLOSE“ (max. 24 V, 500 mA)

### Equipment

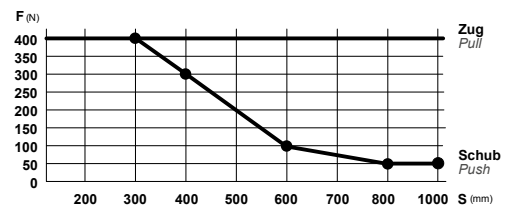
- Additional **AUMÜLLER-Click plug set** for multi-drive operation

### Options

- Programmable special functions
- Programmable feedback limit position „OPEN“ (max. 24 V, 500 mA)
- 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	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,9 A
$I_A$	Cut-off current	1,2 A
$P_N$	Rated power	22 W
<b>DC</b>	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.	400 N
$F_A$	Pushing force max.	



s > 600 mm only for pulling application

$F_H$	Pullout force	1.800 N (fastening depended)
	Chain	Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.

Connecting cable non-halogen, grey 5 x 0,5 mm<sup>2</sup>, ~ 2 m

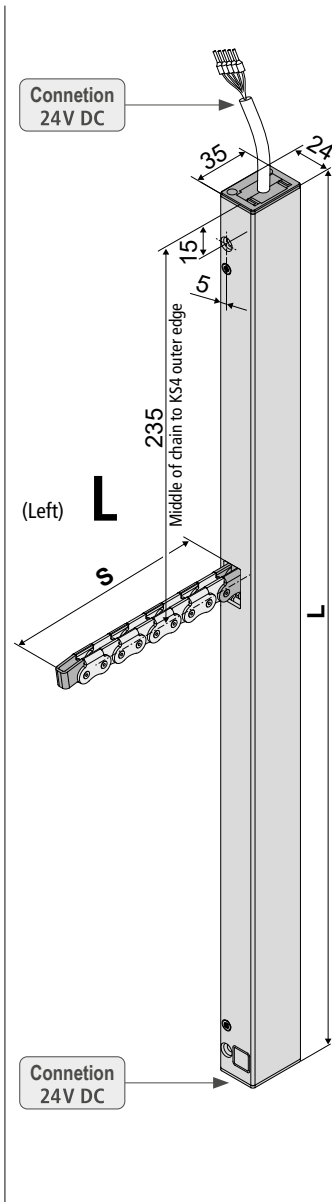
$v$	Speed	$s \leq 400$ 8,0 mm/s  8,0 mm/s $s > 400 - 600$ 12,0 mm/s  8,0 mm/s $s > 600$ 13,5 mm/s  8,0 mm/s
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$s$  Stroke 50 – 1000 mm

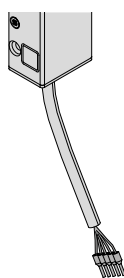
$L$  Length see order data

Feedback contact limit position „CLOSE“ (max. 24 V, 500 mA)

Sound pressure level  $\leq 70$  dB (A)



### OPTION



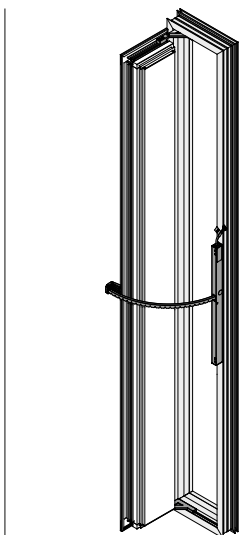
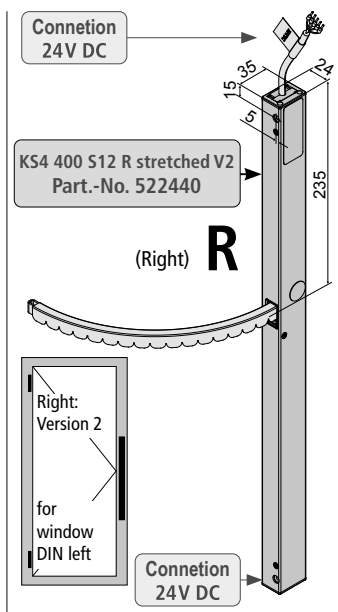
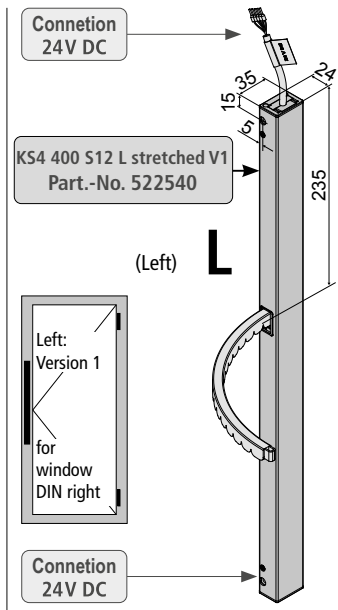
**AUMÜLLER** chain drives have an integrated cable routing with connection sockets on both housing ends. This enables the following options:

- **Wire Click** with various cabel lengths  
Part-No.: 501251 - 3 m cable length / 501252 - 5 m cable length / 501253 - 10 m cable length
- Series connection of several drives into multi drive systems
- Power supply from both sides

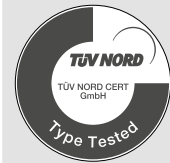
ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.	
200	455	KS4 200 S12 24V L	E6/C-0	1	520120	
300	551	KS4 300 S12 24V L	E6/C-0	1	520130	
400	551	KS4 400 S12 24V L	E6/C-0	1	520140	
500	665	KS4 500 S12 24V L	E6/C-0	1	520150	
600	665	KS4 600 S12 24V L	E6/C-0	1	520160	
800	755	KS4 800 S12 24V L	E6/C-0	1	520180	
1000	868	KS4 1000 S12 24V L	E6/C-0	1	520100	

OPTIONS			
Special model	PU / pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		516030	
Specify at order stage:	1 – 20	516004	
	21 – 50	516004	
	51 – 100	516004	
	from 101	516004	
<b>Plug solution:</b>			
<b>Wire Click</b> - 3 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		501251	
<b>Wire Click</b> - 5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		501252	
<b>Wire Click</b> - 10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		501253	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 24V S12		524190	
Programming drives 24V / 230V S12		524180	
<b>Optional accessories</b>			
	PU / pcs.	Part.-No.	
M-COM® Click Configuration module for synchronised multi-drive systems	1	524167	
M-COM Configuration module for synchronised multi-drive systems	1	524177	





### Attached assembly



- Flexible „side bow chain“ for narrow high windows
- Attached assembly with casement bracket F42
- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Feedback limit position „CLOSE“ (max. 24 V, 500 mA)




#### Equipment

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

#### Options

- Programmable special functions
- Programmable feedback limit position „OPEN“ (max. 24 V, 500 mA)
- 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	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,9 A
$I_A$	Cut-off current	1,2 A
$P_N$	Rated power	22 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.	200 N
$F_A$	Pushing force max.	200 N
$F_H$	Pullout force	1.800 N (fastening depended)
	Chain	Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.
	Connecting cable	non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 2 m
$v$	Speed	$s < 400$  8,0 mm/s  8,0 mm/s
$s$	Stroke max.	400 mm
$L$	Length	see order data
	Feedback contact	limit position „CLOSE“ (max. 24 V, 500 mA)
	Sound pressure level	≤ 70 dB (A)

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

- **Wire Click** with various cable lengths  
Part.-No.: 501251 - 3 m cable length / 501252 - 5 m cable length / 501253 - 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	551	KS4 400 S12 24V L stretched chain V1	E6/C-0	1	522540	
400	551	KS4 400 S12 24V R stretched chain V2	E6/C-0	1	522440	

OPTIONS			
Special model	PU / pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Plug solution:</b>			
<b>Wire Click</b> - 3 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501251</b>	
<b>Wire Click</b> - 5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501252</b>	
<b>Wire Click</b> - 10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501253</b>	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 24V S12		<b>524190</b>	
Programming drives 24V / 230V S12		<b>524180</b>	
<b>Optional accessories</b>			
M-COM® Click Configuration module for synchronised multi-drive systems	1	<b>524167</b>	
M-COM Configuration module for synchronised multi-drive systems	1	<b>524177</b>	

**Attached assembly**

Opening angle 90°:  
from FAB 170 mm - 250 mm

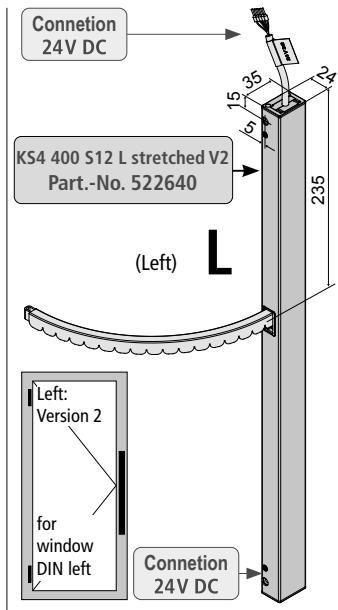
chain back above

View / cut A – A

Opening angle max. 90°:  
from FAB (overall width  
of casement)  
170 mm - 250 mm

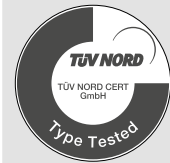
Stroke programming		
FAB	Stroke	Opening angle approx.
170	280	90°
180	305	90°
200	330	90°
225	350	90°
250	375	90°
275	400	85°
300	400	80°

The stroke is programmed: • according to the desired opening angle  
• depending on the FAB



### Concealed mounting inside profiles

- Flexible „side bow chain“ for narrow high windows
- Concealed mounting inside profiles with casement bracket F43 and frame bracket K133
- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Feedback limit position „CLOSE“ (max. 24 V, 500 mA)

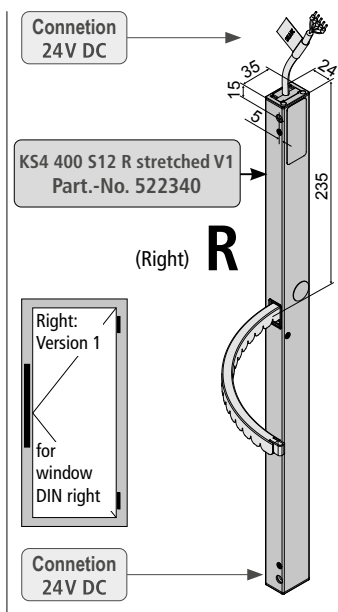


#### Equipment


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

#### Options

- Programmable special functions
- Programmable feedback limit position „OPEN“ (max. 24 V, 500 mA)
- 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	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,9 A
$I_A$	Cut-off current	1,2 A
$P_N$	Rated power	22 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.	200 N
$F_A$	Pushing force max.	200 N
$F_H$	Pullout force	1.800 N (fastening depended)

Chain  
Stainless steel, without protruding rivet heads.  
Simple connection to casement brackets.  
Small bending radii allow maximum opening angles of small windows.

Connecting cable  
non-halogen, grey 5 x 0,5 mm<sup>2</sup>, ~ 2 m

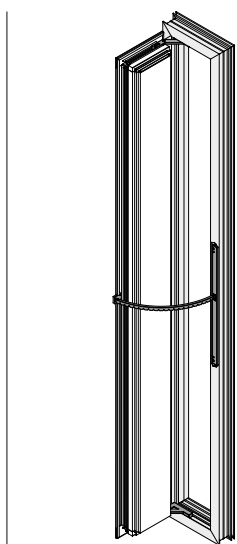
$v$  Speed  
 $s < 400$   8,0 mm/s  8,0 mm/s

$s$  Stroke max.  
400 mm

$L$  Length  
see order data

Feedback contact  
limit position „CLOSE“ (max. 24 V, 500 mA)

Sound pressure level  
≤ 70 dB (A)



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

- **Wire Click** with various cabel lengths  
Part.-No.: 501251 - 3 m cable length / 501252 - 5 m cable length / 501253 - 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	551	KS4 400 S12 24V L stretched chain V2	E6/C-0	1	522640	
400	551	KS4 400 S12 24V R stretched chain V1	E6/C-0	1	522340	

OPTIONS			
Special model	PU / pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Plug solution:</b>			
<b>Wire Click</b> - 3 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501251</b>	
<b>Wire Click</b> - 5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501252</b>	
<b>Wire Click</b> - 10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501253</b>	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 24V S12		<b>524190</b>	
Programming drives 24V / 230V S12		<b>524180</b>	
<b>Optional accessories</b>			
M-COM® Click Configuration module for synchronised multi-drive systems	1	<b>524167</b>	
M-COM Configuration module for synchronised multi-drive systems	1	<b>524177</b>	

**Concealed mounting inside profiles**

Opening angle 90°:  
from FAB 170 mm - 250 mm

Planning of the „concealed mounting inside profiles“ on request!

chain back above

engine above

View / cut A – A

Opening angle max. 90°:  
from FAB (overall width of casement)  
170 mm - 250 mm

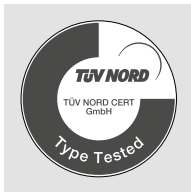
90°

chain back above

View / cut B – B

Stroke programming		
FAB	Stroke	Opening angle approx.
170	280	90°
180	305	90°
200	330	90°
225	350	90°
250	375	90°
275	400	85°
300	400	80°

The stroke is programmed: • according to the desired opening angle  
• depending on the FAB



- Kit for side-hung window with a casement **opening angle ~70°**.
- The KS4 drive is pre-programmed for a **stroke of 350 mm**.
- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Feedback limit position „CLOSE“ (max. 24 V, 500 mA)

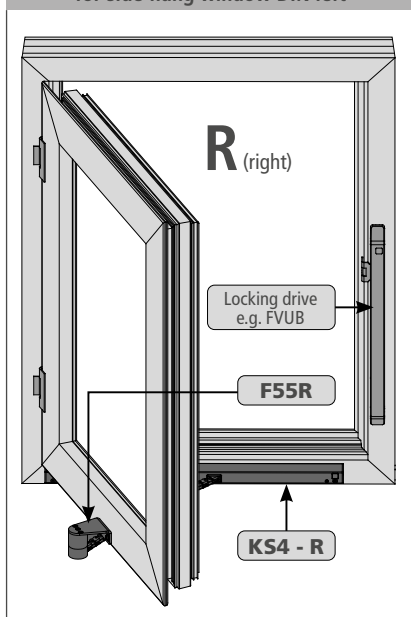
### Equipment

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

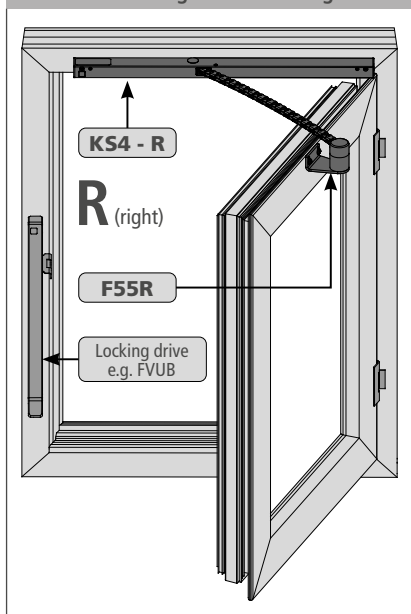
### Optionen

- Programmable special functions
- Programmable feedback limit position „OPEN“ (max. 24 V, 500 mA)
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)

Drehvolution Set 1 (KS4R and F55R)  
for side-hung window DIN left



Drehvolution Set 1 (KS4R and F55R)  
for side-hung window DIN right



### TECHNICAL DATA

$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,9 A
$I_A$	Cut-off current	1,2 A
$P_N$	Rated power	22 W
<b>DC</b>	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.	400 N
$F_A$	Pushing force max.	200 N
$F_H$	Pullout force	1.800 N (fastening depended)
	Chain	Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.
	Connecting cable	non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 2 m
$v$	Speed	$s < 350$ 8,0 mm/s  8,0 mm/s
$s$	Stroke max.	350 mm
$L$	Length	551 mm
	Feedback contact	limit position „CLOSE“ (max. 24 V, 500 mA)
	Sound pressure level	≤ 70 dB (A)

- \* ) **FAB = to max. 1200 mm**  
**FAB ≤ 1000 mm** use 1x Drehvolution  
**FAB > 1000 mm** use 2x Drehvolution Set 1 + Set 2 (synchron operation)

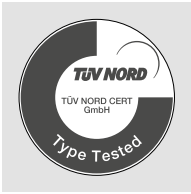
Space requirement on the frame = 26 mm

**These window sizes are only recommendations.**  
**A stable side-hung window - with an additional locking drive - is required!**

- \*\* ) **FAH = to max. 2000 mm**  
**FAH ≤ 1200 mm** use 1x Drehvolution  
**FAH > 1200 mm** use 2x Drehvolution Set 1 + Set 2 (synchron operation)

\* ) FAB = Overall width of casement

\*\* ) FAH = Overall height of casement



- Kit for side-hung window with a casement **opening angle ~70°**.
- The KS4 drive is pre-programmed for a **stroke of 350 mm**.
- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Feedback limit position „CLOSE“ (max. 24 V, 500 mA)

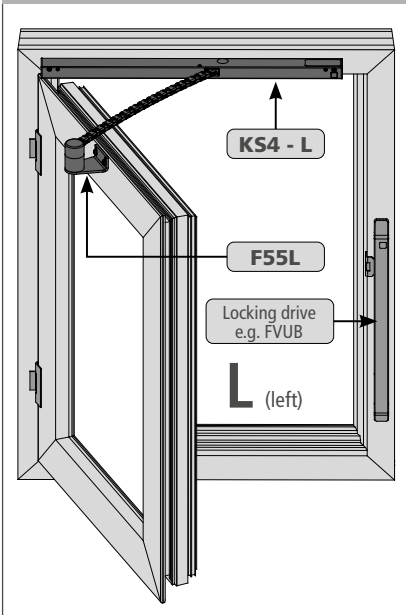
**Equipment**

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

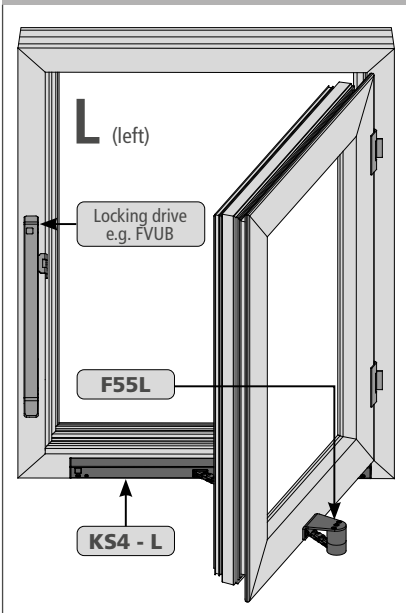
**Optionen**

- Programmable special functions
- Programmable feedback limit position „OPEN“ (max. 24 V, 500 mA)
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)

**Drehvolution Set 2 (KS4L and F55L)  
for side-hung window DIN left**



**Drehvolution Set 2 (KS4L and F55L)  
for side-hung window DIN right**



**TECHNICAL DATA**

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	0,9 A
<b>I<sub>A</sub></b>	Cut-off current	1,2 A
<b>P<sub>N</sub></b>	Rated power	22 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>Z</sub></b>	Pulling force max.	400 N
<b>F<sub>A</sub></b>	Pushing force max.	200 N
<b>F<sub>H</sub></b>	Pullout force	1.800 N (fastening depended)
	Chain	Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.
	Connecting cable	non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 2 m
<b>v</b>	Speed	s < 350  8,0 mm/s  8,0 mm/s
<b>s</b>	Stroke max.	350 mm
<b>L</b>	Length	551 mm
	Feedback contact	limit position „CLOSE“ (max. 24 V, 500 mA)
	Sound pressure level	≤ 70 dB (A)

- \* ) **FAB = to max. 1200 mm**  
**FAB ≤ 1000 mm** use 1x Drehvolution  
**FAB > 1000 mm** use 2x Drehvolution Set 1 + Set 2 (synchron operation)

**Space requirement on the frame = 26 mm**

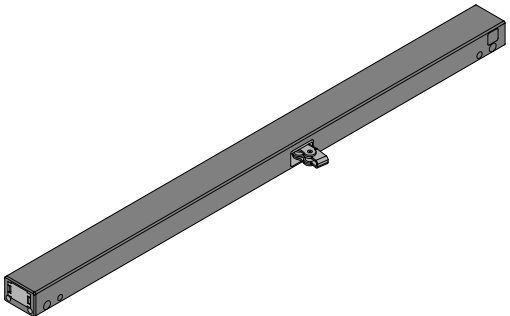
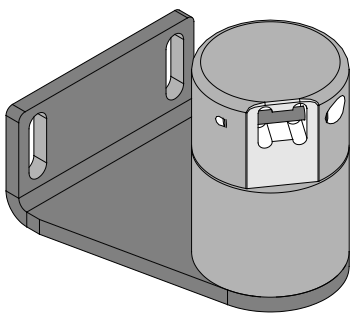
**These window sizes are only recommendations.**  
**A stable side-hung window - with an additional locking drive - is required!**

- \*\* ) **FAH = to max. 2000 mm**  
**FAH ≤ 1200 mm** use 1x Drehvolution  
**FAH > 1200 mm** use 2x Drehvolution Set 1 + Set 2 (synchron operation)

- \* ) FAB = Overall width of casement
- \*\* ) FAH = Overall height of casement

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
350	551	Drehvolution - KS4 - Set 1 (right)	E6/C-0	1	<b>522035</b>	
350	551	Drehvolution - KS4 - Set 2 (left)	E6/C-0	1	<b>520035</b>	

OPTIONS						
<b>Painting on request</b>						
<b>Plug solution:</b>						
<b>Wire Click</b> - 3 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>					<b>501251</b>	
<b>Wire Click</b> - 5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>					<b>501252</b>	
<b>Wire Click</b> - 10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>					<b>501253</b>	
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12					<b>524190</b>	
Programming drives 24V / 230V S12					<b>524180</b>	
<b>Optionales Zubehör</b>				PU/pcs.	Part.-No.	
M-COM® Click Configuration module for synchronised multi-drive systems				1	<b>524167</b>	
M-COM Configuration module for synchronised multi-drive systems				1	<b>524177</b>	

Scope of delivery: Drehvolution - KS4	
	
<b>Chain drive:</b> depending on the version: L (left) R (right) <b>Connecting cable:</b> non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 2 m	<b>Casement bracket:</b> depending on the version: L (left) R (right)

OVERVIEW OF BRACKETS					1	2	3	4	5
Typical application									
Frame bracket					K134	K132	No	K133	K135
Casement bracket					F41	F42	F42	F43	F19
Space requirement			min.	[mm]	20	28	27		
Overlap thickness (*1)				[mm]	0 - 21	5 - 21	0 - 21		
Opening angle (*2)			max.	[DEG]	45	60	40		
Casement weight (*3)			max.	[Kg]	85	70	85		
Window material									
Alu					●	●	●	●	●
Wood					●	●	●	●	●
PVC					●	●	●	●	●
Type of window and mounting	Bottom hung	inward	HSK	FM	●	●			
				RM			●		
			NSK	FM	●	●			
				RM			●		
		outward	HSK	RM	●	●			
				PR					
			NSK	RM	●	●			
				PR					
	Top hung	inward	HSK	FM	■	■			
				RM			■		
			NSK	FM	■	■			
				RM			■		
		outward	HSK	RM	■	●			
				PR					
			NSK	RM	■	■			
				PR					
	Side hung	inward	HSK	FM	●	●			
				RM			●		
			NSK	FM					
				RM					
Roof	outward	HSK	RM	■	■				
			PR						
		NSK	RM						
			PR						
PAF	outward		RM	●	●				
Concealed								●	●
FAB (*4)			Solo	[mm]	600 - 1200				
FAH (*4)			Solo	[mm]	250 - 1500				

## LEGEND

● suitable    ■ not recommended

(\*1) Window sizes and opening angles may be different.

(\*2) Sample values of the opening angle evaluated on the basis of FAB/FAH for inward opening windows with drives mounted at the main closing edge. For any other window heights, for outward opening windows and for windows with drives mounted at the side edges the opening angle will vary.

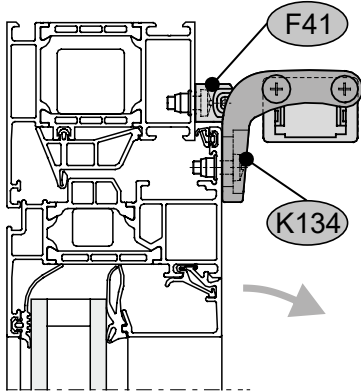
(\*3) Please respect the individual geometry of the different windows. The listed max. casement weight refers to a single drive on button hung window with a max. opening angle.

(\*4) Sample value of the casement dimensions for corner joints of 110 mm. The actual casement dimensions depend on length of the corner joints, profile dimensions, stroke and position of the drives. The values of FAB/FAH are to be used analogue for side hung windows.



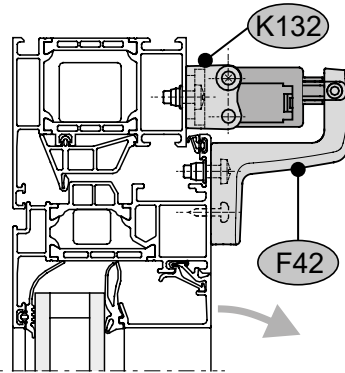
### TYPICAL APPLICATIONS

**1** FM, bottom hung inward opening



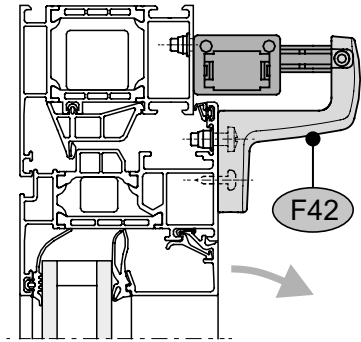
View on aluminium window

**2** RM, bottom hung inward opening



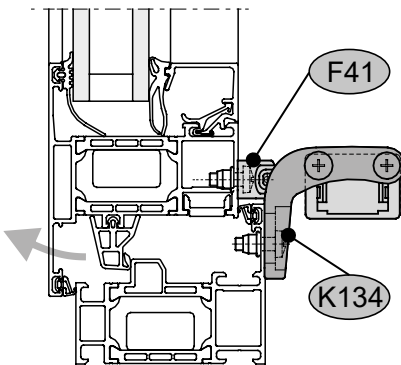
View on aluminium window

**3** RM, bottom hung inward opening



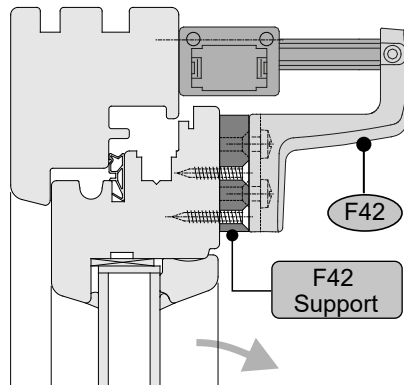
View on aluminium window

**1** RM, top hung outward opening



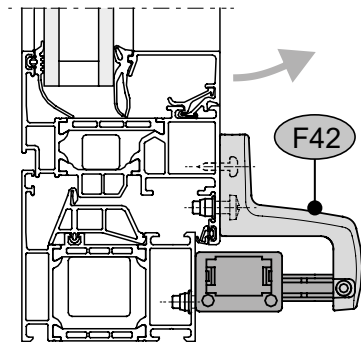
View on aluminium window

**3** RM, bottom hung inward opening



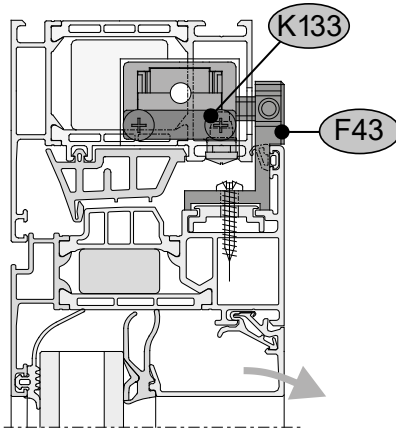
View on wood window

**3** RM, top hung inward opening



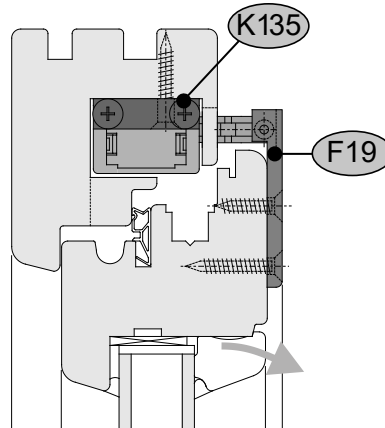
View on aluminium window

**4** PE (profile installation) in the frame bottom hung, inward opening



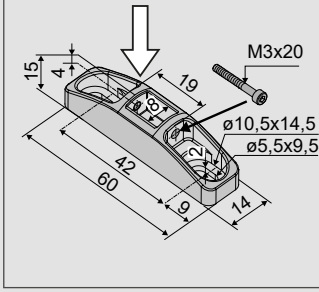
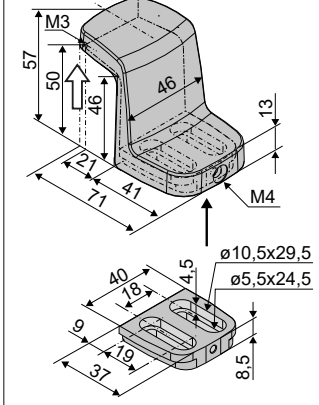
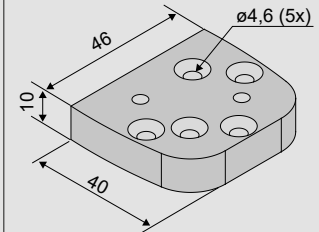
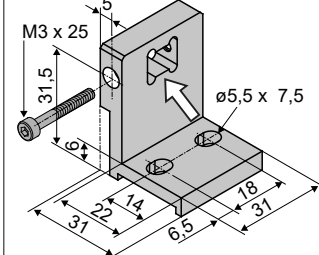
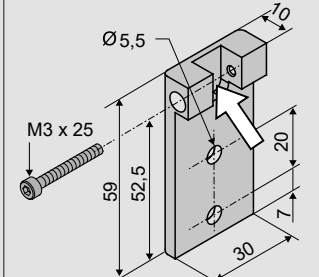
View on aluminium window

**5** PE (profile installation) in the frame bottom hung, inward opening



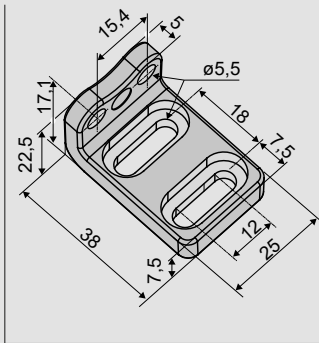
View on wood window

## CASEMENT BRACKETS

<p><b>F41</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the casement profiles of inward opening windows, for <b>swivelling</b> fixing of drives <b>KS4</b> with <b>K132, K134</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 151440</b>  <b>Material / Finish</b>          Cast aluminum, bright chrome  <b>Feature / Equipment</b>          1x screw M3x20          Drilling template</p>		
<p><b>F42</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the casement profiles of inward opening windows, for surface mounted drives <b>KS4</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 151441</b>  <b>Material / Finish</b>          Cast aluminum, bright chrome  <b>Feature / Equipment</b>          1x baseplate          1x countersunk screw M4x10          1x screw M3x25          Drilling template</p>		
<p><b>F42-Sup- port</b></p> 	<p><b>Application</b>  <b>F42-Support</b> as a compensating plate when mounting on the wooden windows and plastic windows  <b>t = 10 mm</b></p>	<p><b>Part.-No. 523961</b>  <b>Material / Finish</b>          aluminum (E6/C-0)</p>		
<p><b>F43</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the casement profiles of inward opening windows <b>Schüco AWS 75</b>, for the <b>profile-integrated installation</b> of drives <b>KS4</b> with <b>K133</b>.</p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 151444</b>  <b>Material / Finish</b>          Aluminum  <b>Feature / Equipment</b>          1x cylinder head screw M3x25</p>		
<p><b>F19</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the casement profiles of inward opening windows, for the <b>profile-integrated installation</b> of drives <b>KS4</b> with <b>K135</b>.</p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 151419</b>  <b>Material / Finish</b>          Aluminum  <b>Feature / Equipment</b>          1x cylinder head screw M3x25</p>		

### FRAME BRACKETS

**K132**



**Application**

**Surface mounting** on the casement profiles of inward opening windows, for **swivelling** fixing of drives **KS4 with F42**

**Part.-No. 522940**

**Material / Finish**

Cast aluminum, bright chrome

**Feature / Equipment**

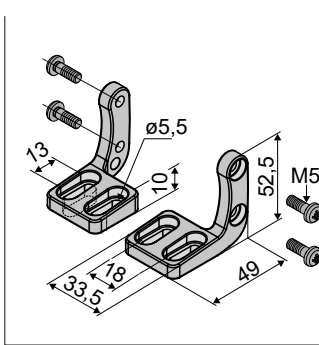
2x frame brackets  
2x screws M5x16

**Part.-No. 522947**

**Material / Finish**

Cast aluminum, RAL 9006

**K134**



**Application**

**Surface mounting** on the casement / window frame profiles of in- / outward opening windows, for rigid or swivelling fixing of drives **KS4 with F41**

**Part.-No. 522941**

**Material / Finish**

Cast aluminum, bright chrome

**Feature / Equipment**

4x screw M5x10

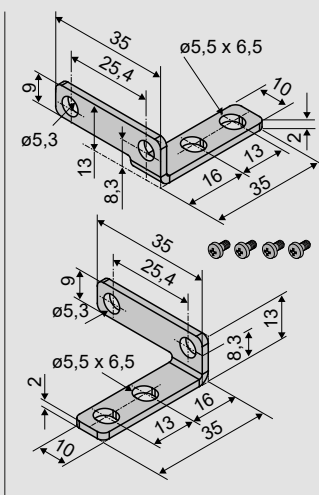
**Part.-No. 522948**

**Material / Finish**

Cast aluminum, RAL 9006

### PROFILE-INTEGRATED MOUNTING

**K133**



**Application**

**Profil-integrated mounting** in the casement profiles of inward opening windows, for **rigid** fixing of drives **KS4 with F43**.

**Part.-No. 522946**

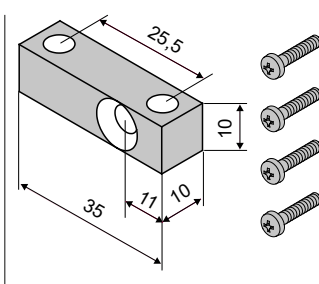
**Material / Finish**

Stainless steel

**Feature / Equipment**

2x frame brackets  
4x screws M5x10

**K135**



**Application**

**Profil-integrated mounting** in the casement profiles of inward opening **wood windows**, for **rigid** fixing of drives **KS4 with F19**.

**Part.-No. 522943**

**Material / Finish**

Aluminium, vibratory grinding

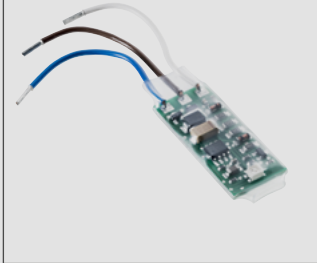
**Feature / Equipment**

2x frame brackets  
4x screws M5x16

## OPTIONAL ACCESSORIES

## Main control unit

## M-COM



## Application

**Configuration module** for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems

## Rated voltage:

24 V DC (19 V ... 28 V)

**Current consumption:** <12 mA

**Drive type:** S12

## Protection rating

IP30 rubber envelope

**Part.-No. 524177**

**Ambient temperature range:** 0 °C ... + 70 °C

## Dimensions

45 x 17 x 6 mm

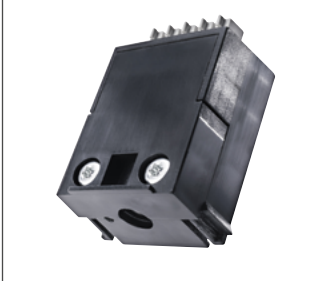
## Connecting wires

3 wires 0,5 mm<sup>2</sup> x 50 mm

## Feature/Equipment

Printed circuit board with components and connection wires to be installed in connection box to be supplied on site

## M-COM® Click



## Application

**Configuration module** for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems

## Rated voltage:

24 V DC (19 V ... 28 V)

**Current consumption:** <12 mA

**Drive type:** S12

**Protection rating:** IP30

**Part.-No. 524167**

**Ambient temperature range:** -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

## Plug solution

## Wire Click



## Application

## Wire Click:

Unified plug solution for **AUMÜLLER** chain drives and **AUMÜLLER** folding arm drives.

## Rated voltage:

24 V DC (19 V ... 28 V)

## Connecting cable:

non-halogen, grey 5 x 0,5 mm<sup>2</sup>

**Terminal:** to 1,5 mm<sup>2</sup>

## 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

## VARIANTEN:

**3 m cable length - 24V DC**

**Part.-No. 501251**

**5 m cable length - 24V DC**

**Part.-No. 501252**

**10 m cable length - 24V DC**

**Part.-No. 501253**

## Connection plug

## Connect Click



## Application

**Connect Click** is a connection plug for rigid mounting of two drives with mirrored chain outlet.

## Rated voltage:

24 V DC (19 V ... 28 V)

## Dimension:

70 x 26 x 13 mm

**Part.-No. 524123**

## Feature/Equipment

- Torsion-plug
- Replaces disturbing cables
- Creates a visually consistent image on the window - without disturbing, visible cables.

CASEMENT BRACKETS AND FRAME BRACKETS

Special model	PU/pcs.	Part.-No.			
<b>Casement brackets painted / powder coated in other RAL colours</b>					
Lump sum for coating		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516032</b>			
	21 – 50	<b>516032</b>			
	51 – 100	<b>516032</b>			
	from 101	<b>516032</b>			
<b>Frame brackets painted / powder coated in other RAL colours</b>					
Lump sum for coating		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516031</b>			
	21 – 50	<b>516031</b>			
	51 – 100	<b>516031</b>			
	from 101	<b>516031</b>			



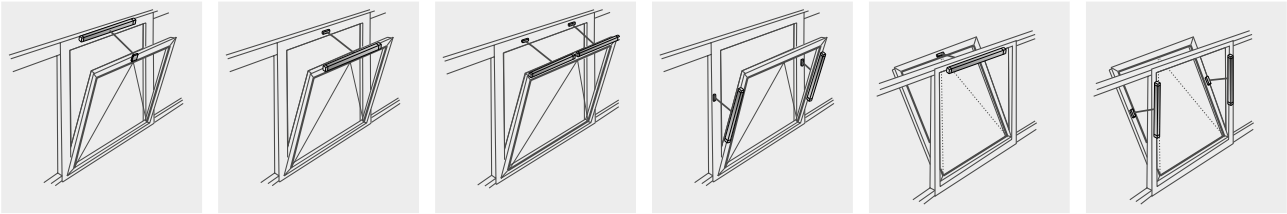
### PRODUCT FEATURES KSA

- For natural ventilation, RWA und ferralux® NRWG nach EN12101-2
- TWIN versions with two chains and doubled force
- Adjustable chain tension
- Mechanical chain unlocking
- Aluminium housing anodized or optionally in RAL colors
- High-quality stainless steel roller chain
- Programmable parameters of Intelligent Control Electronics S12:
  - Synchronised multi-operation and sequence control without add. devices
  - Electronic soft-start, soft-close and soft-stop at end of stroke control
  - Stroke, force, speed
  - Rebate control
- Integrated plug solution
- Compatible with the plug-in configuration modulel M-COM® Click

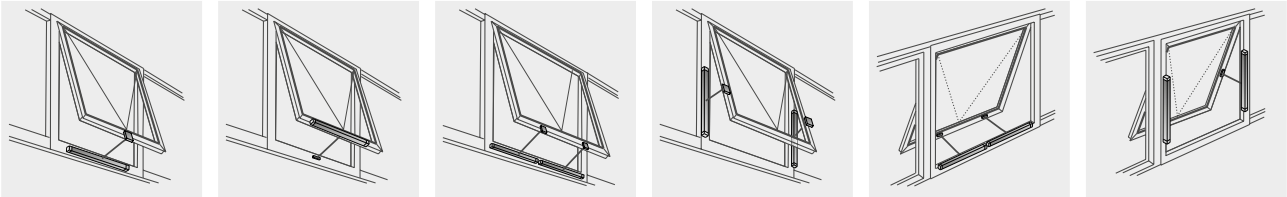
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

**FACADE**

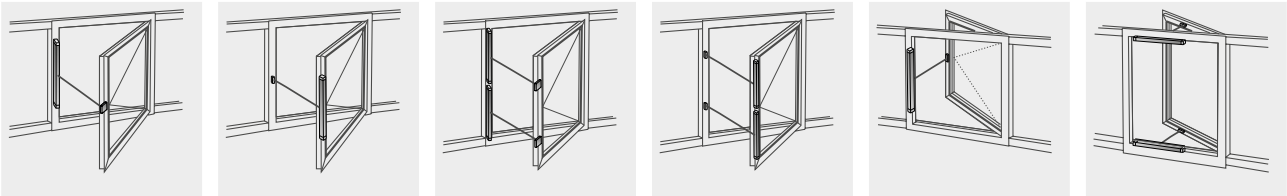
Bottom-hung



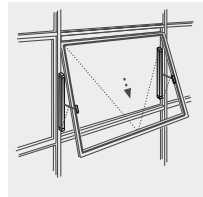
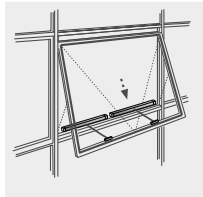
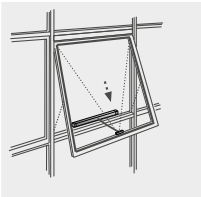
Top-hung



Side-hung



Friction hinged

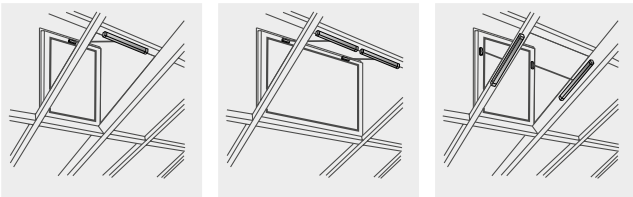


Parallel outward opening

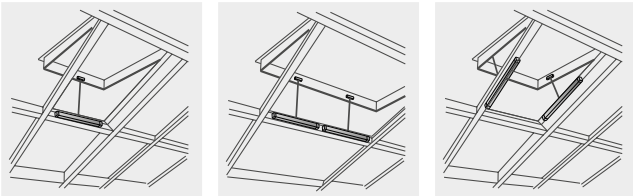


**ROOF**

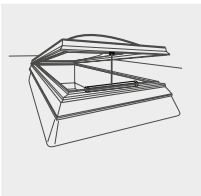
Bottom-hung



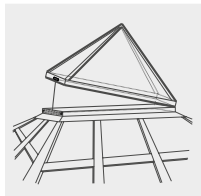
Top-hung

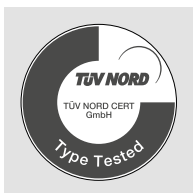


Sky light



Glass pyramid





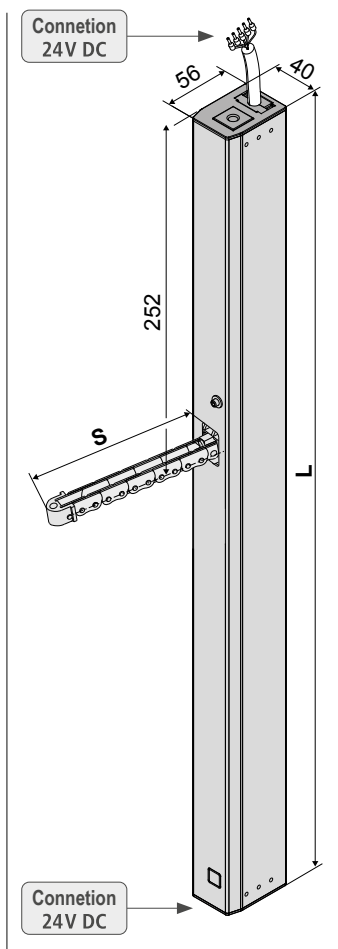
- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Adjustable chain tension / Mechanical chain unlocking

### Equipment

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

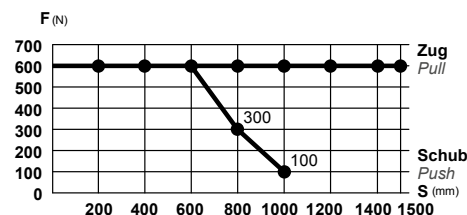
### Options

- 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	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,9 A
$I_A$	Cut-off current	1,2 A
$P$	Rated power	22 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
$F$	Pulling force max.	600 N
$F_A$	Pushing force max.	

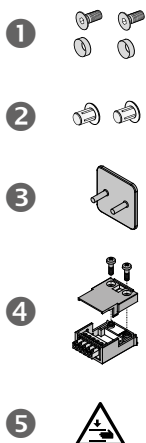


s > 800 mm only for pulling application

Pullout force	3.000 N (fastening depended)	
Chain	stainless steel	
Connecting cable	non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 3 m	
Speed	$s \leq 400$ 8,0 mm/s     8,0 mm/s $s > 400 - 600$ 12,0 mm/s     8,0 mm/s $s > 600$ 13,5 mm/s     8,0 mm/s	
$S$	Stroke	250 – 1.500 mm
$L$	Length	see order data
	Sound pressure level	≤ 70 dB (A)

### In delivery

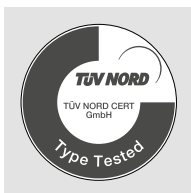
- 1 2x countersunk screws M8x16 and 2x Spacer ring (brass)
- 2 2x blind plug for unused cable entry
- 3 1x chain unlocking key
- 4 1x **AUMÜLLER-Click plug set** (24V) for multi-drive operation
- 5 1x warning sign sticker „Risk of entrapment“





ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.	
250	515	KSA 250 S12 24V	E6/C-0	1	<b>522725</b>	
300	591	KSA 300 S12 24V	E6/C-0	1	<b>522730</b>	
400	591	KSA 400 S12 24V	E6/C-0	1	<b>522740</b>	
500	693	KSA 500 S12 24V	E6/C-0	1	<b>522750</b>	
600	693	KSA 600 S12 24V	E6/C-0	1	<b>522760</b>	
800	794	KSA 800 S12 24V	E6/C-0	1	<b>522780</b>	
1000	896	KSA 1000 S12 24V	E6/C-0	1	<b>522810</b>	
1200	998	KSA 1200 S12 24V	E6/C-0	1	<b>522812</b>	
1500	1151	KSA 1500 S12 24V	E6/C-0	1	<b>522815</b>	

OPTIONS						
Special model		PU / pcs.	Part.-No.			
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>					<b>516030</b>	
Specify at order stage:		1 – 20	<b>516004</b>			
		21 – 50	<b>516004</b>			
		51 – 100	<b>516004</b>			
		from 101	<b>516004</b>			
<b>Plug solution:</b>						
<b>Wire Click</b> - 5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>					<b>501252</b>	
<b>Wire Click</b> - 10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>					<b>501253</b>	
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12					<b>524190</b>	
Programming drives 24V / 230V S12					<b>524180</b>	
<b>Optional accessories</b>						
M-COM® Click Configuration module for synchronised multi-drive systems					1	<b>524167</b>
M-COM Configuration module for synchronised multi-drive systems					1	<b>524177</b>



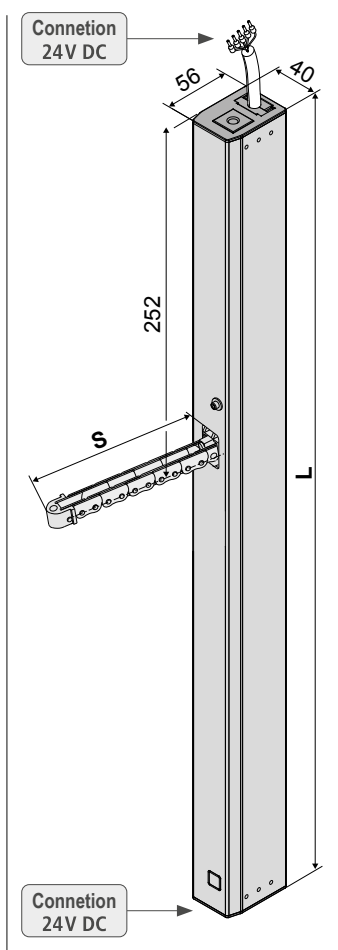
- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Adjustable chain tension / Mechanical chain unlocking
- Programmable feedback limit position „OPEN“ and „CLOSE“ (max. 24 V, 500 mA)

### Equipment

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

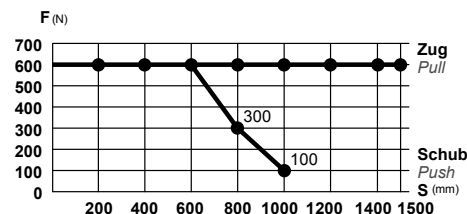
### Options

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



### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	0,9 A
<b>I<sub>A</sub></b>	Cut-off current	1,2 A
<b>P</b>	Rated power	22 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
<b>F</b>	Pulling force max.	600 N
<b>F<sub>A</sub></b>	Pushing force max.	

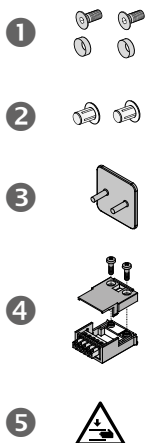


s > 800 mm only for pulling application

	Pullout force	3.000 N (fastening depended)															
	Chain	stainless steel															
	Connecting cable	non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 3 m															
	Speed	<table border="0"> <tr> <td>s ≤ 400</td> <td></td> <td>8,0 mm/s</td> <td></td> <td>8,0 mm/s</td> </tr> <tr> <td>s &gt; 400 – 600</td> <td></td> <td>12,0 mm/s</td> <td></td> <td>8,0 mm/s</td> </tr> <tr> <td>s &gt; 600</td> <td></td> <td>13,5 mm/s</td> <td></td> <td>8,0 mm/s</td> </tr> </table>	s ≤ 400		8,0 mm/s		8,0 mm/s	s > 400 – 600		12,0 mm/s		8,0 mm/s	s > 600		13,5 mm/s		8,0 mm/s
s ≤ 400		8,0 mm/s		8,0 mm/s													
s > 400 – 600		12,0 mm/s		8,0 mm/s													
s > 600		13,5 mm/s		8,0 mm/s													
<b>S</b>	Stroke	250 – 1.500 mm															
<b>L</b>	Length	see order data															
	Sound pressure level	≤70 dB (A)															

### In delivery

- 1 2x countersunk screws M8x16 and 2x Spacer ring (brass)
- 2 2x blind plug for unused cable entry
- 3 1x chain unlocking key
- 4 1x **AUMÜLLER-Click plug set** (24V) for multi-drive operation
- 5 1x warning sign sticker „Risk of entrapment“



ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.	
250	515	KSA 250 S12 24V Z	E6/C-0	1	<b>522723</b>	
300	591	KSA 300 S12 24V Z	E6/C-0	1	<b>522733</b>	
400	591	KSA 400 S12 24V Z	E6/C-0	1	<b>522743</b>	
500	693	KSA 500 S12 24V Z	E6/C-0	1	<b>522753</b>	
600	693	KSA 600 S12 24V Z	E6/C-0	1	<b>522763</b>	
800	794	KSA 800 S12 24V Z	E6/C-0	1	<b>522783</b>	
1000	896	KSA 1000 S12 24V Z	E6/C-0	1	<b>522813</b>	
1200	998	KSA 1200 S12 24V Z	E6/C-0	1	<b>522823</b>	
1500	1151	KSA 1500 S12 24V Z	E6/C-0	1	<b>522853</b>	

OPTIONS						
Special model		PU / pcs.	Part.-No.			
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>					<b>516030</b>	
Specify at order stage:		1 – 20	<b>516004</b>			
		21 – 50	<b>516004</b>			
		51 – 100	<b>516004</b>			
		from 101	<b>516004</b>			
<b>Plug solution:</b>						
<b>Wire Click</b> - 5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>					<b>501252</b>	
<b>Wire Click</b> - 10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>					<b>501253</b>	
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12					<b>524190</b>	
Programming drives 24V / 230V S12					<b>524180</b>	
<b>Optional accessories</b>						
M-COM® Click Configuration module for synchronised multi-drive systems				1	<b>524167</b>	
M-COM Configuration module for synchronised multi-drive systems				1	<b>524177</b>	



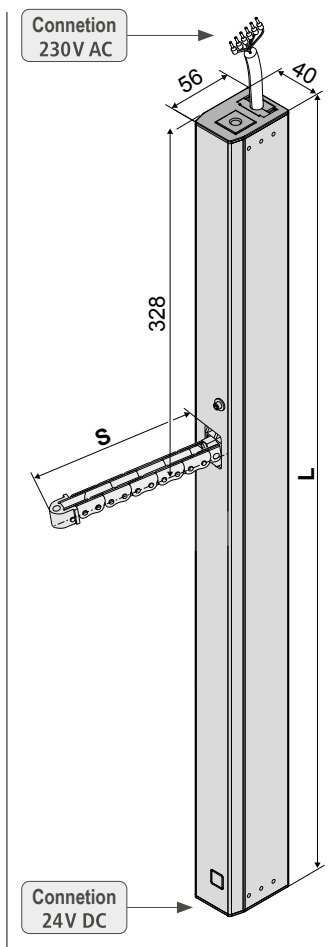
- Application: natural ventilation
- Internal Intelligent Control Electronics S12
- Adjustable chain tension / Mechanical chain unlocking
- Parallel connection up to 8 drives in one group
- Additional connection of a 24V drive possible (on the 24V side)

### Equipment

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

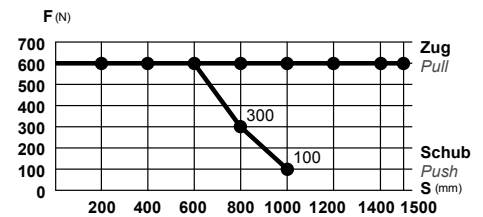
### Options

- Programmable synchronised run (max. 4 drives) and special functions



### TECHNICAL DATA

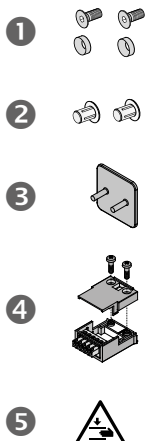
$U_N$	Rated voltage	230 V AC (50 Hz)
$I_N$	Rated current	0,2 A
$I_A$	Cut-off current	0,2 A
$P_N$	Rated power	46 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	600 N
$F_A$	Pushing force max.	



$F_H$	Pullout force	3.000 N (fastening depended)
	Chain	stainless steel
	Connecting cable	non-halogen, grey 6 x 0,75 mm <sup>2</sup> , ~ 3 m
$v$	Speed	$\times$ 8,0 mm/s $\curvearrowright$ 8,0 mm/s
$s$	Stroke	250 – 1.500 mm
$L$	Length	see order data
	Sound pressure level	≤70 dB (A)

### In delivery

- 2x countersunk screws M8x16 and 2x Spacer ring (brass)
- 2x blind plug for unused cable entry
- 1x chain unlocking key
- 1x **AUMÜLLER-Click plug set** (24V) for multi-drive operation
- 1x warning sign sticker „Risk of entrapment“



ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.	
250	591	KSA 250 S12 230V	E6/C-0	1	497025	
300	667	KSA 300 S12 230V	E6/C-0	1	497030	
400	667	KSA 400 S12 230V	E6/C-0	1	497040	
500	769	KSA 500 S12 230V	E6/C-0	1	497050	
600	769	KSA 600 S12 230V	E6/C-0	1	497060	
800	870	KSA 800 S12 230V	E6/C-0	1	497080	
1000	972	KSA 1000 S12 230V	E6/C-0	1	497110	
1200	1074	KSA 1200 S12 230V	E6/C-0	1	497112	
1500	1227	KSA 1500 S12 230V	E6/C-0	1	497115	

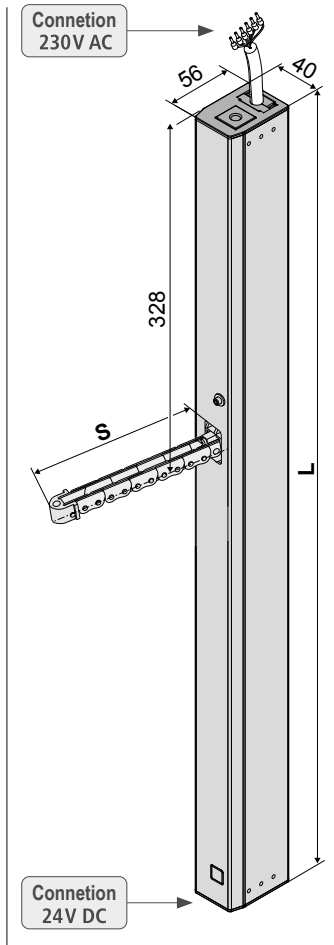
OPTIONS			
Special model	PU / pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		516030	
Specify at order stage:	1 – 20	516004	
	21 – 50	516004	
	51 – 100	516004	
	from 101	516004	
<b>Plug solution:</b>			
<b>Wire Click</b> - 5 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>		501275	
<b>Wire Click</b> - 10 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>		501280	
<b>Microprocessor programming S12</b>			
Programming synchronised multi-drive systems 230V S12 (each drive)		495588	
Electronic stroke reduction 230V S12		495590	
Programming drives 24V / 230V S12		524180	



- Application: natural ventilation
- Internal Intelligent Control Electronics S12
- Adjustable chain tension / Mechanical chain unlocking
- Programmable feedback limit position „OPEN“ and „CLOSE“ (max. 24 V, 500 mA)
- Parallel connection up to 8 drives in one group
- Additional connection of a 24V drive possible (on the 24V side)

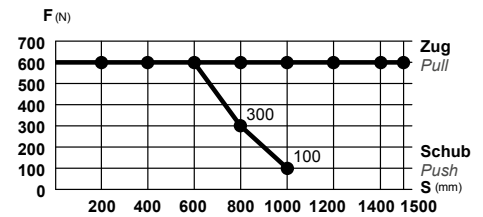
### Equipment

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



### TECHNICAL DATA

$U_N$	Rated voltage	230 V AC (50 Hz)
$I_N$	Rated current	0,2 A
$I_A$	Cut-off current	0,2 A
$P_N$	Rated power	46 W
<b>DC</b>	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.	600 N
$F_A$	Pushing force max.	

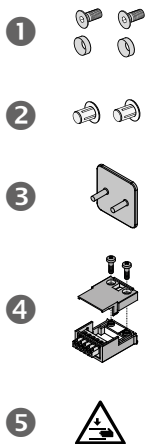


s > 800 mm only for pulling application

$F_H$	Pullout force	3.000 N (fastening depended)
	Chain	stainless steel
	Connecting cable	non-halogen, grey 6 x 0,75 mm <sup>2</sup> , ~ 3 m
$v$	Speed	$\leftarrow$ 8,0 mm/s $\rightarrow$ 8,0 mm/s
$s$	Stroke	250 – 1.500 mm
$L$	Length	see order data
	Sound pressure level	≤ 70 dB (A)

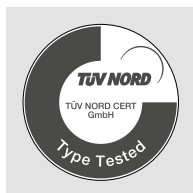
### In delivery

- 2x countersunk screws M8x16 and 2x Spacer ring (brass)
- 2x blind plug for unused cable entry
- 1x chain unlocking key
- 1x **AUMÜLLER-Click plug set** (24V) for multi-drive operation
- 1x warning sign sticker „Risk of entrapment“



ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.	
250	591	KSA 250 S12 230V Z	E6/C-0	1	497023	
300	667	KSA 300 S12 230V Z	E6/C-0	1	497033	
400	667	KSA 400 S12 230V Z	E6/C-0	1	497043	
500	769	KSA 500 S12 230V Z	E6/C-0	1	497053	
600	769	KSA 600 S12 230V Z	E6/C-0	1	497063	
800	870	KSA 800 S12 230V Z	E6/C-0	1	497083	
1000	972	KSA 1000 S12 230V Z	E6/C-0	1	497113	
1200	1074	KSA 1200 S12 230V Z	E6/C-0	1	497123	
1500	1227	KSA 1500 S12 230V Z	E6/C-0	1	497153	

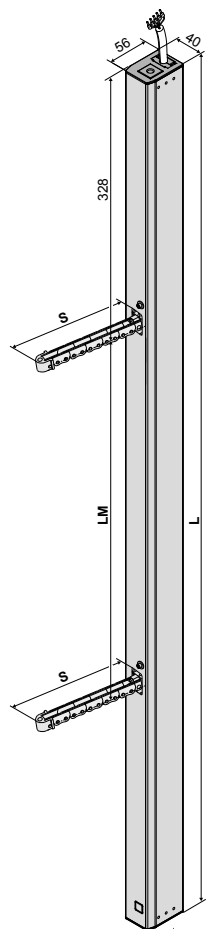
OPTIONS			
Special model	PU / pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		516030	
Specify at order stage:	1 – 20	516004	
	21 – 50	516004	
	51 – 100	516004	
	from 101	516004	
<b>Plug solution:</b>			
<b>Wire Click</b> - 5 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>		501275	
<b>Wire Click</b> - 10 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>		501280	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 230V S12		495590	
Programming drives 24V / 230V S12		524180	



- Application: natural ventilation, RWA
- Internal Intelligent Control Electronics S12
- Adjustable chain tension / Mechanical chain unlocking

### Options

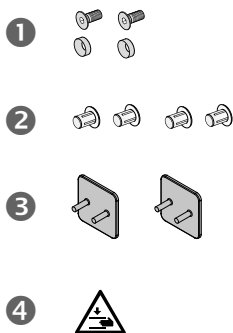
- Programmable special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)



No electrical connection possible

### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	1,8 A
<b>I<sub>A</sub></b>	Cut-off current	2,4 A
<b>P<sub>N</sub></b>	Rated power	43 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>Z</sub></b>	Pulling force max.	1.200 N
<b>F<sub>A</sub></b>	Pushing force max.	1.200 N
<b>F<sub>H</sub></b>	Pullout force	2 x 2.500 N (fastening depended)
	Chain	stainless steel
	Connecting cable	non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 3 m
<b>v</b>	Speed	$s \leq 400$ 8,0 mm/s  8,0 mm/s $s > 400 - 600$ 12,0 mm/s  8,0 mm/s
<b>s</b>	Stroke	400 – 600 mm
<b>L</b>	Length	see order data
<b>LM</b>	Distance in between chains	see order data
	Sound pressure level	≤ 70 dB (A)



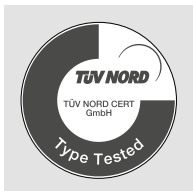
### In delivery

- 2x countersunk screws M8x16 and 2x Spacer ring (brass)
- 4x blind plug for unused cable entry
- 2x chain unlocking key
- 1x warning sign sticker „Risk of entrapment“



ORDER DATA							
s [mm]	L [mm]	LM [mm]	Version	Finish	PU/pcs.	Part.-No.	
400	1150	485	KSA TWIN 400 S12 24V	E6/C-0	1	<b>522745</b>	
500	1353	587	KSA TWIN 500 S12 24V	E6/C-0	1	<b>522755</b>	
600	1353	587	KSA TWIN 600 S12 24V	E6/C-0	1	<b>522765</b>	

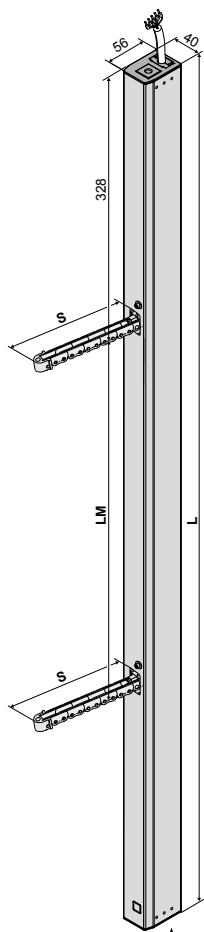
OPTIONS			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
<b>Specify at order stage:</b>	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Plug solution:</b>			
<b>Wire Click</b> - 5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501252</b>	
<b>Wire Click</b> - 10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501253</b>	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 24V S12		<b>524190</b>	
Programming drives 24V / 230V S12		<b>524180</b>	
Optional accessories	PU/pcs.	Part.-No.	
M-COM Configuration module for synchronised multi-drive systems	1	<b>524177</b>	



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

### Options

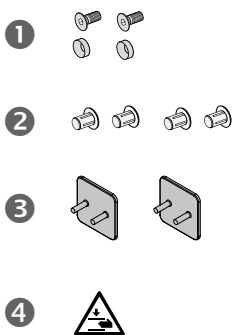
- Programmable special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)



No electrical connection possible

### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	1,8 A
<b>I<sub>A</sub></b>	Cut-off current	2,4 A
<b>P<sub>N</sub></b>	Rated power	43 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>Z</sub></b>	Pulling force max.	1.200 N
<b>F<sub>A</sub></b>	Pushing force max.	1.200 N
<b>F<sub>H</sub></b>	Pullout force	2 x 2.500 N (fastening depended)
	Chain	stainless steel
	Connecting cable	non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 3 m
<b>v</b>	Speed	$s \leq 400$ 8,0 mm/s     8,0 mm/s $s > 400 - 600$ 12,0 mm/s     8,0 mm/s
<b>s</b>	Stroke	400 – 600 mm
<b>L</b>	Length	see order data
<b>LM</b>	Distance in between chains	see order data
	Sound pressure level	≤ 70 dB (A)

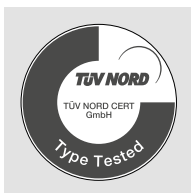


### In delivery

- 2x countersunk screws M8x16 and 2x Spacer ring (brass)
- 4x blind plug for unused cable entry
- 2x chain unlocking key
- 1x warning sign sticker „Risk of entrapment“

ORDER DATA							
s [mm]	L [mm]	LM [mm]	Version	Finish	PU/pcs.	Part.-No.	
400	1150	485	KSA TWIN 400 S12 24V Z	E6/C-0	1	<b>522747</b>	
500	1353	587	KSA TWIN 500 S12 24V Z	E6/C-0	1	<b>522757</b>	
600	1353	587	KSA TWIN 600 S12 24V Z	E6/C-0	1	<b>522767</b>	

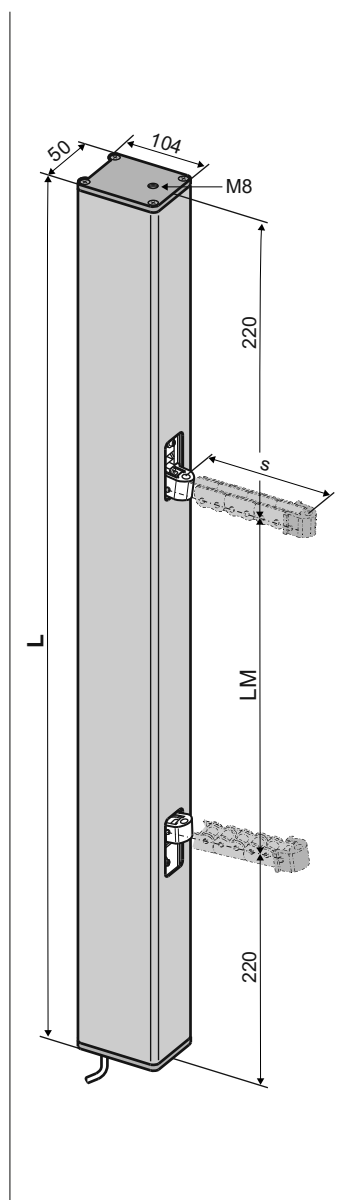
OPTIONS			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
<b>Specify at order stage:</b>	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Plug solution:</b>			
<b>Wire Click</b> - 5 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501252</b>	
<b>Wire Click</b> - 10 m – non-halogen, grey – 5 x 0,5 mm <sup>2</sup>		<b>501253</b>	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 24V S12		<b>524190</b>	
Programming drives 24V / 230V S12		<b>524180</b>	
<b>Optional accessories</b>	PU/pcs.	<b>Part.-No.</b>	
M-COM Configuration module for synchronised multi-drive systems	1	<b>524177</b>	



- Application: natural ventilation, RWA
- Internal Intelligent Control Electronics S12

### 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

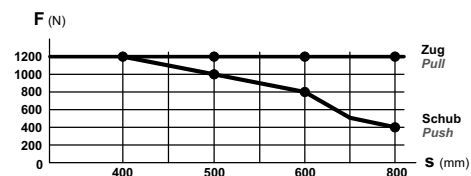
<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	1,8 A
<b>I<sub>A</sub></b>	Cut-off current	2,4 A
<b>P<sub>N</sub></b>	Rated power	43 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)

	Protection rating	IP 32
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	Ambient temperature range	-5 °C ... +60 °C
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<b>F<sub>Z</sub></b>	Pulling force max.	1.200 N
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<b>F<sub>A</sub></b>	Pushing force max.	
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<b>F<sub>H</sub></b>	Pullout force	2 x 2.500 N (fastening depended)
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	Chain	Stainless steel
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	Connecting cable	non-halogen, grey- 5 x 0,5 mm <sup>2</sup> , ~ 5 m
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<b>v</b>	Speed	$s \leq 400$ 8,0 mm/s     8,0 mm/s $s > 400 - 600$ 12,0 mm/s     8,0 mm/s $s > 600$ 13,5 mm/s     8,0 mm/s
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<b>s</b>	Stroke	400 – 800 mm
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<b>L</b>	Length	see order data
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<b>LM</b>	Distance in between chains	see order data
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	Sound pressure level	≤ 70 dB (A)
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### Components packed with drive

2x Countersunk-head screw M8x16, 2x Spacer ring (brass)

ORDER DATA							
s [mm]	L [mm]	LM [mm]	Version	Finish	PU/pcs.	Part.-No.	
400	737	297	KSA D 400 S12 24V	E6/C-0	1	<b>522140</b>	
500	837	397	KSA D 500 S12 24V	E6/C-0	1	<b>522150</b>	
600	837	397	KSA D 600 S12 24V	E6/C-0	1	<b>522160</b>	
800	942	502	KSA D 800 S12 24V	E6/C-0	1	<b>522180</b>	

OPTIONS							
Special model					PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>							
<b>Lump sum for coating</b>							<b>516030</b>
<b>Specify at order stage:</b>						1 – 20	<b>516004</b>
						21 – 50	<b>516004</b>
						51 – 100	<b>516004</b>
						from 101	<b>516004</b>
<b>Extra length connecting cable:</b>							
10 m – non-halogen, grey– 5 x 0,5 mm <sup>2</sup>							<b>501056</b>
<b>Microprocessor programming S12</b>							
Electronic stroke reduction 24V S12							<b>524190</b>
Programming drives 24V / 230V S12							<b>524180</b>
<b>Optional accessories</b>					PU/pcs.	Part.-No.	
M-COM Configuration module for synchronised multi-drive systems					1	<b>524177</b>	

OVERVIEW OF BRACKETS					1	2	3	4	5		
Typical application											
Frame bracket					K-A1	K84-1, K87, K-C3, K-E1, K-E2	K-B1	K-B2	K-D3		
Casement bracket					F16, F49	F16, F16-1, F29-2, F33, F38, F39, F49	F16, F49				
Space requirement	min.	[mm]	35	65 – 90	45 – 55	45					
Overlap thickness *1		[mm]	0 – 21	irrelevant	0 – 21	0 – 21					
Opening angle *2	max.	[DEG]	20	60	50	40					
Casement weight *3	max.	[Kg]	250	130	130	130					
Window material					Alu	●	●	●	●		
					Wood	●	●	●	●		
					PVC	■	●	●	●		
Type of window and mounting	Bottom hung	inward	HSK	FM	●		●	●			
				RM				●			
			NSK	FM	●		●	●			
				RM					●		
		outward	HSK	RM	●		●	●			
				PR		●					
			NSK	RM	●	●	●	●			
				PR		■					
	Top hung	inward	HSK	FM	●		●	●			
				RM				●			
			NSK	FM	●		●	●			
				RM					●		
		outward	HSK	RM	●	●	●	●			
				PR							
			NSK	RM	●		●	●			
				PR		●					
	Side hung	inward	HSK	FM	●		●	●			
				RM				●			
			NSK	FM	●		●	●			
				RM					●		
			Roof	outward	HSK	RM	■		■	■	
						PR		■			
	NSK	RM			■		■	■			
		PR				■					
PAF	outward		RM	●		●	●				
Concealed											
FAB*4		Solo	[mm]	700 – 1300							
		Sync2	[mm]	1250 – 2500							
FAH*4		Solo	[mm]	450 – 1500							
		Sync2	[mm]	250 – 2500							

### LEGEND

● suitable ■ not recommended

\*1 Window sizes and opening angles may be different.

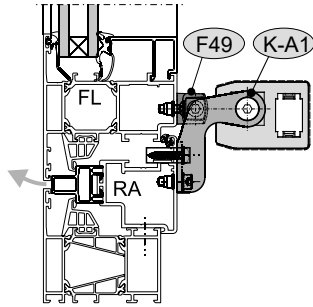
\*2 Sample values of the opening angle evaluated on the basis of FAB/FAH for inward opening windows with drives mounted at the main closing edge. For any other window heights, for outward opening windows and for windows with drives mounted at the side edges the opening angle will vary.

\*3 Please respect the individual geometry of the different windows. The listed max. casement weight refers to a single drive on button hung window with a max. opening angle.

\*4 Sample value of the casement dimensions for corner joints of 110 mm. The actual casement dimensions depend on length of the corner joints, profile dimensions, stroke and position of the drives. The values of FAB/FAH are to be used analogue for side hung windows.

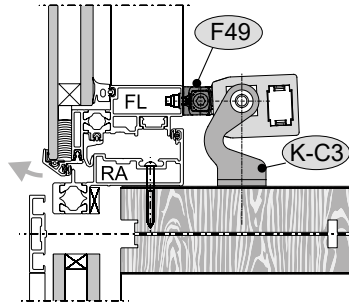
TYPICAL APPLICATIONS

1 RM, top hung, outward opening



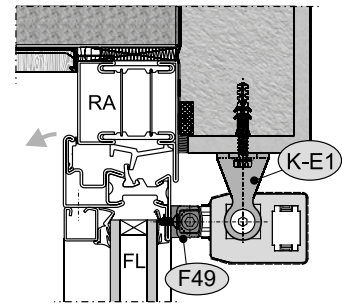
View on aluminium window

2 PR, top hung, outward opening



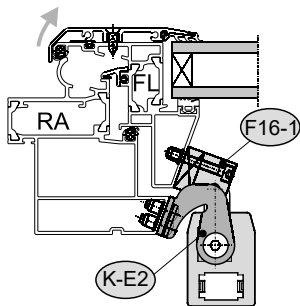
View on aluminium window

2 PR, bottom hung, outward opening



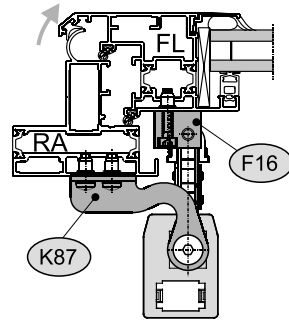
View on steel window

2 RM, roof



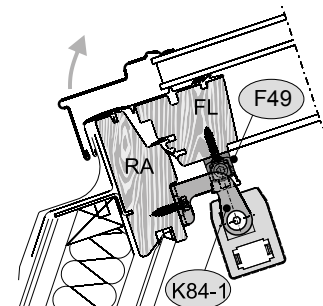
View on aluminium window

2 RM, roof



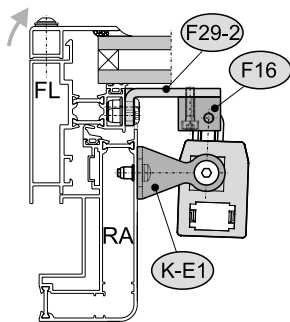
View on aluminium window

2 RM, roof



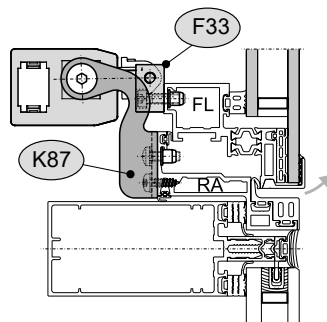
View on aluminium window

2 RM, roof



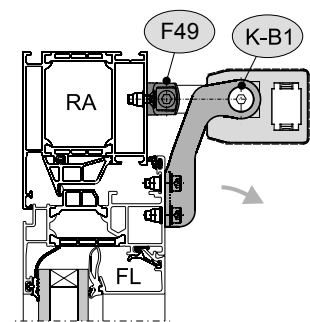
View on aluminium window

2 RM, top hung, outward opening



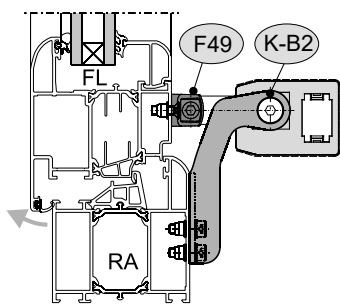
View on aluminium window

3 FM, bottom hung, inward opening



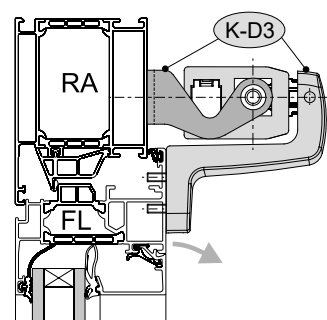
View on aluminium window

4 RM, top hung, outward opening



View on aluminium window

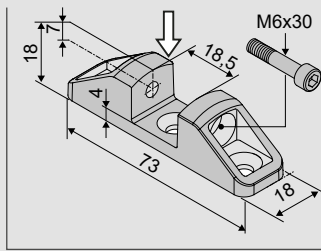
5 RM, bottom hung, inward opening



View on aluminium window

### CASEMENT BRACKETS

F49



#### Application

**Surface mounting** on the casement profiles of inward opening windows, for **swivelling** fixing of drives **KSA** with **K-A1, K-B1, K-B2, K-C3, K-E1, K-E2, K84-1, K125**

Chain fixing in direction of the arrow

**Part.-No. 524299**

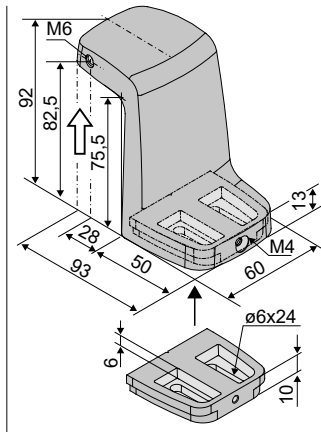
#### Material / Finish

Cast aluminum, RAL 9006

#### Feature / Equipment

1x cylinder head screw M6x30

F44



#### Application

**Surface mounting** on the casement profiles of inward opening windows, for surface mounted drives **KSA** with **K-C3**

Chain fixing in direction of the arrow

**Part.-No. 524297**

#### Material / Finish

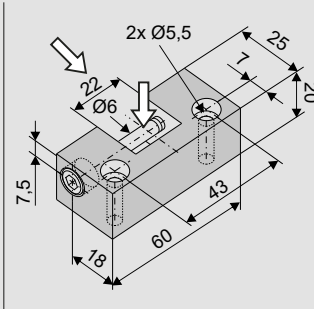
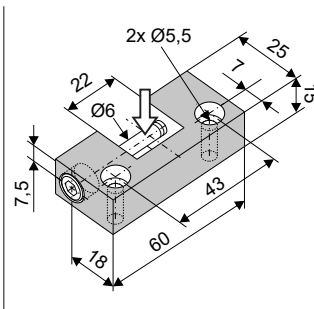
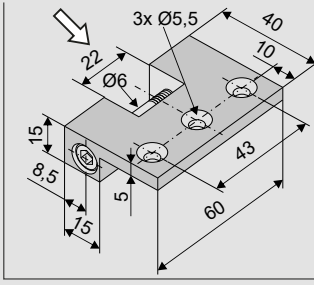
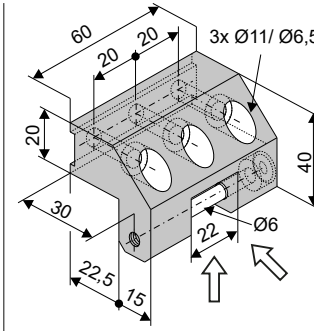
Cast aluminum, RAL 9006

#### Feature / Equipment

1x baseplate  
1x countersunk screw M4x10  
1x cylinder head screw M6x35



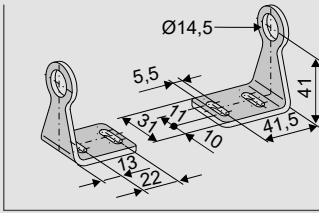
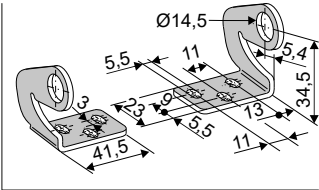
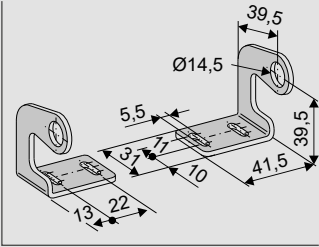
## CASEMENT BRACKETS

<p><b>F16</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the casement/window frame profiles of in-/outward opening windows (e.g. friction hinged or roof windows), for surface mounted drives <b>KSA</b> with <b>K-A1, K-B1, K-B2, K-C3, K-E1, K-E2, K84-1, K87</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 524204</b></p> <p><b>Material/Finish</b> aluminium (natural anodized)</p> <p><b>Feature/Equipment</b> 1x cylinder head screw M6x50</p>	
<p><b>F33</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the casement profile of outward opening windows (e.g. friction hinged or roof windows), for surface mounted drives <b>KSA</b> with <b>K-A1, K-B1, K-B2, K-C3, K-E1, K84-1, K87</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 524203</b></p> <p><b>Material/Finish</b> aluminium (natural anodized)</p> <p><b>Feature/Equipment</b> 1x cylinder head screw M6x50</p>	
<p><b>F38</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the casement profile of outward opening friction hinged windows, for surface mounted drives <b>KSA</b> with <b>K-A1, K-B1, K87</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 524199</b></p> <p><b>Material/Finish</b> aluminium (natural anodized)</p> <p><b>Feature/Equipment</b> 1x cylinder head screw M6x5</p>	
<p><b>F39</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the casement profile of outward opening roof windows, for surface mounted drives <b>KSA</b> with <b>K-A1, K-B1, K-B2, K-C3, K-E1, K-E2, K84-1</b></p> <p>Chain fixing in direction of the arrow</p>	<p><b>Part.-No. 524295</b></p> <p><b>Material/Finish</b> aluminium (natural anodized)</p> <p><b>Feature/Equipment</b> 1x cylinder head screw M6x50</p>	

### FRAME BRACKETS

<b>K-A1</b>		<p><b>Application</b>  <b>Surface mounting</b> on the case-ment/window frame profiles of in-/outward opening windows, for swivelly fixing of drives <b>KSA</b> with <b>F16, F33, F38, F39, F49</b>                      (Required space on frame profile <b>35 mm</b>)</p>	<p><b>Part.-No. 524057</b>  <b>Material/Finish</b>                      Stainless steel  <b>Feature/Equipment</b>                      1x right,                      1x left</p>		
<b>K-B1</b>		<p><b>Application</b>  <b>Surface mounting</b> on the case-ment/ window frame profiles of in-/outward opening windows, for swivelling fixing of drives <b>KSA</b> with <b>F16, F33, F38, F39, F49</b>                      (Required space on frame profile <b>35 – 52 mm</b>)</p>	<p><b>Part.-No. 524053</b>  <b>Material/Finish</b>                      Stainless steel  <b>Feature/Equipment</b>                      1x right,                      1x left</p>		
<b>K-B2</b>		<p><b>Application</b>  <b>Surface mounting</b> on the case-ment/ window frame profiles of in-/outward opening (wooden) windows, for swivelling fixing of drives <b>KSA</b> with <b>F16, F33, F39, F49</b>                      (Required space on frame profile <b>35 – 52 mm</b>)</p>	<p><b>Part.-No. 524063</b>  <b>Material/Finish</b>                      Stainless steel  <b>Feature/Equipment</b>                      1x right,                      1x left</p>		
<b>K-C3</b>		<p><b>Application</b>  <b>Surface mounting</b> on the case-ment/window frame profiles or on the mullion/transom of outward opening windows, for swivelling fixing of drives <b>KSA</b> with <b>F16, F33, F39, F49</b></p>	<p><b>Part.-No. 524067</b>  <b>Material/Finish</b>                      Stainless steel  <b>Feature/Equipment</b>                      1x right,                      1x left</p>		
<b>K-D3</b>		<p><b>Application</b>  <b>Surface mounting</b> on the case-ment and frame profile of inward opening windows, for swivelling fixing of drives <b>KSA</b> on the frame profile (required space <b>50 mm</b>)</p>	<p><b>Part.-No. 524068</b>  <b>Material/Finish</b>                      Stainless steel (K-C3), Aluminum casting (F44)  <b>Feature/Equipment</b>                      1x K-C3,                      1x F44</p>		
		<p><b>Accessories for</b></p>			
		<p><b>F44</b> Casement bracket „Z“</p>	<p><b>Part.-No. 524297</b></p>		

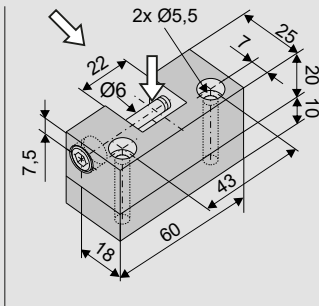
## FRAME BRACKETS

K-E1		<p><b>Application</b></p> <p><b>Surface mounting</b> on the mullion/transom of outward opening windows, for swiveling fixing of drives <b>KSA</b> with <b>F16, F33, F39, F49</b></p>	<p><b>Part.-No. 524056</b></p> <p><b>Material/Finish</b> Stainless steel</p> <p><b>Feature/Equipment</b> 1x right, 1x left</p>			
K-E2		<p><b>Application</b></p> <p><b>Surface mounting</b> on the window frame profiles or on the mullions/transoms of outward opening roof windows, for swiveling fixing of drives <b>KSA</b> with <b>F16, F16-1, F33, F39, F49</b></p>	<p><b>Part.-No. 524066</b></p> <p><b>Material/Finish</b> Stainless steel</p> <p><b>Feature/Equipment</b> 1x right, 1x left</p>			
K84-1		<p><b>Application</b></p> <p><b>Surface mounting</b> on the window frame profiles or on the mullions/transoms of outward opening roof windows, for swiveling fixing of drives <b>KSA</b> with <b>F16, F33, F39, F49</b></p>	<p><b>Part.-No. 524224</b></p> <p><b>Material/Finish</b> Stainless steel</p> <p><b>Feature/Equipment</b> 1x right, 1x left</p>			

### SPECIFIC APPLICATIONS

#### ROOF WINDOWS | SCHÜCO AWS 57RO

**F16-1**



**Application**

**Surface mounting** on the case-ment profile of outward opening roof windows series **Schüco AWS 57RO**, for fixing of drives **KSA**

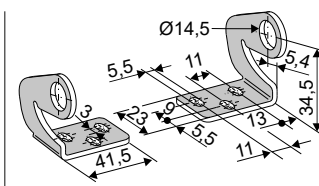
Chain fixing in direction of the arrow

**Part.-No. 155171**

**Material/Finish**  
aluminium  
(natural anodized)

**Feature/Equipment**  
1x cylinder head screw  
M6x50 with base plate

**K-E2**



**Application**

**Surface mounting** on the window frame profiles or on the mullions/transoms of outward opening roof windows, for swivelling fixing of drives **KSA** with **F16, F16-1, F33, F39, F49**

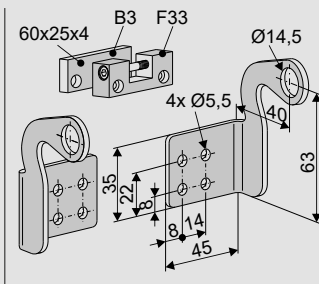
**Part.-No. 524066**

**Material/Finish**  
Stainless steel

**Feature/Equipment**  
1x right,  
1x left

#### FRICTION HINGED WINDOWS | SCHÜCO FW50

**K87**



**Application**

**Surface mounting** on the window frame profiles of outward opening friction hinged windows **Schüco FW50+**, for swivelling fixing of drives **KSA** (Required space on frame profile **35 mm**)

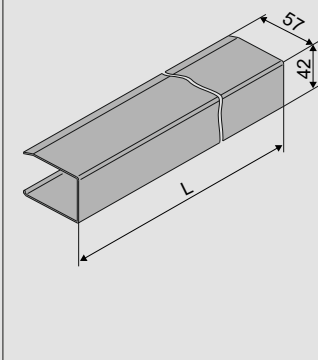
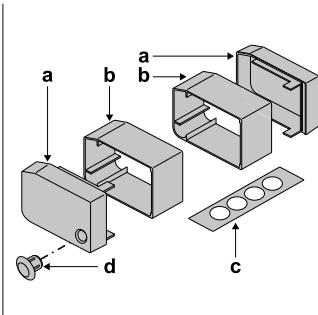
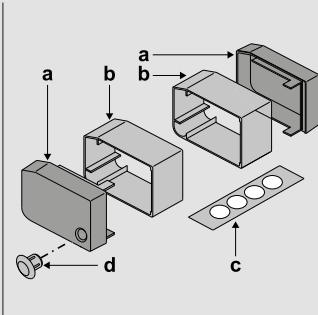
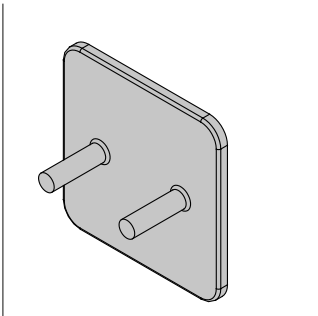
**Part.-No. 524319**

**Material/Finish**  
Stainless steel

**Feature/Equipment**  
1x right,  
1x left,  
incl. F33 + B3



### OPTIONAL ACCESSORIES

Cover-profile Set		
<b>AP-KSA</b> 	<b>Application</b> <b>Cover profile</b> for surface mounted drives <b>KSA</b> with frame bracket sets <b>K-A1, K-B1, K-B2, K-E2, K84-1</b> . Profile length adjustable to the length of the drives or of the casement	<b>Material/Finish</b> aluminium (natural anodized) + plastic (grey) <b>Feature/Equipment</b> incl. mounting aid for cover profile shortening on the job site + mounting set
	<b>L = 1,45 m</b> (length w/o end caps)	<b>Part.-No. 524307</b> incl. end cap and mounting aid
	<b>L = 2,90 m</b> (length w/o end caps)	<b>Part.-No. 524313</b> incl. end cap and mounting aid
	<b>L = customized</b> (Price per metre)	<b>Part.-No. 524314</b> only profile
<b>Assembly-set for cover profile (grey)</b>		
	<b>Part.-No. 524300</b> <b>Material/Finish</b> aluminium, plastic (grey) <b>Feature/Equipment</b> a. 2x end cap b. 2x spacer c. 4x stickers d. 1x dummy plug	
<b>Assembly-set for cover profile (black)</b>		
	<b>Part.-No. 524303</b> <b>Material/Finish</b> aluminium, plastic (black) <b>Feature/Equipment</b> a. 2x end cap b. 2x spacer c. 4x stickers d. 1x dummy plug	
<b>Chain unlocking key</b>		
	<b>Application</b> Manual unlocking of the drive chain for mounting of drives KSA	<b>Part.-No. 524210</b> <b>Material/Finish</b> plastic

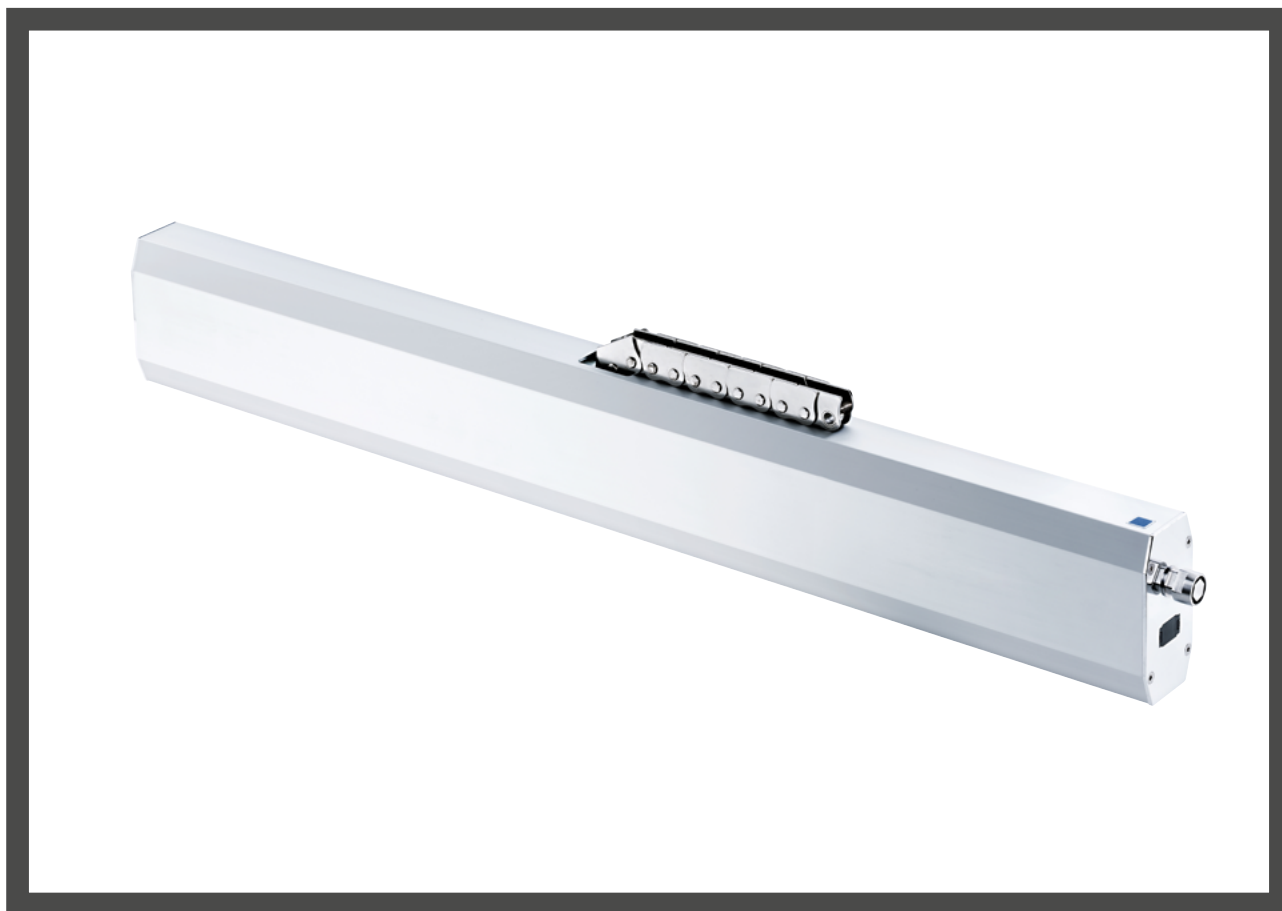
OPTIONAL ACCESSORIES

Main control unit																			
<p><b>M-COM</b></p> 	<p><b>Application</b>  <b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt;12 mA</p> <p><b>Drive type:</b> S12</p> <p><b>Protection rating</b> IP30 rubber envelope</p>	<p><b>Part.-No. 524177</b></p> <p><b>Ambient temperature range:</b> 0 °C ... + 70 °C</p> <p><b>Dimensions</b> 45 x 17 x 6 mm</p> <p><b>Connecting wires</b> 3 wires 0,5 mm<sup>2</sup> x 50 mm</p> <p><b>Feature/Equipment</b> Printed circuit board with components and connection wires to be installed in connection box to be supplied on site</p>																	
<p><b>M-COM® Click</b></p> 	<p><b>Application</b>  <b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt;12 mA</p> <p><b>Drive type:</b> S12</p> <p><b>Protection rating:</b> IP30</p>	<p><b>Part.-No. 524167</b></p> <p><b>Ambient temperature range:</b> -5 °C ... +70 °C</p> <p><b>Dimensions:</b> 40 x 26 x 15 mm</p> <p><b>Connection:</b> for AUMÜLLER chain drives with <b>Wire Click</b></p> <p><b>Equipment</b> Tongs for removing the M-COM® Click</p>																	
Plug solution																			
<p><b>Wire Click</b></p>  <p>Picture: 24V</p>	<p><b>Application</b>  <b>Wire Click:</b> Unified plug solution for AUMÜLLER chain drives and AUMÜLLER folding arm drives.</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V) 230 V AC (± 20 %), max. 2 Vpp</p> <p><b>Connecting cable:</b> non-halogen, grey 5 x 0,5 mm<sup>2</sup> (24V) 6 x 0,75 mm<sup>2</sup> (230V)</p> <p><b>Terminal:</b> to 1,5 mm<sup>2</sup></p>	<p><b>Feature/Equipment</b></p> <ul style="list-style-type: none"> <li>• Flexible cable length</li> <li>• Connect multiple drives in series connection</li> <li>• Torsion-plug</li> <li>• Locking hooks prevent withdrawal of the plug under tensile load</li> <li>• Strain relief according DIN EN 60335-1 by screwing the housing halves</li> </ul>	<table border="1"> <thead> <tr> <th colspan="2">VARIANTEN: 24V</th> </tr> </thead> <tbody> <tr> <td>3 m cable length - 24V DC</td> <td>Part.-No. 501251</td> </tr> <tr> <td>5 m cable length - 24V DC</td> <td>Part.-No. 501252</td> </tr> <tr> <td>10 m cable length - 24V DC</td> <td>Part.-No. 501253</td> </tr> <tr> <th colspan="2">VARIANTEN: 230V</th> </tr> <tr> <td>3 m cable length - 230V AC</td> <td>Part.-No. 501273</td> </tr> <tr> <td>5 m cable length - 230V AC</td> <td>Part.-No. 501275</td> </tr> <tr> <td>10 m cable length - 230V AC</td> <td>Part.-No. 501280</td> </tr> </tbody> </table>	VARIANTEN: 24V		3 m cable length - 24V DC	Part.-No. 501251	5 m cable length - 24V DC	Part.-No. 501252	10 m cable length - 24V DC	Part.-No. 501253	VARIANTEN: 230V		3 m cable length - 230V AC	Part.-No. 501273	5 m cable length - 230V AC	Part.-No. 501275	10 m cable length - 230V AC	Part.-No. 501280
VARIANTEN: 24V																			
3 m cable length - 24V DC	Part.-No. 501251																		
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VARIANTEN: 230V																			
3 m cable length - 230V AC	Part.-No. 501273																		
5 m cable length - 230V AC	Part.-No. 501275																		
10 m cable length - 230V AC	Part.-No. 501280																		

### CASEMENT BRACKETS AND FRAME BRACKETS

Special model	PU/pcs.	Part.-No.			
<b>Casement brackets painted / powder coated in other RAL colours</b>					
Lump sum for coating		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516032</b>			
	21 – 50	<b>516032</b>			
	51 – 100	<b>516032</b>			
	from 101	<b>516032</b>			
<b>Frame brackets painted / powder coated in other RAL colours</b>					
Lump sum for coating		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516031</b>			
	21 – 50	<b>516031</b>			
	51 – 100	<b>516031</b>			
	from 101	<b>516031</b>			





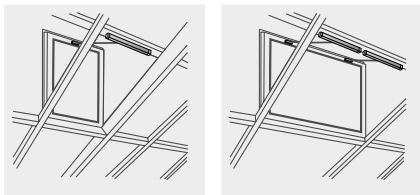
### PRODUCT FEATURES KS15

- For natural ventilation, smoke and heat exhausting systems and ferralux® NRWG (EN12101-2)
- Aluminium housing anodized or optionally in RAL colors
- High-quality, robust and nickel-plated steel chain
- Symmetrical chain output
- Short design with 3-fold wound chain and especially quiet running
- Feedback limit position „CLOSE“ (max. 24 V, 500 mA)
- Programmable parameters of Intelligent Control Electronics S12:
  - Feedback limit position „OPEN“ (max. 24 V, 500 mA)
  - Synchronised multi-operation and sequence control without add. devices
  - Electronic soft-start, soft-close and soft-stop at end of stroke control
  - Stroke, force, speed
  - Rebate control
- Integrated plug solution

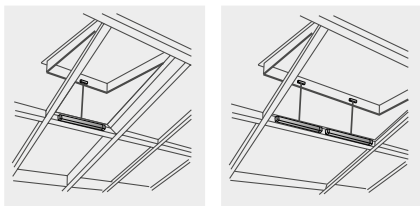
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

**ROOF**

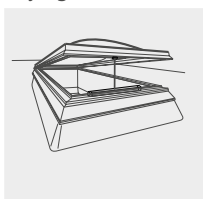
Bottom-hung



Top-hung

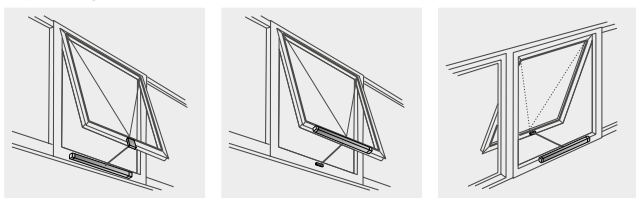


Sky light



**FACADE**

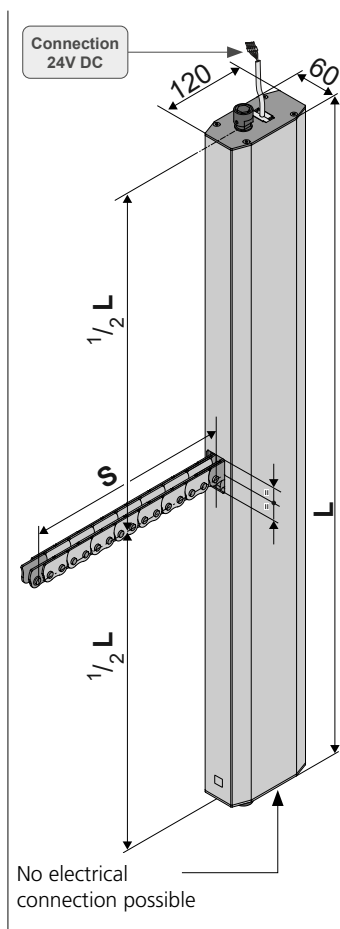
Top-hung



- Application: natural ventilation, RWA, ferralux® NRWG (EN12101-2)
- Symmetrical chain output
- Internal Intelligent Control Electronics S12
- Feedback limit position „CLOSE“ (max. 24 V, 500 mA)
- Integrated plug solution

### Options

- Programmable special functions
- Programmable feedback limit position „OPEN“ (max. 24 V, 500 mA)
- 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	24 V DC (19 V ... 28 V)
$I_N$	Rated current	3,75 A
$I_A$	Cut-off current	5 A
$P_N$	Rated power	90 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 20
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	<ul style="list-style-type: none"> <li>• 300 N to 1.500 N freely adjustable</li> <li>• preset 1.000 N, soft run 300 N</li> </ul>
$F_A$	Pushing force max.	1.500 N, to 1.000 mm linear
$F_H$	Pullout force	5.000 N (fastening depended)
	Chain	High-quality, robust and nickel-plated steel chain
	Connecting cable	non-halogen, grey, $\varnothing$ 9 mm, 5 x 1 mm <sup>2</sup> , ~ 3 m
$v$	Speed	<ul style="list-style-type: none"> <li>• 6,0 mm/s to 17 mm/s, freely adjustable</li> <li>• preset 17 mm/s</li> </ul>
$s$	Stroke	250 – 1000 mm
$L$	Length	see order data
	Feedback contact	limit position „CLOSE“ (max. 24 V, 500 mA)
	Sound pressure level	$\leq$ 70 dB (A)

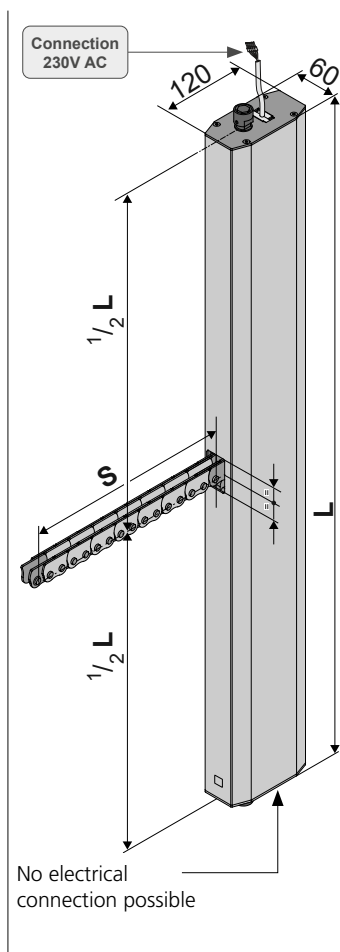
ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.	
<b>Drives</b>						
800	800	KS15 800 S12 24V	E6/C-0	1	<b>525380</b>	
1000	920	KS15 1000 S12 24V	E6/C-0	1	<b>525400</b>	
<b>Set: Frame bracket and casement bracket (kit)</b>						
Set: Frame bracket unit KS15 Schüco AWS 57 RO		K153: Stainless steel, rolled F54: Aluminium, E6/C-0		1	<b>524080</b>	
Set: Frame bracket unit KS15 Raico FRAME+100/120 RI		K154: Stainless steel, rolled F54: Aluminium, E6/C-0		1	<b>524085</b>	

OPTIONEN			
Special model	PU / pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	ab 101	<b>516004</b>	
<b>Plug solution:</b>			
<b>Wire Click</b> - 5 m – non-halogen, grey – 5 x 1,0 mm <sup>2</sup>		<b>501290</b>	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 24V S12		<b>524190</b>	
Programming drives 24V / 230V S12		<b>524180</b>	
<b>Optional accessories</b>			
M-COM Configuration module for synchronised multi-drive systems	1	<b>524177</b>	

- Application: natural ventilation, RWA, ferralux® NRWG (EN12101-2)
- Symmetrical chain output
- Internal Intelligent Control Electronics S12
- Parallel connection up to 8 drives in one group
- Integrated plug solution

### Options

- Programmable synchronised run (max. 4 drives) and special functions
- Programmable feedback limit position „OPEN“ (max. 24 V, 500 mA)



### TECHNICAL DATA

$U_N$	Rated voltage	230 V AC (50 Hz)
$I_N$	Rated current	0,45 A
$I_A$	Cut-off current	0,60 A
$P_N$	Rated power	103 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 20
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	<ul style="list-style-type: none"> <li>• 300N to 1.500N freely adjustable</li> <li>• preset 1.000N, soft run 300N</li> </ul>
$F_A$	Pushing force max.	1.500 N, to 1.000 mm linear
$F_H$	Pullout force	5.000 N (fastening depended)
	Chain	High-quality, robust and nickel-plated steel chain
	Connecting cable	non-halogen, grey, $\varnothing$ 9 mm, 6 x 0,75 mm <sup>2</sup> , ~ 3 m
$v$	Speed	<ul style="list-style-type: none"> <li>• 6,0 mm/s to 17 mm/s, freely adjustable</li> <li>• preset 17 mm/s</li> </ul>
$s$	Stroke	250 – 1000 mm
$L$	Length	see order data
	Sound pressure level	$\leq$ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.	
<b>Drives</b>						
1000	920	KS15 1000 S12 230V	E6/C-0	1	<b>495170</b>	
<b>Set: Frame bracket and casement bracket (kit)</b>						
Set: Frame bracket unit KS15 Schüco AWS 57 RO			K153: Stainless steel, rolled F54: Aluminium, E6/C-0	1	<b>524080</b>	
Set: Frame bracket unit KS15 Raico FRAME+100/120 RI			K154: Stainless steel, rolled F54: Aluminium, E6/C-0	1	<b>524085</b>	

OPTIONS			
Special model	PU / pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Plug solution:</b>			
<b>Wire Click</b> - 5 m – silicone – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>		<b>501292</b>	
<b>Microprocessor programming S12</b>			
Programming synchronised multi-drive systems 230V S12 (each drive)		<b>495588</b>	
Electronic stroke reduction 230V S12		<b>495590</b>	
Programming drives 24V / 230V S12		<b>524180</b>	

OVERVIEW OF BRACKETS						1	2	
Typical application								
Frame bracket						K153 Mounting in the roof	K154 Mounting in the roof	
Casement bracket						F54	F54	
Space requirement	min.	[mm]				49	49	
Overlap thickness (*1)		[mm]				0 - 21	0 - 21	
Opening angle (*2)	max.	[DEG]				60	60	
Casement weight (*3)	max.	[Kg]				300	300	
Window material		Alu				●	●	
		Wood				●	●	
		PVC				●	●	
Type of window and mounting	Bottom hung	inward	HSK	FM			■	■
				RM				
			NSK	FM			■	■
		RM						
		outward	HSK	RM			●	●
				PR				
	NSK		RM			●	●	
			PR					
	Top hung	outward	HSK	RM			●	
				PR				
	Dach	outward	HSK	RM			●	●
				PR				
	PAF	outward		RM			■	■
	Concealed							
FAB (*4)	Solo	[mm]				600 - 1200		
FAH (*4)	Solo	[mm]				250 - 1500		

### LEGEND

● suitable    ■ not recommended

(\*1) Window sizes and opening angles may be different.

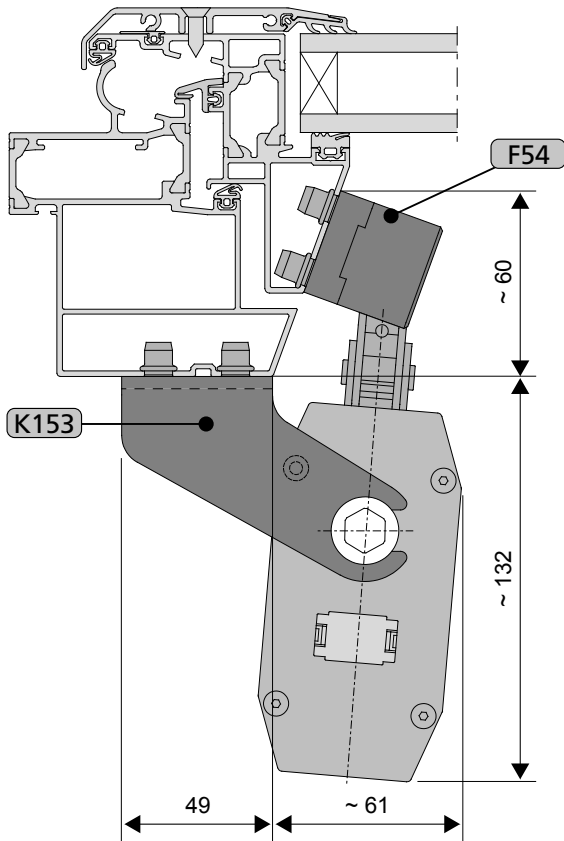
(\*2) Sample values of the opening angle evaluated on the basis of FAB/FAH for inward opening windows with drives mounted at the main closing edge. For any other window heights, for outward opening windows and for windows with drives mounted at the side edges the opening angle will vary.

(\*3) Please respect the individual geometry of the different windows. The listed max. casement weight refers to a single drive on button hung window with a max. opening angle.

(\*4) Sample value of the casement dimensions for corner joints of 110 mm. The actual casement dimensions depend on length of the corner joints, profile dimensions, stroke and position of the drives. The values of FAB/FAH are to be used analogue for side hung windows.

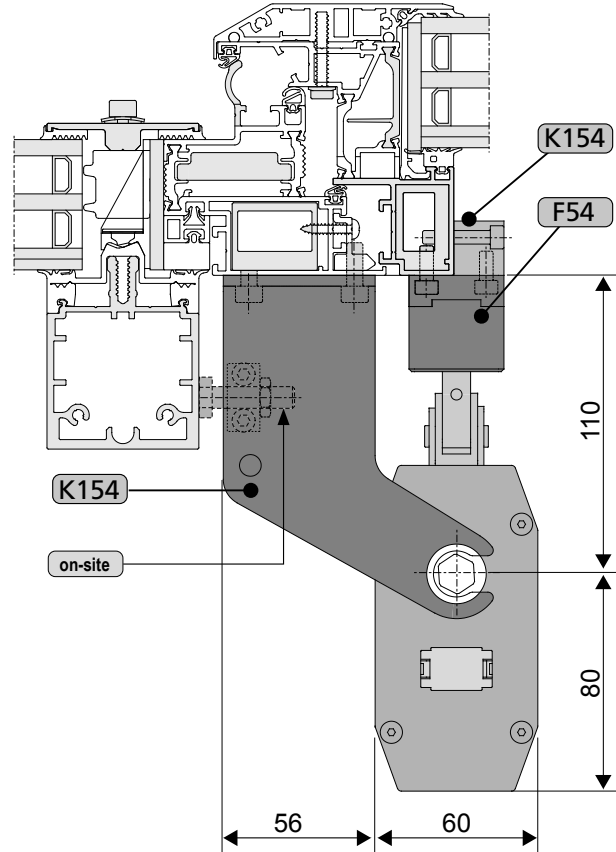
## TYPICAL APPLICATIONS

- 1 RM, roof window, outward opening  
Schüco AWS 57RO



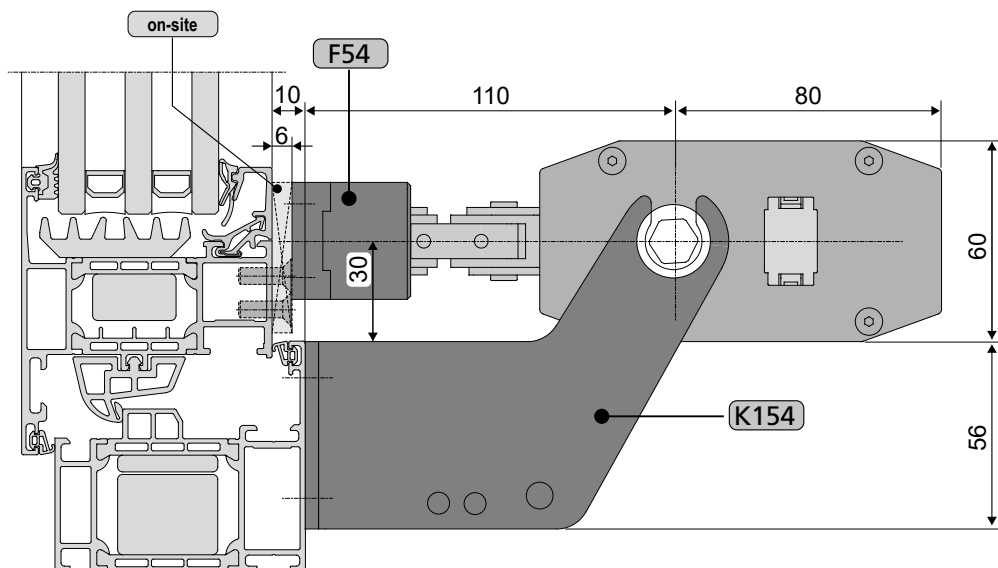
View on aluminium window

- 2 RM, roof window, outward opening  
Raico FRAME+100/120RI



View on aluminium window

- 2 RM, top hung, outward opening (Mounting universal for facade)





View on aluminium window



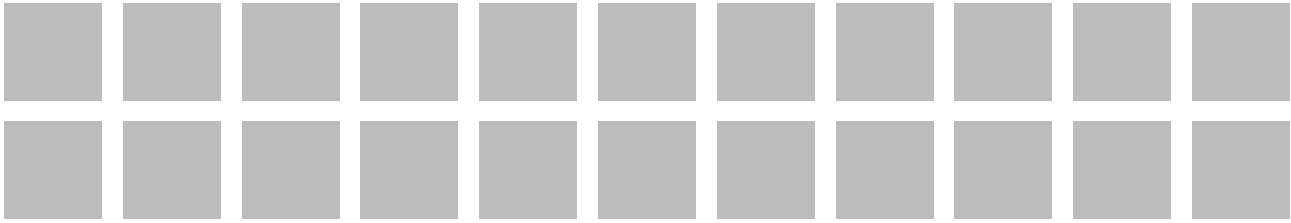


## OPTIONAL ACCESSORIES

Main control unit			
<b>M-COM</b>		<p><b>Application</b></p> <p><b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt;12 mA</p> <p><b>Drive type:</b> S12</p> <p><b>Protection rating</b> IP30 rubber envelope</p>	<p><b>Part.-No. 524177</b></p> <p><b>Ambient temperature range:</b> 0 °C ... + 70 °C</p> <p><b>Dimensions</b> 45 x 17 x 6 mm</p> <p><b>Connecting wires</b> 3 wires 0,5 mm<sup>2</sup> x 50 mm</p> <p><b>Feature/Equipment</b> Printed circuit board with components and connection wires to be installed in connection box to be supplied on site</p>
Plug solution			
<b>Wire Click</b>		<p><b>Application</b></p> <p><b>Wire Click:</b> Unified plug solution for <b>AUMÜLLER</b> chain drives.</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V) 230 V AC (± 20 %), max. 2 Vpp</p> <p><b>Connecting cable:</b> non-halogen, grey 5 x 1,0 mm<sup>2</sup> (24V) 6 x 0,75 mm<sup>2</sup> (230V)</p> <p><b>Terminal:</b> to 1,5 mm<sup>2</sup></p>	<p><b>Feature/Equipment</b></p> <ul style="list-style-type: none"> <li>• Flexible cable length</li> <li>• Connect multiple drives in series connection</li> <li>• Torsion-plug</li> <li>• Locking hooks prevent withdrawal of the plug under tensile load</li> <li>• Strain relief according DIN EN 60335-1 by screwing the housing halves</li> </ul>
Illustration: 24V	<b>VARIANTS: 24V</b>	5 m cable length - 24V DC	<b>Part.-No. 501290</b>
	<b>VARIANTS: 230V</b>	5 m cable length - 230V AC	<b>Part.-No. 501292</b>

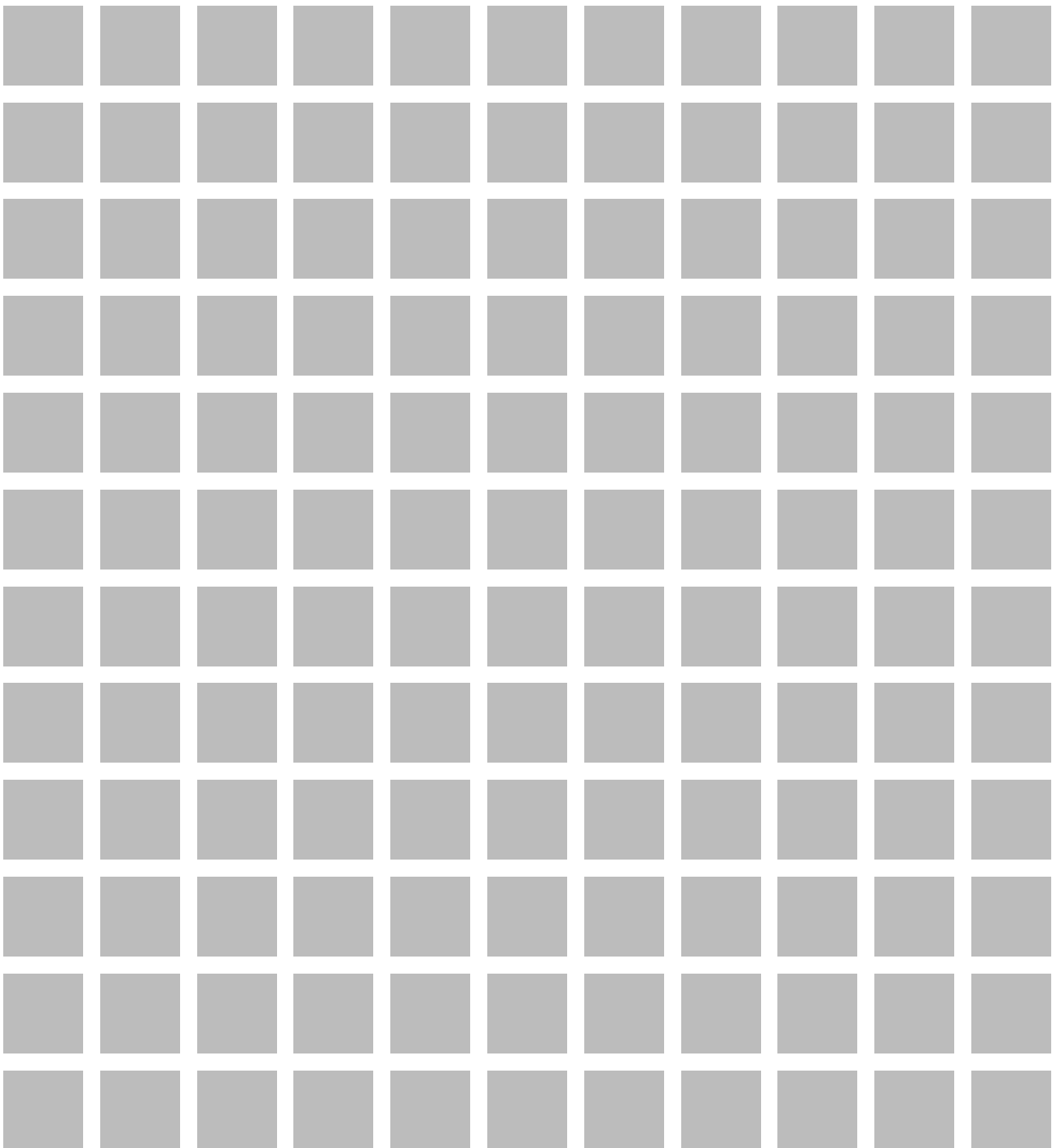
## CASEMENT BRACKETS AND FRAME BRACKETS

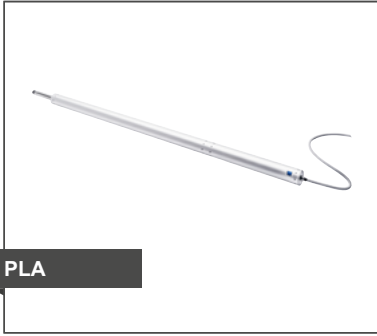
Special model	PU/pcs.	Part.-No.
<b>Casement brackets painted / powder coated in other RAL colours</b>		
Lump sum for coating		<b>516030</b>
Specify at order stage:	1 – 20	<b>516032</b>
	21 – 50	<b>516032</b>
	51 – 100	<b>516032</b>
	from 101	<b>516032</b>
<b>Frame brackets painted / powder coated in other RAL colours</b>		
Lump sum for coating		<b>516030</b>
Specify at order stage:	1 – 20	<b>516031</b>
	21 – 50	<b>516031</b>
	51 – 100	<b>516031</b>
	from 101	<b>516031</b>



# 2

## Spindle drives





PLA

### PLA SPINDLE DRIVES

- Model 24V DC, S3 und S12
- Pulling force 600–1600 N (type depending)
- Stroke length 100–1200 mm
- Speed 4,0–12,5 mm/s (type depending)
- Housing (DxL) D=36 mm, length depends on stroke
- Opening mechanism stainless steel spindle tube
- Versions Solo, Tandem, Synchro
- Protection rating IP65

PLA



PLS

### PLS SPINDLE DRIVES

- Model 24V DC, S12
- Pulling force 1500–5000 N
- Stroke length 300–1200 mm
- Speed 4,0–17,0 mm/s (type depending)
- Housing (DxL) D=50/(60) mm, length depends on stroke
- Opening mechanism stainless steel spindle tube
- Versions Solo, Tandem, Synchro
- Protection rating IP54

PLS



SP

### SP SPINDLE DRIVES

- Model 24V DC, S2/230V AC, S2
- Pulling force 800 N
- Stroke length 100–750 mm (230V AC: 300–750)
- Speed 7,0 mm/s
- Housing (DxL) 43x76 mm, length depends on stroke
- Opening mechanism aluminium spindle tube
- Versions Solo, Z with feedback contact
- Protection rating IP54/IP65

SP

SPINDLE DRIVES																		
Type	Form	Model		Stroke	Force		Speed		Stroke in	Cut-off current	Use			Location		Functions		
		Type of cut-off	Rated voltage	Range	Pushing force	Pulling force	OPEN	CLOSE	60 s	Max.	Natural ventilation	RWA	NRWG	Facade	Roof	Run monitoring	Synchronised run	Sequence control
		[VDC]	[mm]	[N]	[N]	[mm/s]	[mm/s]	[mm]	[A]									
PLA	PLA6	S3	24	100–1200	600	600	6,0	6,0	350	0,8	●	●	●	■	●	●	●	●
		S12		100–1200	600	600	6,0	6,0	350	0,8	●	●	●	■	●	●	●	●
	PLA8	S3	24	100–1200	800	800	10,0	10,0	600	1,4	●	●	●	■	●	●	●	●
		S12		100–1200	800	800	10,0	10,0	600	1,4	●	●	●	■	●	●	●	●
	PLA10	S12	24	100–1200	1000	1000	12,6	12,6	750	2,5	●	●	●	■	●	●	●	●
	PLA101	S3	24	100–1200	1000	1000	4,6	4,6	250	1,0	●	●	●	■	●	●	●	●
		S12		100–1200	1000	1000	4,6	4,6	250	1,0	●	●	●	■	●	●	●	●
	PLA16	S12		100–1200	1600	1600	7,0	7,0	400	2,5	●	●	●	■	●	●	●	●
	PLA116	S3	24	100–750	1600	1600	4,0	4,0	240	1,2	●	●	●	■	●	●	●	●
S12			100–750	1600	1600	4,0	4,0	240	1,2	●	●	●	■	●	●	●	●	
PLS	PLS15	S12	24	300–1200	1500	1500	16,0	16,0	950	4,0	●	●	●	■	●	●	●	●
	PLS30	S12	24	300–1200	3000	2000	7,8	7,8	450	5,0	●	●	●	■	●	●	●	●
	PLS50	S12	24	200–750	5000	5000	4,0	4,0	240	4,2	●	●	●	■	●	●	●	●
SP	SP8	S2	24	100–750	800	800	7,0	7,0	400	1,0	●	●		■	●	○		○
		S2	230	300–750	800	800	7,0	7,0	400	0,2	●			■	●			

LEGEND

- suitable      ■ not recommended
- S2                      internal load dependend cut-off switch
- S3                      internal load dependend cut-off switch, post cycle resistant, programmable for motion monitoring (up to 300 mm stroke) and sequence control
- S12                     internal Intelligent Control Electronics for synchronised run and programmable functions
- only with external modules (cut-off switch system, synchronisation module, sequence control module)



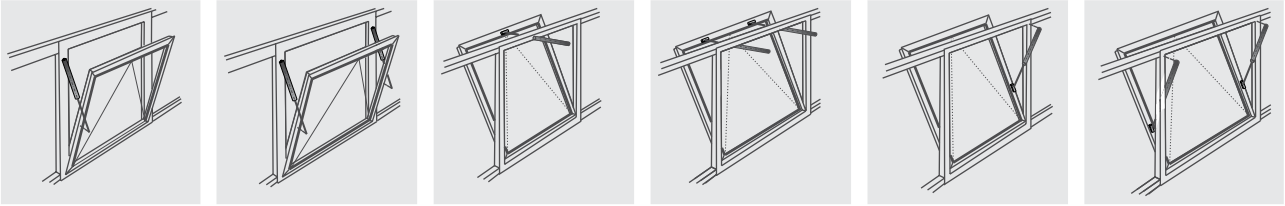
### SPECIAL FEATURES PLA

- For natural ventilation, smoke and heat exhausting and ferralux® NRW (EN12101-2)
- Robust corrosion-resistant design in a slim aluminium housing (D = 36 mm), optionally in RAL colors
- Easy installation due to adjustable clamp ring and rear suspension
- Spindle is ball beared with end position dampening
- Stainless steel spindle tube
- Programmable parameters of Intelligent Control Electronics S12
  - Synchronised multi-operation and sequence control without add. devices
  - Electronic soft-start, soft-close and soft-stop at end of stroke control
  - Stroke, force, speed
  - Rebate control
- Protection rating IP 65
- With GoreTex membrane
- Suitable for operation with M-COM for the automatic configuration of synchronised run of multi drive systems and sequence control

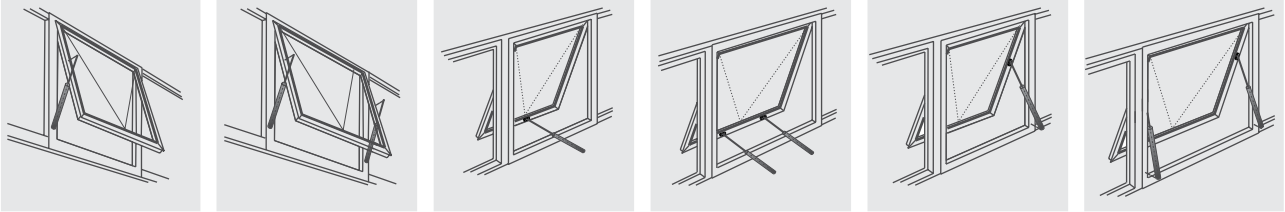
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

**FACADE**

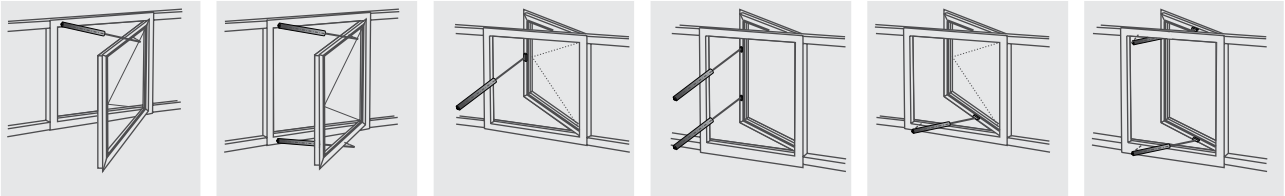
Bottom-hung



Top-hung

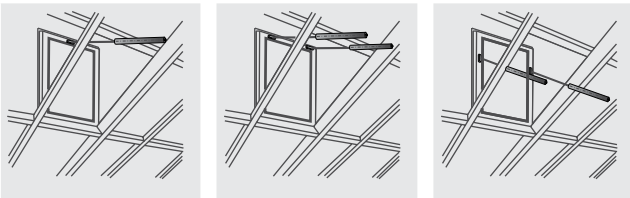


Side-hung

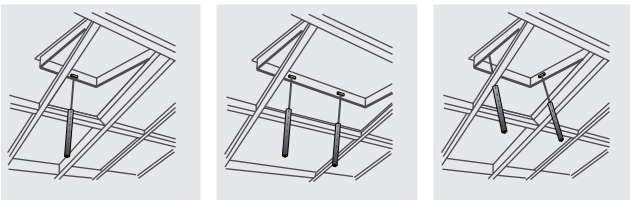


**ROOF**

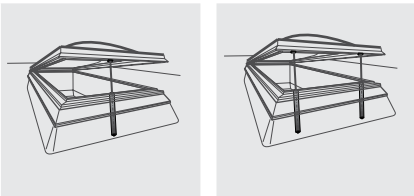
Bottom-hung



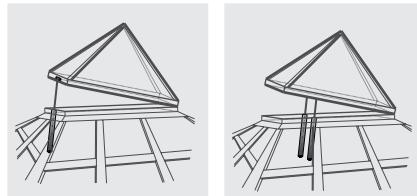
Top-hung

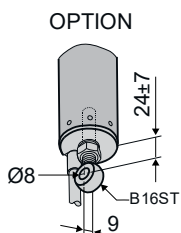
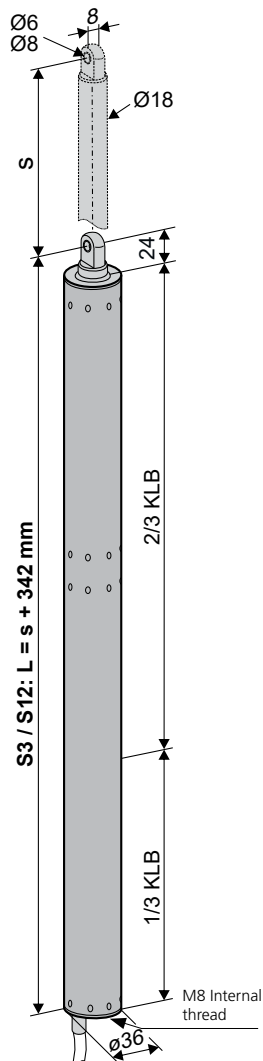
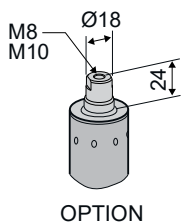


Sky light



Glass pyramid





- Application: natural ventilation, RWA, ferralux®-NRWG

**Options**

- Spindle tube end with interior thread for clevis
- Eyebolt and clevis for rear suspension

**S3**

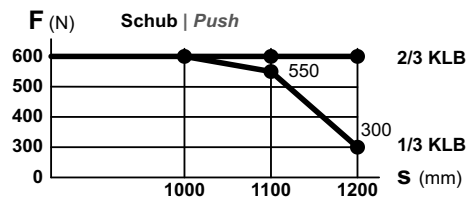
- Internal load dependent cut-off switch, post cycle resistant S3
- Programmable motion monitored run (up to 300 mm stroke)
- Programmable sequence control with Locking drives (S3 / S12)

**S12**

- Internal Intelligent Control Electronics S12
- Options
- Programmable synchronised run (max. 4 drives) and 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	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,6 A
$I_A$	Cut-off current	0,8 A
$P_N$	Rated power	15 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	600 N
$F_A$	Pushing force max.	



$F_H$	Pullout force	5000 N (fastening depended)
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Spindle tube stainless steel

Connecting cable non-halogen, grey 3 x 1,0 mm<sup>2</sup>, ~ 3 m

$v$	Speed	6,0 mm/s
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$s$	Stroke	100 – 1200 mm
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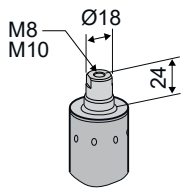
$L$	Length	S3 / S12: s + 342 mm (see order data)
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Sound pressure level ≤ 70 dB (A)

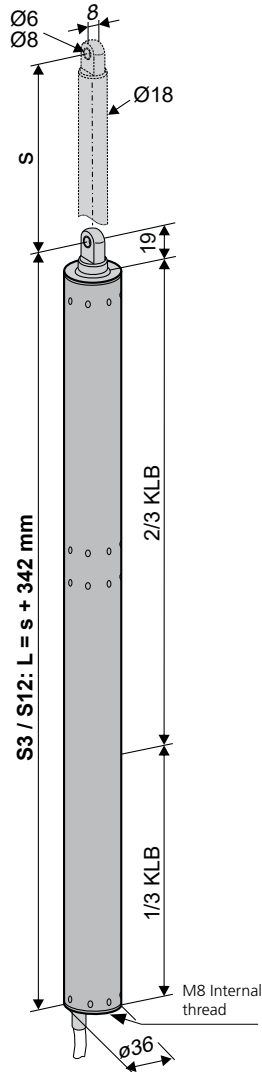


ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	442	PLA6 100 S3	E6/C-0	1	564111	
	442	PLA6 100 S12		1	546310	
200	542	PLA6 200 S3	E6/C-0	1	564122	
	542	PLA6 200 S12		1	546320	
300	642	PLA6 300 S3	E6/C-0	1	564131	
	642	PLA6 300 S12		1	546330	
400	742	PLA6 400 S3	E6/C-0	1	564141	
	742	PLA6 400 S12		1	546340	
500	842	PLA6 500 S3	E6/C-0	1	564151	
	842	PLA6 500 S12		1	546350	
600	942	PLA6 600 S3	E6/C-0	1	564161	
	942	PLA6 600 S12		1	546360	
750	1092	PLA6 750 S3	E6/C-0	1	564176	
	1092	PLA6 750 S12		1	546375	
1000	1342	PLA6 1000 S3	E6/C-0	1	564201	
	1342	PLA6 1000 S12		1	546400	

OPTIONS						
Special model				PU/pcs.	Part.-No.	
<b>Front Fixing</b>						
Spindle tube end with interior thread M8				1	515061	
Spindle tube end with interior thread M10				1	515060	
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>					516030	
Specify at order stage:				1 – 20	516004	
				21 – 50	516004	
				51 – 100	516004	
				from 101	516004	
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>					501037	
10 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>					501039	
<b>Mechanic stroke reduction S3</b>						
Stroke reduction without construction length - mechanically				1	516000	
<b>Accessories for front / rear suspension</b>						
B16ST Eyebolt Ø8 mm, galvanized				1	100044	
B16VA Eyebold Ø8 mm, stainless steel				1	100144	
B27ST Clevis M8x16 mm, galvanized, thread M8x45 mm				1	105510	
B28ST Clevis M10x20 mm, galvanized, thread M10x50 mm				1	105520	
<b>Microprocessor programming S3</b>						
Motion monitored run / sequence control				1	524181	
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12				1	524190	
Programming drives 24V / 230V S12				1	524180	
<b>Other lengths available on request</b>						
<b>Optional accessories</b>				PU/pcs.	Part.-No.	
M-COM Configuration module for synchronised multi-drive systems				1	524177	

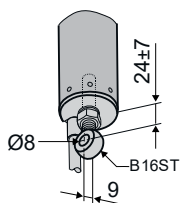


OPTION



S3 / S12: L = s + 342 mm

OPTION



- Application: natural ventilation, RWA, ferralux®-NRWG

**Options**

- Spindle tube end with interior thread for clevis
- Eyebolt and clevis for rear suspension

**S3**

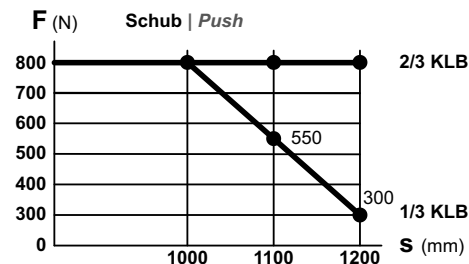
- Internal load dependent cut-off switch, post cycle resistant S3
- Programmable motion monitored run (up to 300 mm stroke)
- Programmable sequence control with locking drives (S3 / S12)

**S12**

- Internal Intelligent Control Electronics S12
- Options
  - Programmable synchronised run (max. 4 drives) and special functions
  - M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)

**TECHNICAL DATA**

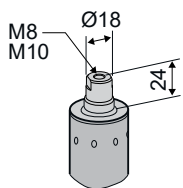
<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19V ... 28V)
<b>I<sub>N</sub></b>	Rated current	1,0 A
<b>I<sub>A</sub></b>	Cut-off current	1,4 A
<b>P<sub>N</sub></b>	Rated power	24 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>Z</sub></b>	Pulling force max.	800 N
<b>F<sub>A</sub></b>	Pushing force max.	



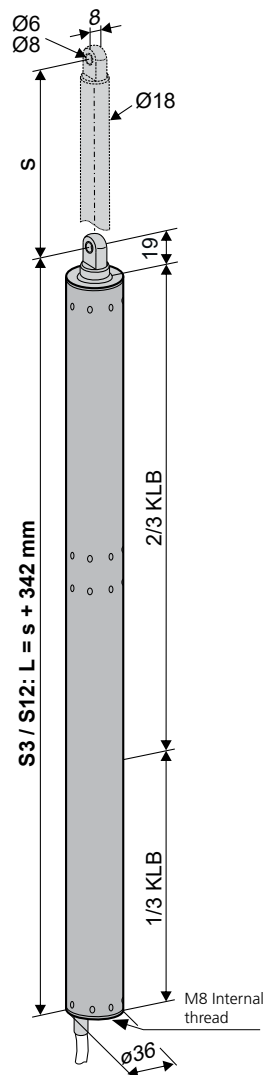
<b>F<sub>H</sub></b>	Pullout force	5000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 3 x 1,0 mm <sup>2</sup> , ~ 3 m
<b>v</b>	Speed	↔ 10,0 mm/s    ↶ 10,0 mm/s
<b>s</b>	Stroke	100 – 1200 mm
<b>L</b>	Length	S3 / S12: s + 342 mm (see order data)
	Sound pressure level	≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	442	PLA8 100 S3	E6/C-0	1	<b>523711</b>	
	442	PLA8 100 S12		1	<b>515210</b>	
200	542	PLA8 200 S3	E6/C-0	1	<b>523721</b>	
	542	PLA8 200 S12		1	<b>515220</b>	
300	642	PLA8 300 S3	E6/C-0	1	<b>523731</b>	
	642	PLA8 300 S12		1	<b>515230</b>	
400	742	PLA8 400 S3	E6/C-0	1	<b>523741</b>	
	742	PLA8 400 S12		1	<b>515240</b>	
500	842	PLA8 500 S3	E6/C-0	1	<b>523751</b>	
	842	PLA8 500 S12		1	<b>515250</b>	
600	942	PLA8 600 S3	E6/C-0	1	<b>523761</b>	
	942	PLA8 600 S12		1	<b>515260</b>	
750	1092	PLA8 750 S3	E6/C-0	1	<b>523776</b>	
	1092	PLA8 750 S12		1	<b>515275</b>	
1000	1342	PLA8 1000 S3	E6/C-0	1	<b>523801</b>	
	1342	PLA8 1000 S12		1	<b>515295</b>	

OPTIONS							
Special model				PU/pcs.	Part.-No.		
<b>Front Fixing</b>							
Spindle tube end with interior thread M8				1	<b>515061</b>		
Spindle tube end with interior thread M10				1	<b>515060</b>		
<b>Drive housing painted/powder coated in other RAL colours</b>							
<b>Lump sum for coating</b>						<b>516030</b>	
Specify at order stage:				1 – 20	<b>516004</b>		
				21 – 50	<b>516004</b>		
				51 – 100	<b>516004</b>		
				from 101	<b>516004</b>		
<b>Extra length connecting cable:</b>							
5 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>					<b>501037</b>		
10 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>					<b>501039</b>		
<b>Mechanic stroke reduction S3</b>							
Stroke reduction without construction length - mechanically				1	<b>516000</b>		
<b>Accessories for front / rear suspension</b>							
B16ST Eyebolt Ø8 mm, galvanized				1	<b>100044</b>		
B16VA Eyebolt Ø8 mm, stainless steel				1	<b>100144</b>		
B27ST Clevis M8x16 mm, galvanized, thread M8x45 mm				1	<b>105510</b>		
B28ST Clevis M10x20 mm, galvanized, thread M10x50 mm				1	<b>105520</b>		
<b>Microprocessor programming S3</b>							
Motion monitored run / sequence control				1	<b>524181</b>		
<b>Microprocessor programming S12</b>							
Electronic stroke reduction 24V S12				1	<b>524190</b>		
Programming drives 24V / 230V S12				1	<b>524180</b>		
<b>Other lengths available on request</b>							
<b>Optional accessories</b>				PU/pcs.	Part.-No.		
M-COM Configuration module for synchronised multi-drive systems				1	<b>524177</b>		



OPTION



S3 / S12: L = s + 342 mm

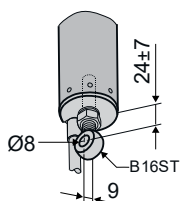
2/3 KLB

1/3 KLB

M8 Internal thread

Ø36

OPTION



- Application: natural ventilation, RWA, ferralux®-NRWG

**Options**

- Spindle tube end with interior thread for clevis
- Eyebolt and clevis for rear suspension

**S3**

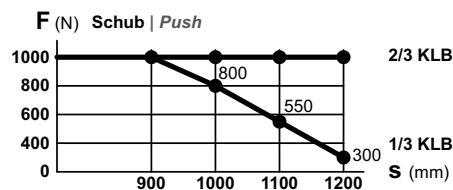
- Internal load dependent cut-off switch, post cycle resistant S3
- Programmable motion monitored run (up to 300 mm stroke)
- Programmable sequence control with locking drives (S3 / S12)

**S12**

- Internal Intelligent Control Electronics S12
- Options**
- Programmable synchronised run (max. 4 drives) and special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)

**TECHNICAL DATA**

<b>U<sub>N</sub></b>	Rated voltage	24V DC (19V ... 28V)
<b>I<sub>N</sub></b>	Rated current	0,8 A
<b>I<sub>A</sub></b>	Cut-off current	1,0 A
<b>P<sub>N</sub></b>	Rated power	19 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>Z</sub></b>	Pulling force max.	1000 N
<b>F<sub>A</sub></b>	Pushing force max.	



<b>F<sub>H</sub></b>	Pullout force	5000 N (fastening depended)
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Spindle tube stainless steel

Connecting cable non-halogen, grey 3 x 1,0 mm<sup>2</sup>, ~ 3 m

<b>v</b>	Speed	4,6 mm/s
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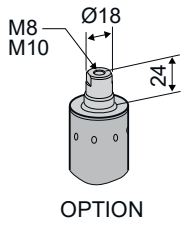
<b>s</b>	Stroke	100 – 1200 mm
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<b>L</b>	Length	S3 / S12: s + 342 mm (see order data)
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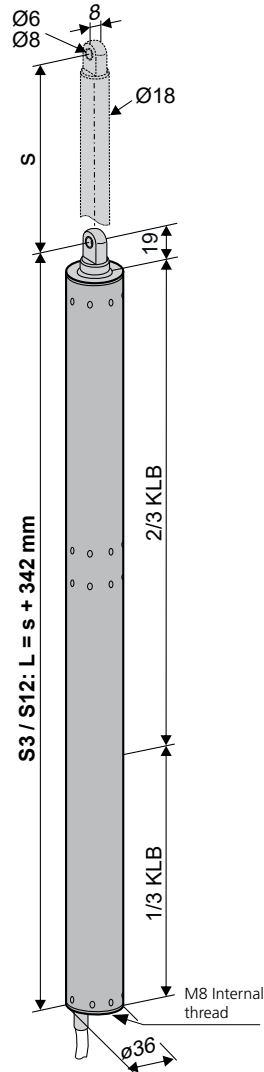
	Sound pressure level	≤ 70 dB (A)
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ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	442	PLA101 100 S3	E6/C-0	1	<b>565111</b>	
	442	PLA101 100 S12		1	<b>564910</b>	
200	542	PLA101 200 S3	E6/C-0	1	<b>565121</b>	
	542	PLA101 200 S12		1	<b>564922</b>	
300	642	PLA101 300 S3	E6/C-0	1	<b>565131</b>	
	642	PLA101 300 S12		1	<b>564930</b>	
400	742	PLA 01 400 S3	E6/C-0	1	<b>565141</b>	
	742	PLA101 400 S12		1	<b>564940</b>	
500	842	PLA101 500 S3	E6/C-0	1	<b>565151</b>	
	842	PLA101 500 S12		1	<b>564950</b>	
600	942	PLA101 600 S3	E6/C-0	1	<b>565161</b>	
	942	PLA101 600 S12		1	<b>564960</b>	
750	1092	PLA101 750 S3	E6/C-0	1	<b>565176</b>	
	1092	PLA101 750 S12		1	<b>564975</b>	
1000	1342	PLA101 1000 S3	E6/C-0	1	<b>565201</b>	
	1342	PLA101 1000 S12		1	<b>565000</b>	

OPTIONS						
Special model				PU/pcs.	Part.-No.	
<b>Front Fixing</b>						
Spindle tube end with interior thread M8				1	<b>515061</b>	
Spindle tube end with interior thread M10				1	<b>515060</b>	
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>					<b>516030</b>	
Specify at order stage:				1 – 20	<b>516004</b>	
				21 – 50	<b>516004</b>	
				51 – 100	<b>516004</b>	
				from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>					<b>501037</b>	
10 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>					<b>501039</b>	
<b>Mechanic stroke reduction S3</b>						
Stroke reduction without construction length - mechanically				1	<b>516000</b>	
<b>Accessories for front / rear suspension</b>						
B16ST Eyebolt Ø8 mm, galvanized				1	<b>100044</b>	
B16VA Eyebold Ø8 mm, stainless steel				1	<b>100144</b>	
B27ST Clevis M8x16 mm, galvanized, thread M8x45 mm				1	<b>105510</b>	
B28ST Clevis M10x20 mm, galvanized, thread M10x50 mm				1	<b>105520</b>	
<b>Microprocessor programming S3</b>						
Motion monitored run / sequence control				1	<b>524181</b>	
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12				1	<b>524190</b>	
Programming drives 24V / 230V S12				1	<b>524180</b>	
<b>Other lengths available on request</b>						
<b>Optional accessories</b>				PU/pcs.	<b>Part.-No.</b>	
M-COM Configuration module for synchronised multi-drive systems				1	<b>524177</b>	



OPTION

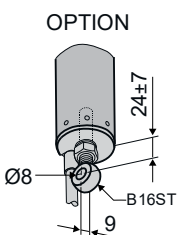


S3 / S12: L = s + 342 mm

2/3 KLB

1/3 KLB

M8 Internal thread  
Ø36



OPTION

- Application: natural ventilation, RWA, ferralux®-NRWG
- Options**
- Spindle tube end with interior thread for clevis
- Eyebolt and clevis for rear suspension

### S3

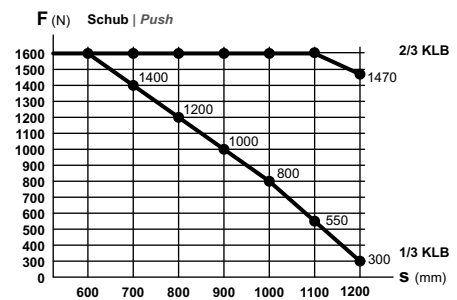
- Internal load dependend cut-off switch, post cycle resistant S3
- Programmable motion monitored run (up to 300 mm stroke)
- Programmable sequence control with locking drives (S3 / S12)

### S12

- Internal Intelligent Control Electronics S12
- Options**
- Programmable synchronised run (max. 4 drives) and special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)

## TECHNICAL DATA

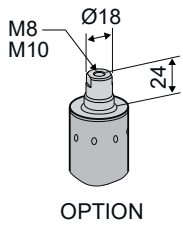
$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	1,0 A
$I_A$	Cut-off current	1,2 A
$P_N$	Rated power	24 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	1600 N
$F_A$	Pushing force max.	



$F_H$	Pullout force	5000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 3 x 1,0 mm <sup>2</sup> , ~ 3 m
$v$	Speed	✂ 4,0 mm/s    ↻ 4,0 mm/s
$s$	Stroke	100 – 1200 mm
$L$	Length	S3 / S12: s + 342 mm (see order data)
	Sound pressure level	≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	442	PLA116 100 S3	E6/C-0	1	<b>565312</b>	
	442	PLA116 100 S12		1	<b>565510</b>	
200	542	PLA116 200 S3	E6/C-0	1	<b>565321</b>	
	542	PLA116 200 S12		1	<b>565520</b>	
300	642	PLA116 300 S3	E6/C-0	1	<b>565331</b>	
	642	PLA116 300 S12		1	<b>565530</b>	
400	742	PLA116 400 S3	E6/C-0	1	<b>565341</b>	
	742	PLA116 400 S12		1	<b>565540</b>	
500	842	PLA116 500 S3	E6/C-0	1	<b>565351</b>	
	842	PLA116 500 S12		1	<b>565550</b>	
600	942	PLA116 600 S3	E6/C-0	1	<b>565361</b>	
	942	PLA116 600 S12		1	<b>565560</b>	
750	1092	PLA116 750 S3	E6/C-0	1	<b>565376</b>	
	1092	PLA116 750 S12		1	<b>565575</b>	

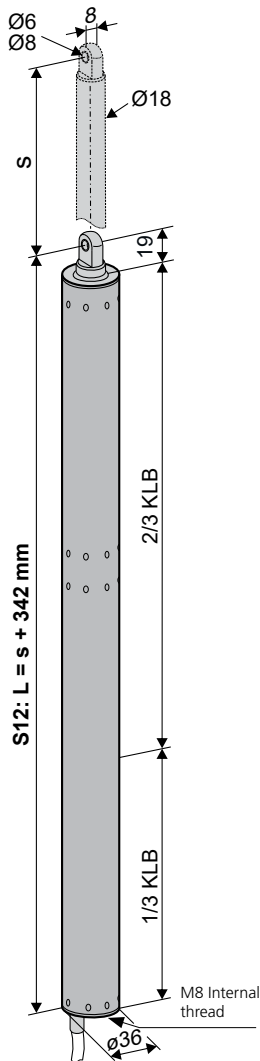
OPTIONS						
Special model				PU/pcs.	Part.-No.	
<b>Front Fixing</b>						
Spindle tube end with interior thread M8				1	<b>515061</b>	
Spindle tube end with interior thread M10				1	<b>515060</b>	
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>					<b>516030</b>	
Specify at order stage:				1 – 20	<b>516004</b>	
				21 – 50	<b>516004</b>	
				51 – 100	<b>516004</b>	
				from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>					<b>501037</b>	
10 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>					<b>501039</b>	
<b>Mechanic stroke reduction S3</b>						
Stroke reduction without construction length - mechanically				1	<b>516000</b>	
<b>Accessories for front / rear suspension</b>						
B16ST Eyebolt Ø8 mm, galvanized				1	<b>100044</b>	
B16VA Eyebolt Ø8 mm, stainless steel				1	<b>100144</b>	
B27ST Clevis M8x16 mm, galvanized, thread M8x45 mm				1	<b>105510</b>	
B28ST Clevis M10x20 mm, galvanized, thread M10x50 mm				1	<b>105520</b>	
<b>Microprocessor programming S3</b>						
Motion monitored run / sequence control				1	<b>524181</b>	
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12				1	<b>524190</b>	
Programming drives 24V / 230V S12				1	<b>524180</b>	
<b>Other lengths available on request</b>						
<b>Optional accessories</b>				PU/pcs.	Part.-No.	
M-COM Configuration module for synchronised multi-drive systems				1	<b>524177</b>	



- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12

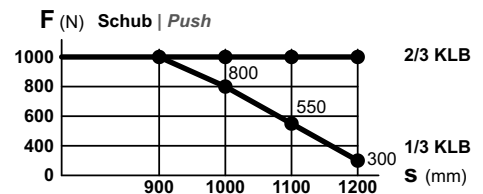
### Options

- Programmable synchronised run (max. 4 drives) and special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)
- Spindle tube end with interior thread for clevis
- Eyebolt and clevis for rear suspension

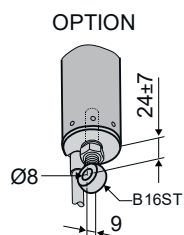


### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24V DC (19V ... 28V)
<b>I<sub>N</sub></b>	Rated current	1,9 A
<b>I<sub>A</sub></b>	Cut-off current	2,5 A
<b>P<sub>N</sub></b>	Rated power	45 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>Z</sub></b>	Pulling force max.	1000 N
<b>F<sub>A</sub></b>	Pushing force max.	



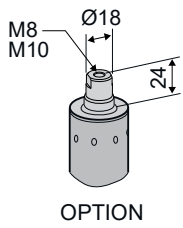
<b>F<sub>H</sub></b>	Pullout force	5000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 3 x 1,0 mm <sup>2</sup> , ~ 3 m
<b>v</b>	Speed	↖ 12,6 mm/s    ↘ 12,6 mm/s
<b>s</b>	Stroke	100 – 1200 mm
<b>L</b>	Length	s + 342 mm (see order data)
	Sound pressure level	≤ 70 dB (A)



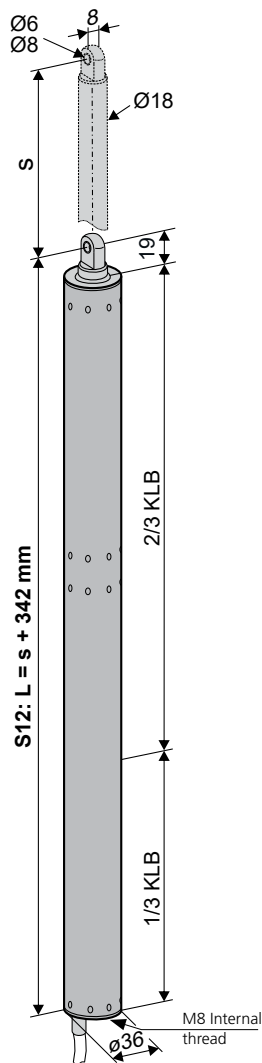


ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	442	PLA10 100 S12	E6/C-0	1	523610	
200	542	PLA10 200 S12	E6/C-0	1	523620	
300	642	PLA10 300 S12	E6/C-0	1	523630	
400	742	PLA10 400 S12	E6/C-0	1	523640	
500	842	PLA10 500 S12	E6/C-0	1	523650	
600	942	PLA10 600 S12	E6/C-0	1	523660	
750	1092	PLA10 750 S12	E6/C-0	1	523675	
1000	1342	PLA10 1000 S12	E6/C-0	1	523700	

OPTIONS						
Special model		PU/pcs.	Part.-No.			
<b>Front Fixing</b>						
Spindle tube end with interior thread M8		1	515061			
Spindle tube end with interior thread M10		1	515060			
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>				516030		
Specify at order stage:		1 – 20	516004			
		21 – 50	516004			
		51 – 100	516004			
		from 101	516004			
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>			501037			
10 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>			501039			
<b>Accessories for front / rear suspension</b>						
B16ST Eyebolt Ø8 mm, galvanized		1	100044			
B16VA Eyebold Ø8 mm, stainless steel		1	100144			
B27ST Clevis M8x16 mm, galvanized, thread M8x45 mm		1	105510			
B28ST Clevis M10x20 mm, galvanized, thread M10x50 mm		1	105520			
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12		1	524190			
Programming drives 24V / 230V S12		1	524180			
<b>Other lengths available on request</b>						
<b>Optional accessories</b>			PU/pcs.	Part.-No.		
M-COM Configuration module for synchronised multi-drive systems		1	524177			

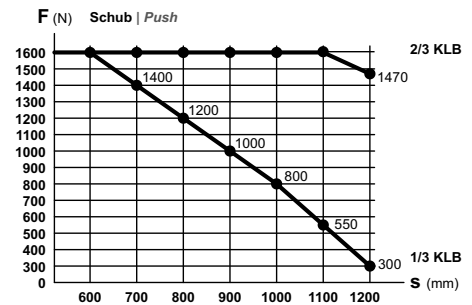


- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Options**
- Programmable synchronised run (max. 4 drives) and special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)
- Spindle tube end with interior thread for clevis
- Eyebolt and clevis for rear suspension

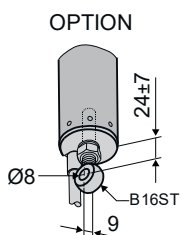


### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24V DC (19V ... 28V)
<b>I<sub>N</sub></b>	Rated current	1,9 A
<b>I<sub>A</sub></b>	Cut-off current	2,5 A
<b>P<sub>N</sub></b>	Rated power	45 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>Z</sub></b>	Pulling force max.	1600 N
<b>F<sub>A</sub></b>	Pushing force max.	



<b>F<sub>H</sub></b>	Pullout force	5000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 3 x 1,0 mm <sup>2</sup> , ~ 3 m
<b>v</b>	Speed	7,0 mm/s
<b>s</b>	Stroke	100 – 1200 mm
<b>L</b>	Length	s + 342 mm (see order data)
	Sound pressure level	≤ 70 dB (A)



ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	442	PLA16 100 S12	E6/C-0	1	565710	
200	542	PLA16 200 S12	E6/C-0	1	565720	
300	642	PLA16 300 S12	E6/C-0	1	565730	
400	742	PLA16 400 S12	E6/C-0	1	565740	
500	842	PLA16 500 S12	E6/C-0	1	565750	
600	942	PLA16 600 S12	E6/C-0	1	565760	
750	1092	PLA16 750 S12	E6/C-0	1	565775	
1000	1342	PLA16 1000 S12	E6/C-0	1	565800	

OPTIONS						
Special model		PU/pcs.	Part.-No.			
<b>Front Fixing</b>						
Spindle tube end with interior thread M8		1	515061			
Spindle tube end with interior thread M10		1	515060			
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>			516030			
Specify at order stage:		1 – 20	516004			
		21 – 50	516004			
		51 – 100	516004			
		from 101	516004			
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>			501037			
10 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>			501039			
<b>Accessories for front / rear suspension</b>						
B16ST Eyebolt Ø8 mm, galvanized		1	100044			
B16VA Eyebold Ø8 mm, stainless steel		1	100144			
B27ST Clevis M8x16 mm, galvanized, thread M8x45 mm		1	105510			
B28ST Clevis M10x20 mm, galvanized, thread M10x50 mm		1	105520			
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12		1	524190			
Programming drives 24V / 230V S12		1	524180			
<b>Other lengths available on request</b>						
<b>Optional accessories</b>			PU/pcs.	Part.-No.		
M-COM Configuration module for synchronised multi-drive systems		1	524177			

OVERVIEW OF BRACKETS													
Typical applications			1	2	3	4	5	6	7	8	9	10	
Frame bracket			K5	K5	K5	K17	K82	K122	K127	K122-1	K122-1	K7	
Mounting aid					K21								
Bracket accessories			clamping ring B4 (36 mm-G1/8)										
Casement bracket			F29-1	F1, F1V, F1.1, F10.6, F10.8S, F11, F13, F40				F29	F11	F36	F30	F12	
Special application			Heroal 085D					Heroal 085 D	Wing 105D	AWS 57RO	Witect 50	Sky light Essmann	
Space requirement		min. [mm]	50	50	40 – 50	70	45	60	35	68	68	120	
Window material		Alu	●	●	●	●	●	●	●	●	●		
		Wood		●	●	●	●						
		PVC		●	●	●	●					●	
Type of window and mounting	Bot- tom hung	in- ward	HSK	FM			■			■			
				RM									
			NSK	FM									
		RM											
		out- ward	HSK	RM			●		●				
				PR		●		●					
	NSK		RM										
			PR										
	Top hung	in- ward	HSK	FM			■			■			
				RM									
			NSK	FM									
		RM											
		out- ward	HSK	RM			●		●				
				PR		●		●					
	NSK		RM										
			PR										
	Side hung	in- ward	HSK	FM			■			■			
				RM									
			NSK	FM									
		RM											
		Roof	out- ward	HSK	RM	●		●		●			
					PR		●		●				
	NSK		RM			●			●	●	●	●	
			PR		●		●						
Sky- light	out- ward	HSK	RM		●		●	●			●		
		NSK	RM										
FAB(*1)		Solo [mm]						450 – 1300				600 – 1200	
		Sync2 [mm]						1200 – 2400				1200 – 2400	
FAH(*1)		Solo [mm]						450 – 1500				600 – 1200	
		Sync2 [mm]						450 – 2500				1200 – 1500	

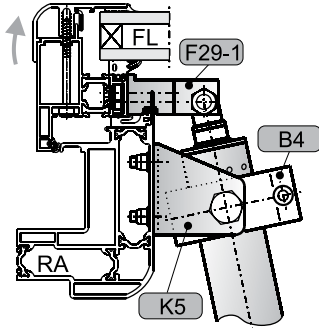
### LEGEND

- suitable
- not recommended

(\*1) Sample value of the casement dimensions. The actual casement dimensions depend on the stroke and the position of the drives to the hinges. The values of FAB/FAH are to be used analogue for side hung windows.

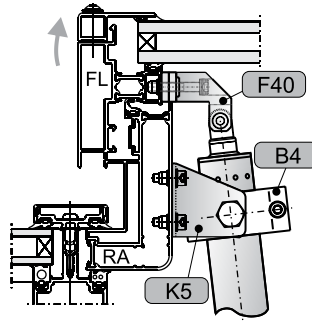
TYPICAL APPLICATIONS

1 RM, HSK, roof



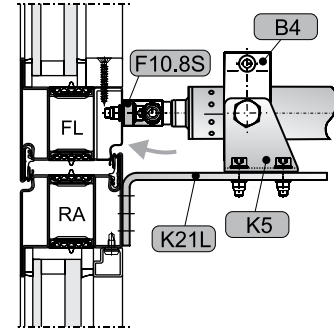
View on aluminium window

2 RM, HSK, roof



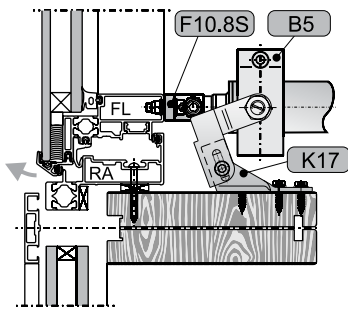
View on aluminium window

3 RM, HSK, top hung outward opening



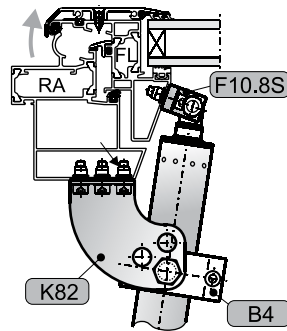
View on steel window

4 RM, HSK, top hung outward opening



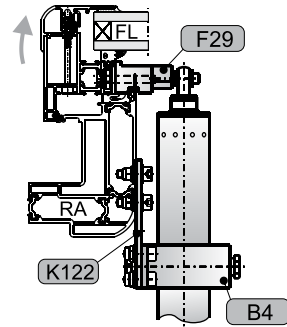
View on aluminium window

5 RM, HSK, roof



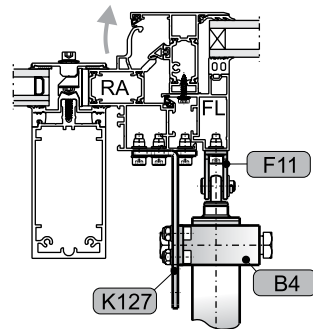
View on aluminium window

6 RM, NSK, roof



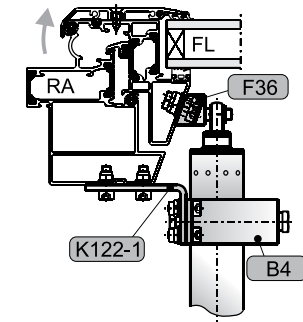
View on aluminium window

7 RM, NSK, roof



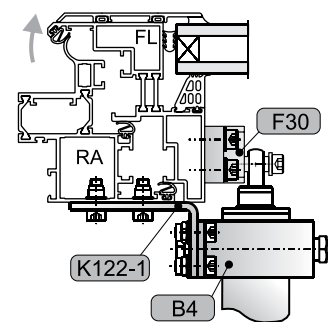
View on aluminium window

8 RM, NSK, roof



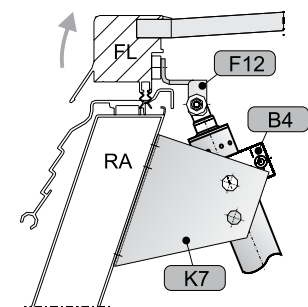
View on aluminium window

9 RM, NSK, roof



View on aluminium window

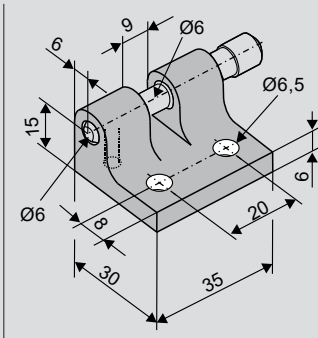
10 RM, HSK, sky-light



View on sky light

### CASEMENT BRACKETS

F1



**Application**

**Surface mounting** on the **main closing edge** of casement profiles of outward opening windows or skylights, for drives with **front or rear suspension** with bore **Ø6 mm**, manual removal of drive possible

**Part-No. 150102**

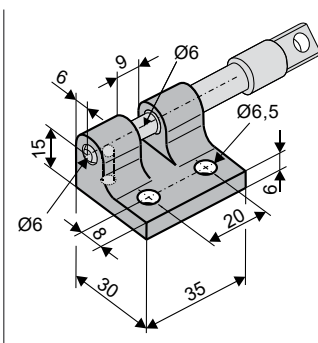
**Material/Finish**  
aluminium, diecast

**Feature/Equipment**

1x locking bolt  
Ø6 mm

**Load**  
max. 1000 N

F1.1



**Application**

**Surface mounting** on the **main closing edge** of casement profiles of outward opening windows or skylights, for drives with **front or rear suspension** with bore **Ø6 mm**, manual removal of drive possible

**Part-No. 150110**

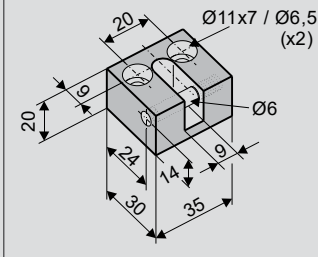
**Material/Finish**  
aluminium, diecast

**Feature/Equipment**

1x locking spring bolt  
Ø6 mm

**Load**  
max. 600 N

F1V



**Application**

**Surface mounting** on the **main closing edge** of casement profiles of outward opening windows or skylights, for drives with **front or rear suspension** with bore **Ø6 mm**

**Part-No. 150101**

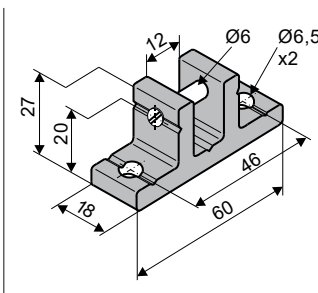
**Material/Finish**  
aluminium

**Feature/Equipment**

1x grub screw Ø6 mm

**Load**  
max. 1600 N

F10.6



**Application**

**Surface mounting** on **main closing edge** of casement profiles of outward opening windows or skylights, for drives with **front or rear suspension** with bore **Ø6 mm**, threaded stud bolt

**Part-No. 151000**

**Material/Finish**  
aluminium

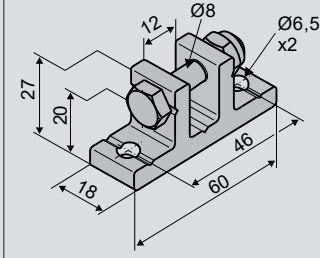
**Feature/Equipment**

1x stud bolt Ø6 mm

**Load**  
max. 1600 N

## CASEMENT BRACKETS

F10.8S

**Application**

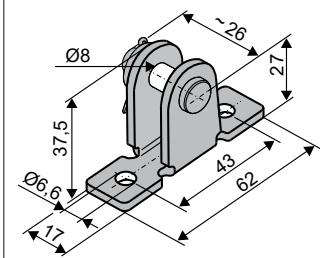
Surface mounting on the **main closing edge** of casement profiles of outward opening windows, for drives with **front or rear suspension** with bore **Ø8 mm**

Part-No. 151105

**Material/Finish**  
aluminium**Feature/Equipment**1x nut M8,  
1x screw M8x35**Load**

max. 3000 N

F11ST

**Application**

Surface mounting on the **side closing edge** of casement/window frame profiles of in-/outward opening windows or on skylights, for drives with front or rear suspension with bore **Ø8 mm**, mounting holes aligned with central axis of drive

Part-No. 151400

**Material/Finish**

steel galvanized

**Feature/Equipment**1x bolt Ø8 mm,  
washer,  
cotter pin**Load**

max. 3000 N

F11VA

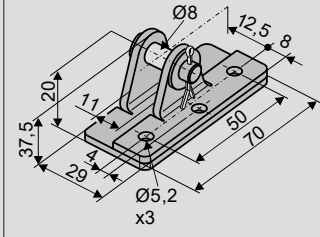


Part-No. 151401

**Material/Finish**

stainless steel

F13

**Application**

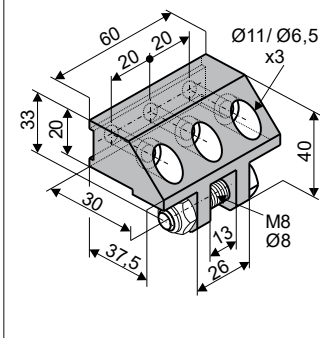
Surface mounting on the **side closing edge** of casement/window frame profiles of in-/outward opening windows or on skylights, for drives with front or rear suspension with bore **Ø8 mm**, mounting holes not aligned with the central axis of drive

Part-No. 151405

**Material/Finish**  
steel galvanized**Feature/Equipment**1x bolt Ø8 mm,  
washer,  
cotter pin**Load**

max. 1600 N

F40

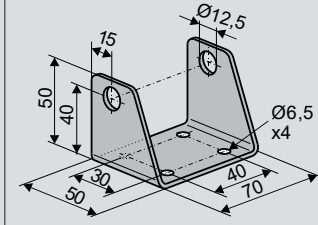
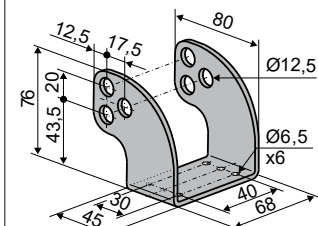
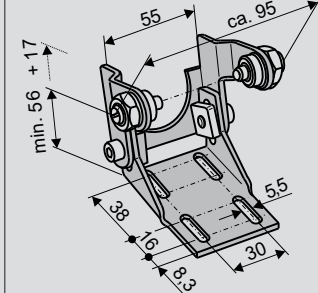
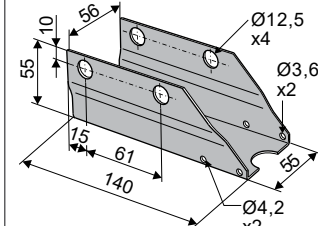
**Application**

Surface mounting on the **main closing edge** of the casement profiles of outward opening roof windows, for drives with **front or rear suspension** with bore **Ø8 mm**

Part-No. 155172

**Material/Finish**  
aluminium**Feature/Equipment**1x screw M8x35,  
nut M8

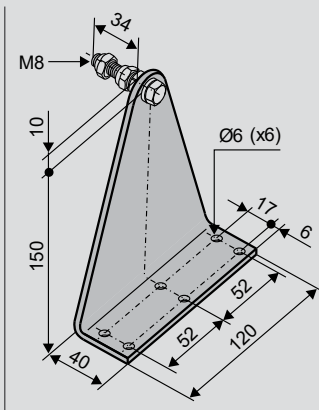
### FRAME BRACKETS

<p><b>K5</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for <b>swivelling suspension</b> of drives  <b>PLA with B4,</b>  <b>SP8 with B13,</b>  <b>LKS with B7</b></p>	<p><b>Part.-No. 155800</b>  <b>Material/Finish</b>                      steel galvanized  <b>Feature/Equipment</b>                      drilled holes Ø12,5 mm</p>	
<p><b>Accessories</b></p>			
<p><b>B4</b> clamp ring PLA (Ø36 mm, G1/8)</p>		<p><b>Part.-No. 515900</b></p>	
<p><b>K21K</b> Frame bracket</p>		<p><b>Part.-No. 159900</b></p>	
<p><b>K21L</b> Frame bracket</p>		<p><b>Part.-No. 159905</b></p>	
<p><b>K82</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for <b>swivelling suspension</b> of drives  <b>PLA with B4,</b>  <b>SP8 with B13,</b>  <b>LKS with B7</b></p>	<p><b>Part.-No. 151320</b>  <b>Material/Finish</b>                      stainless steel  <b>Feature/Equipment</b>                      drilled holes Ø12,5 mm</p>	
<p><b>Accessories</b></p>			
<p><b>B4</b> clamp ring PLA (Ø36 mm, G1/8)</p>		<p><b>Part.-No. 515900</b></p>	
<p><b>K17</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for <b>swivelling suspension</b> of drives  <b>PLA with B5,</b>  <b>SP with B12</b></p>	<p><b>Part.-No. 159200</b>  <b>Material/Finish</b>                      steel galvanized  <b>Feature/Equipment</b>                      adjustable height</p>	
<p><b>Accessories</b></p>			
<p><b>B5</b> clamp ring PLA (Ø36 mm, Ø8 mm)</p>		<p><b>Part.-No. 515825</b></p>	
<p><b>K4-L</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of the upstand of skylight domes  <b>Eternit</b> for swivelling suspension of drives  <b>PLA with B4,</b>  <b>SP with B11,</b></p>	<p><b>Part.-No. 155610</b>  <b>Material/Finish</b>                      steel galvanized  <b>Feature/Equipment</b>                      2x screw Taptite M4x10,                      1x nut M4,                      1x screw M4x65</p>	
<p><b>Accessories</b></p>			
<p><b>B4</b> clamp ring PLA (Ø36 mm, G1/8)</p>		<p><b>Part.-No. 515900</b></p>	



## FRAME BRACKETS

K15

**Application**

**Surface mounting** on the **side closing edge** of window frame profiles of in-/outward opening windows, by obliquely arranged drives with **rear suspension** with bore **Ø8 mm**

**Required space** on the frame **40 mm**

**Part.-No. 307000****Material/Finish**

steel galvanized

**Feature/Equipment**

H=150 mm, t=4 mm

**Optional accessories**

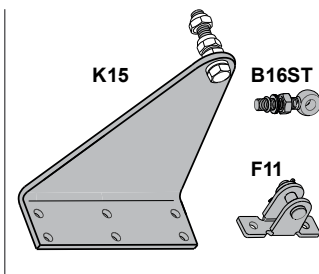
**B16ST** Eyebolt  
(Ø8 x 40 mm ST)

**Part.-No. 100044**

**B16VA** Eyebolt  
(Ø8 x 40 mm VA)

**Part.-No. 100144**

K15-Set

**Application**

**Surface mounting** on the **side closing edge** like RWA-1000/1100 hardware sets

**Required space** on the frame **40 mm**

**Part.-No. 517590****Material/Finish**

steel galvanized

**Feature/Equipment**

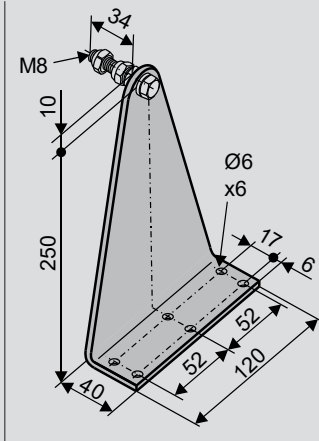
Set:

1x K15

1x F11ST

1x B16ST

K37

**Application**

**Surface mounting** on the **side closing edge** of window frame profiles of in-/outward opening windows, by obliquely arranged drives with rear suspension with bore **Ø8 mm**

**Required space** on the frame **40 mm**

**Part.-No. 307500****Material/Finish**

steel galvanized

**Feature/Equipment**

H=250 mm, t=5 mm

**Optional accessories**

**B16ST** Eyebolt  
(Ø8 x 40 mm ST)

**Part.-No. 100044**

**B16VA** Eyebolt  
(Ø8 x 40 mm VA)

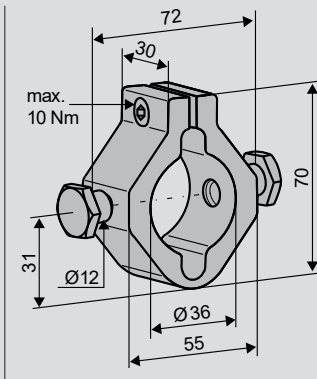
**Part.-No. 100144**

### FRAME BRACKETS

<p><b>K97L</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of window frame profiles of inward opening side hung windows, by obliquely arranged drives with <b>rear suspension</b> with bore <b>Ø8 mm</b>.  <b>Required space on the frame 20 mm</b></p>	<p><b>Part.-No. 160938</b>  <b>Material/Finish</b>                      stainless steel,                      vibratory grinding  <b>Feature/Equipment</b>                      left hand</p>			
		<p><b>Optional accessories</b></p>				
		<p><b>B16ST</b> Eyebolt                      (Ø8 x 40 mm ST)</p>	<p><b>Part.-No. 100044</b></p>			
		<p><b>B16VA</b> Eyebolt                      (Ø8 x 40 mm VA)</p>	<p><b>Part.-No. 100144</b></p>			
<p><b>K97R</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of window frame profiles of inward opening side hung windows, by obliquely arranged drives with <b>rear suspension</b> with bore <b>Ø8 mm</b>.  <b>Required space on the frame 20 mm</b></p>	<p><b>Part.-No. 160939</b>  <b>Material/Finish</b>                      stainless steel,                      vibratory grinding  <b>Feature/Equipment</b>                      right hand</p>			
		<p><b>Accessories</b></p>				
		<p><b>B16ST</b> Eyebolt                      (Ø 8 x 40 mm ST)</p>	<p><b>Part.-No. 100044</b></p>			
		<p><b>B16VA</b> Eyebolt                      (Ø8 x 40 mm VA)</p>	<p><b>Part.-No. 100144</b></p>			

## OPTIONAL ACCESSORIES

B4

**Application**

**Adjustable clamping** of the PLA drive housing, for surface mounting with **swivelling suspension** on **K5, K7, K82, K22, K22-1, K127** (preferably on outward opening windows)

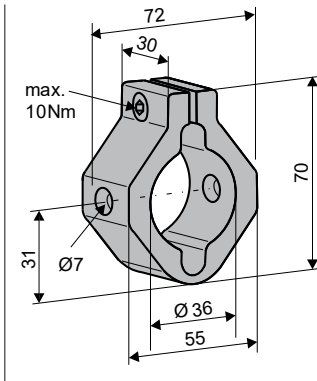
**Part.-No. 515900****Material/Finish**

aluminium (antreated), stainless steel

**Feature/Equipment**

2x B8 collar screw  
Ø12mm, G1/8  
1x cylinder head screw  
M6x16m

B5

**Application**

**Adjustable clamping** of the PLA drive housing, for surface mounting with **swivelling suspension** on **K17** (preferably on outward opening windows)

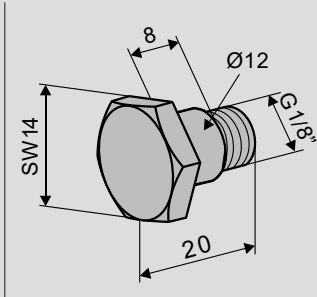
**Part.-No. 515825****Material/Finish**

aluminium (antreated), stainless steel

**Feature/Equipment**

2x Holes Ø7 mm  
1x cylinder head screw  
M6x16

B8

**Application**

**Swivelling suspensin** of the clamp rings  
**B4** for PLA  
**B7** for LKS  
or of the clamping blocks  
**B11, B13** for SP  
for U-shaped frame brackets  
with bore **Ø12,5 mm**

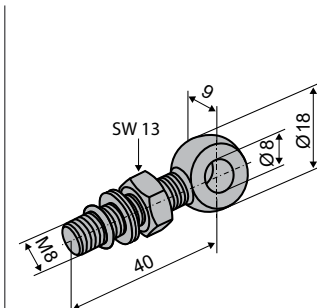
**Part.-No. 172800****Material/Finish**

stainless steel

**Feature/Equipment**

Collar Ø12 mm, G1/8"

B16ST

**Application**

**Eye bolt** for rear or front suspension of spindle drives with **M8** thread in the rear base cap or in the spindle tube

**Part.-No. 100044****Material/Finish**

steel galvanized

**Feature/Equipment**

M8x40 (Eye Ø8 mm),  
1 x nut M8 + Nordlock-safety-washer + O-ring  
max. screw-in depth in the drive 25 mm

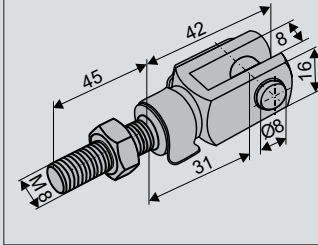
B16VA

**Part.-No. 100144****Material/Finish**

stainless steel (V2A)

### OPTIONAL ACCESSORIES

**B27ST**



**Application**

Clevis for rear or front suspension of spindle drives with M8 thread in the rear base cap or in the spindle tube

**Part.-No. 105510**

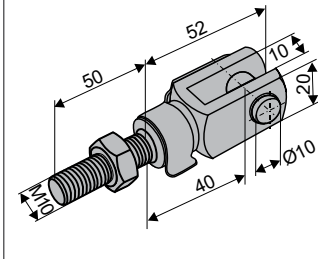
**Material/Finish**

steel galvanized

**Feature/Equipment**

Clevis M8 x 40 mm with spring bolt Ø8 mm and thread M8 x 45 mm  
1x nut M10 + Nordlock-safety-washer + O-ring, max. screw-in depth in the drive 25 mm

**B28ST**



**Application**

Clevis for rear or front suspension of spindle drives with M10 thread in the rear base cap or in the spindle tube

**Part.-No. 105520**

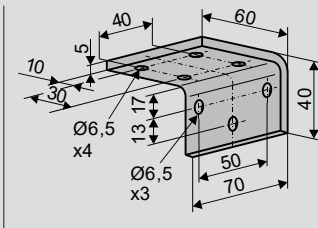
**Material/Finish**

steel galvanized

**Feature/Equipment**

Clevis M10 x 40 mm with spring bolt Ø10 mm and thread M10 x 50 mm  
1x nut M10 + Nordlock-safety-washer + O-ring, max. screw-in depth in the drive 25 mm

**K21K**



**Application**

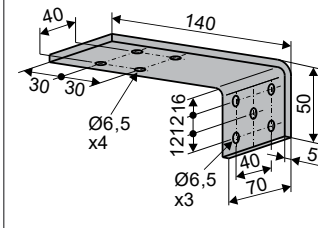
Shift the fastening level of the frame brackets **K5**, **K29** from the horizontal to the vertical position of the **main closing edge** of window frame profiles

**Part.-No. 159900**

**Material/Finish**

steel galvanized

**K21L**



**Application**

Shift the fastening level of the frame brackets **K5**, **K29** from the horizontal to the vertical position of the **main closing edge** of window frame profiles

**Part.-No. 159905**

**Material/Finish**

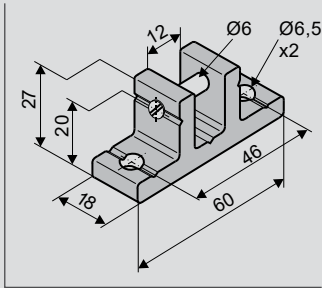
steel galvanized



### SPECIFIC APPLICATIONS

#### SCHÜCO AWS 57RO, WICONA WICTEC 50, RAICO WING 105D – HSK

**F10.85**



**Application**

Surface mounting on the **main closing edge** of casement profiles of outward opening windows, for drives with **front or rear suspension** with bore **Ø8 mm**

**Part-No. 151105**

**Material/Finish**  
aluminium

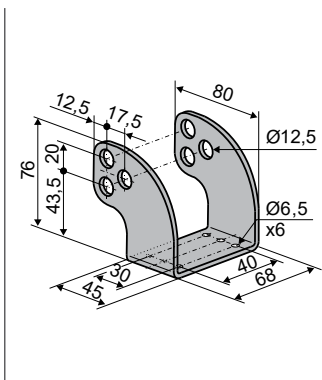
**Feature/Equipment**

1x nut M8,  
1x screw M8x35

**Load**

max. 3000 N

**K82**



**Application**

Surface mounting on the **main closing edge** of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for **swivelling suspension** of drives

PLA with **B4**,  
SP8 with **B13**,  
LKS with **B7**

**Part-No. 151320**

**Material/Finish**

stainless steel

**Feature/Equipment**

drilled holes Ø12,5 mm

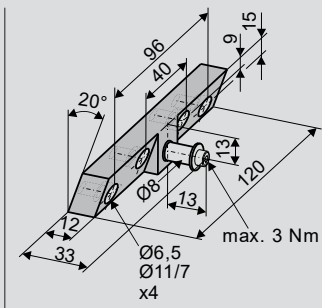
**Accessories**

**B4** clamp ring PLA  
(Ø36 mm, G1/8)

**Part-No. 515900**

#### SCHÜCO AWS 57R – NSK

**F36**



**Application**

Surface mounting on the **side closing edge** of outward opening casement profiles of roof windows **Schüco AWS 57RO**, for drives with **front suspension** with bore **Ø8 mm**

**Part-No. 155170**

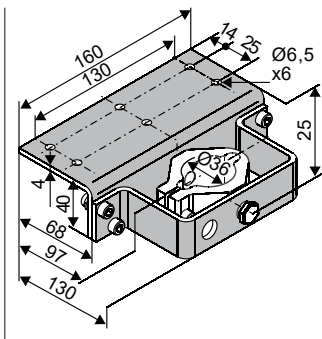
**Material/Finish**

aluminium,  
stainless steel

**Feature/Equipment**

1x bolt Ø8 mm,  
screw M4,  
washer A4,3

**K122-1**



**Application**

Surface mounting on the **side closing edge** of window frame profiles of outward opening roof windows **Schüco AWS 57RO**, **Wicona Wictec 50** for **swivelling suspension** of drives  
PLA with **B4**

**Part-No. 155116**

**Material/Finish**

stainless steel

**Feature/Equipment**

without clamping ring B4

**Accessories**

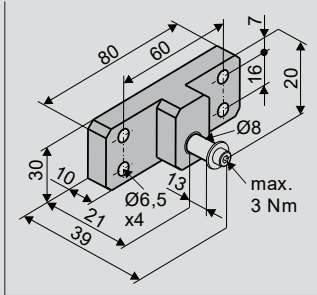
**B4** clamp ring PLA  
(Ø 36 mm, G1/8)

**Part-No. 515900**

## SPECIFIC APPLICATIONS

## WICONA WICTEC 50 – NSK

F30

**Application**

Surface mounting on the **side closing edge** of the outward opening casement profiles of roof windows **Wicona Wictec 50**, for drives with **front suspension** with bore **Ø8 mm**

**Part-No. 155160****Material/Finish**

aluminium,

stainless steel

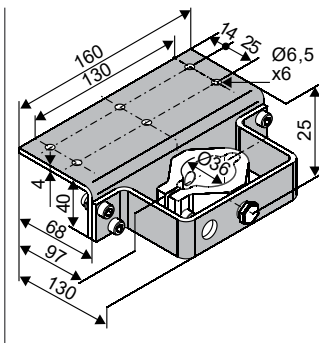
**Feature/Equipment**

1x bolt Ø8 mm,

screw M4,

washer A4,3

K122-1

**Application**

Surface mounting on the **side closing edge** of window frame profiles of outward opening roof windows **Schüco AWS 57RO**, **Wicona Wictec 50** for **swivelling suspension** of drives **PLA** with **B4**

**Part-No. 155116****Material/Finish**

stainless steel

**Feature/Equipment**

without clamping ring B4

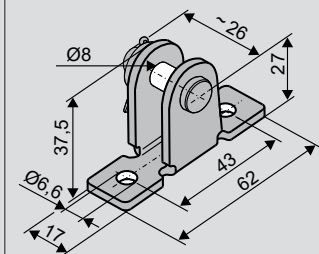
**Accessories**

**B4** clamp ring PLA  
(Ø36 mm, G1/8)

**Part-No. 515900**

## RAICO WING 105D – NSK

F11ST

**Application**

Surface mounting on the **side closing edge** of casement/window frame profiles of in-/outward opening windows or on skylights, for drives with **front or rear suspension** with bore **Ø8 mm**, mounting holes aligned with central axis of drive

**Part-No. 151400****Material/Finish**

steel galvanized

**Feature/Equipment**

1x bolt Ø8 mm,

washer,

cotter pin

**Load**

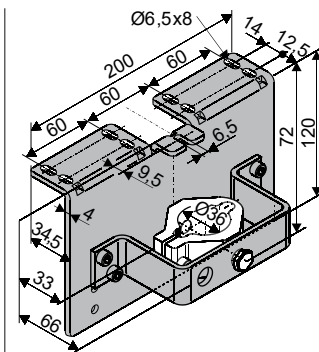
max. 3000 N

F11VA

**Part-No. 151401****Material/Finish**

stainless steel

K127

**Application**

Surface mounting on the **side closing edge** of window frame profiles of outward opening roof windows **Raico Wing 105D** for **swivelling suspension** of drives **PLA** with **B4**

**Part-No. 155119****Material/Finish**

stainless steel

**Feature/Equipment**

without clamping ring B4

**Accessories**


**B4** clamp ring PLA  
(Ø36 mm, G1/8)

**Part-No. 515900**





## OPTIONAL ACCESSORIES

Main control unit				
M-COM		<b>Application</b> <b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems	<b>Part.-No. 524177</b> <b>Protection rating</b> IP30 rubber envelope <b>Ambient temperature range</b> 0 °C ... + 70 °C <b>Dimensions</b> 45 x 17 x 6 mm <b>Connecting wires</b> 3 wires 0,5 mm <sup>2</sup> x 50 mm <b>Feature/Equipment</b> Printed circuit board with components and connection wires to be installed in connection box to be supplied on site.	
		<b>Rated voltage:</b> 24 V DC (19 V ... 28 V) <b>Current consumption:</b> <12 mA <b>Drive type:</b> S12		

Special model	PU/pcs.	Part.-No.		
<b>Casement brackets painted / powder coated in other RAL colours</b>				
<b>Lump sum for coating</b>		<b>516030</b>		
Specify at order stage:	1 – 20	<b>516032</b>		
	21 – 50	<b>516032</b>		
	51 – 100	<b>516032</b>		
	from 101	<b>516032</b>		
<b>Frame brackets painted / powder coated in other RAL colours</b>				
<b>Lump sum for coating</b>		<b>516030</b>		
Specify at order stage:	1 – 20	<b>516031</b>		
	21 – 50	<b>516031</b>		
	51 – 100	<b>516031</b>		
	from 101	<b>516031</b>		



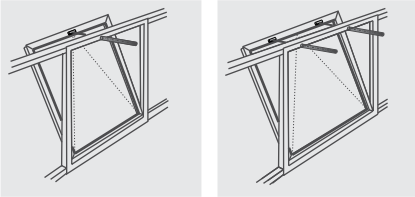
### SPECIAL FEATURES PLS

- For natural ventilation, smoke and heat exhausting and ferralux® NRWG (EN12101-2)
- Powerful heavy duty drives for loads up to 5000 N
- Robust corrosion-resistant design in aluminium housing (D = 50 mm), optionally in RAL colors
- Easy installation due to adjustable clamp ring (Rear suspension on request)
- Spindle is ball beared with end position dampening and gentle soft-start and soft-stop mode
- Stainless steel spindle tube
- Programmable parameters of Intelligent Control Electronics S12
  - Synchronised multi-operation and sequence control without add. devices
  - Electronic soft-start, soft-close and soft-stop at end of stroke control
  - Stroke, force, speed
  - Rebate control
- With GoreTex membrane
- Suitable for operation with M-COM for the automatic configuration of synchronised run of multi drive systems and sequence control

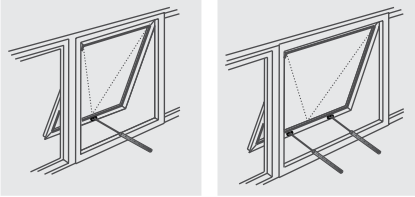
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804.  
 The LCA results of the different product types are listed at the end of this product catalogue.  
 The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

**FACADE**

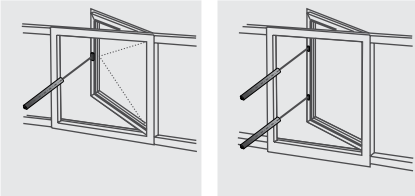
Bottom-hung



Top-hung

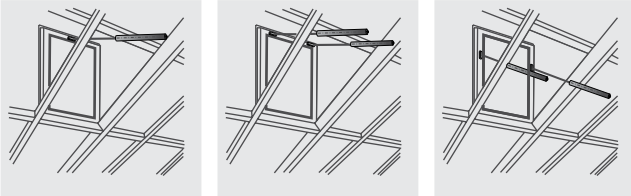


Side-hung

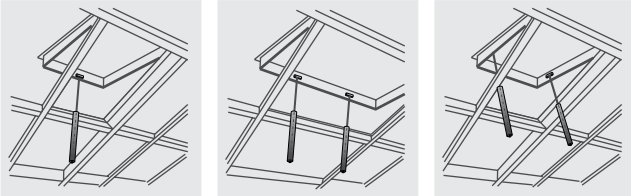


**ROOF**

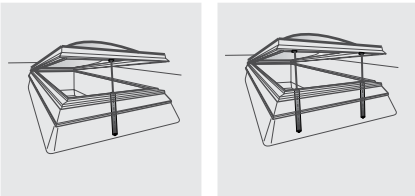
Bottom-hung



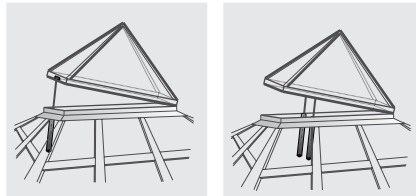
Top-hung

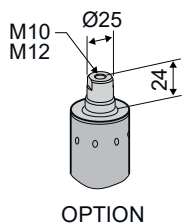


Skylight



Glass pyramid

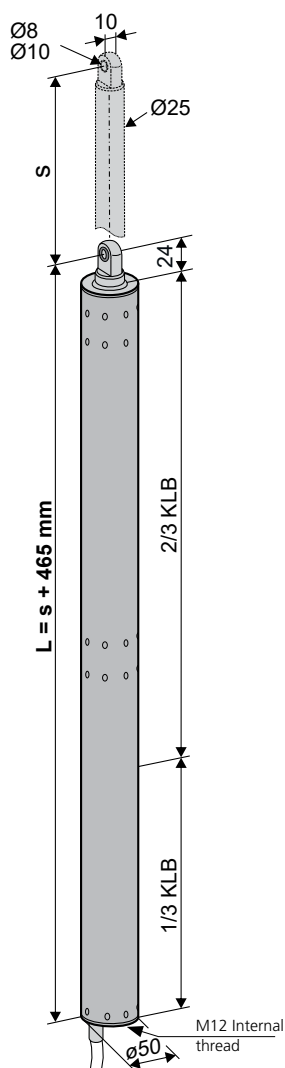




- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12

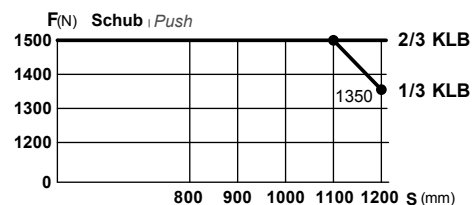
### Options

- Programmable synchronised run (max. 4 drives) and special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)
- Spindle tube end with interior thread for clevis
- Eyebolt and clevis for rear suspension

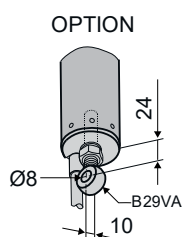


### TECHNICAL DATA

$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	3,0 A
$I_A$	Cut-off current	4,0 A
$P_N$	Rated power	72 W
DC	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 54
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	1500 N
$F_A$	Pushing force max.	

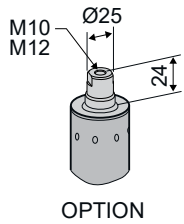


$F_H$	Pullout force	25000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 3 x 1,0 mm <sup>2</sup> , ~ 3 m
v	Speed	16,0 mm/s
s	Stroke	300 – 1200 mm
L	Length	s + 465 mm see order data
	Sound pressure level	≤ 70 dB (A)



ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
300	765	PLS15 300 S12	E6/C-0	1	576830	
400	865	PLS15 400 S12	E6/C-0	1	576840	
500	965	PLS15 500 S12	E6/C-0	1	576850	
600	1065	PLS15 600 S12	E6/C-0	1	576860	
750	1215	PLS15 750 S12	E6/C-0	1	576875	
1000	1465	PLS15 1000 S12	E6/C-0	1	576800	
1200	1665	PLS15 1200 S12	E6/C-0	1	576812	

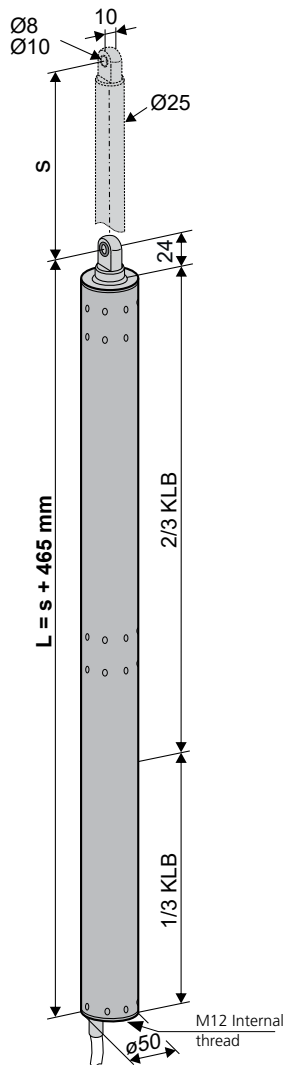
OPTIONS						
Special model		PU/pcs.	Part.-No.			
<b>Front Fixing</b>						
Spindle tube end with interior thread M10		1	515062			
Spindle tube end with interior thread M12		1	515063			
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>				516030		
Specify at order stage:		1 – 20	516004			
		21 – 50	516004			
		51 – 100	516004			
		from 101	516004			
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>				501037		
10 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>				501039		
<b>Accessories for front / rear suspension</b>						
B29VA Eyebolt M12x40mm, Ø8 mm, stainless steel			1	105430		
B28ST Clevis M10x20 mm, galvanized, thread M10x50 mm			1	105520		
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12			1	524190		
Programming drives 24V / 230V S12			1	524180		
<b>Other lengths available on request</b>						
<b>Optional accessories</b>			PU/pcs.	Part.-No.		
M-COM Configuration module for synchronised multi-drive systems			1	524177		



- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12

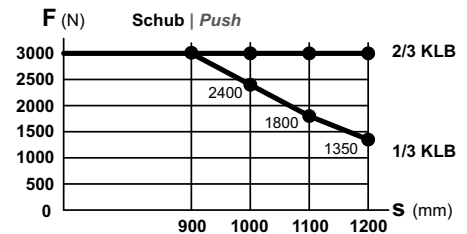
### Options

- Programmable synchronised run (max. 4 drives) and special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)
- Spindle tube end with interior thread for clevis
- Eyebolt and clevis for rear suspension



### TECHNICAL DATA

$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	3,8 A
$I_A$	Cut-off current	5,0 A
$P_N$	Rated power	91 W
DC	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 54
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	3000 N
$F_A$	Pushing force max.	



$F_H$	Pullout force	25000 N (fastening depended)
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Spindle tube stainless steel

Connecting cable non-halogen, grey 3 x 1,0 mm<sup>2</sup>, ~ 3 m

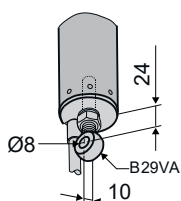
$v$  Speed  $\rightarrow$  7,8 mm/s  $\leftarrow$  7,8 mm/s

$s$  Stroke 300 – 1200 mm

$L$  Length  $s + 465$  mm  
see order data

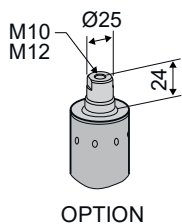
Sound pressure level  $\leq 70$  dB (A)

### OPTION



ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
300	765	PLS30 300 S12	E6/C-0	1	<b>577530</b>	
400	865	PLS30 400 S12	E6/C-0	1	<b>577540</b>	
500	965	PLS30 500 S12	E6/C-0	1	<b>577550</b>	
600	1065	PLS30 600 S12	E6/C-0	1	<b>577560</b>	
750	1215	PLS30 750 S12	E6/C-0	1	<b>577575</b>	
1000	1465	PLS30 1000 S12	E6/C-0	1	<b>577500</b>	
1200	1665	PLS30 1200 S12	E6/C-0	1	<b>577512</b>	

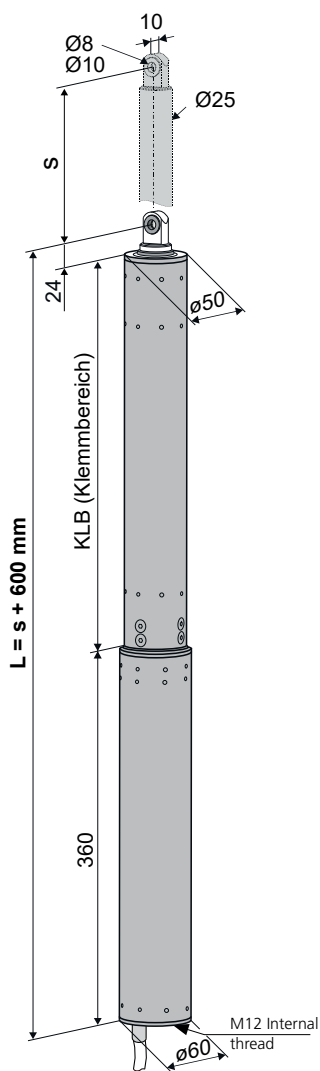
OPTIONS						
Special model		PU/pcs.	Part.-No.			
<b>Front Fixing</b>						
Spindle tube end with interior thread M10		1	<b>515062</b>			
Spindle tube end with interior thread M12		1	<b>515063</b>			
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>				<b>516030</b>		
Specify at order stage:		1 – 20	<b>516004</b>			
		21 – 50	<b>516004</b>			
		51 – 100	<b>516004</b>			
		from 101	<b>516004</b>			
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>			<b>501037</b>			
10 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>			<b>501039</b>			
<b>Accessories for front / rear suspension</b>						
B29VA Eyebolt M12x40mm, Ø8 mm, stainless steel		1	<b>105430</b>			
B28ST Clevis M10x20 mm, galvanized, thread M10x50 mm		1	<b>105520</b>			
<b>Microprocessor programming S12</b>						
Electronic stroke reduction 24V S12		1	<b>524190</b>			
Programming drives 24V / 230V S12		1	<b>524180</b>			
<b>Other lengths available on request</b>						
<b>Optional accessories</b>			PU/pcs.	Part.-No.		
M-COM Configuration module for synchronised multi-drive systems		1	<b>524177</b>			



- Application: natural ventilation, RWA
- Internal Intelligent Control Electronics S12

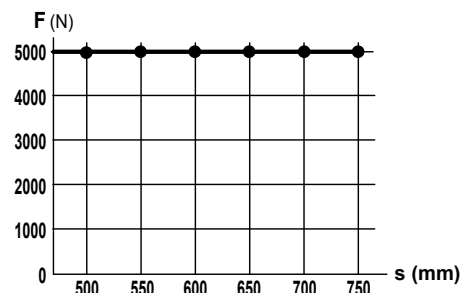
### Options

- Programmable synchronised run (max. 4 drives) and special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)
- Spindle tube end with interior thread for clevis
- Eyebolt and clevis for rear suspension

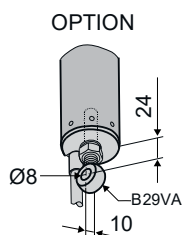


### TECHNICAL DATA

$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	3,0 A
$I_A$	Cut-off current	4,2 A
$P_N$	Rated power	72 W
DC	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 54
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	5000 N
$F_A$	Pushing force max.	



$F_H$	Pullout force	25000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 3 x 1,0 mm <sup>2</sup> , ~ 3 m
$v$	Speed	$\curvearrowright$ 4,0 mm/s $\curvearrowleft$ 4,0 mm/s
$s$	Stroke	200 – 750 mm
$L$	Length	s + 600 mm see order data
	Sound pressure level	≤ 70 dB (A)





ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
200	800	PLS50 200 S12	E6/C-0	1	<b>577620</b>	
300	900	PLS50 300 S12	E6/C-0	1	<b>577630</b>	
400	1000	PLS50 400 S12	E6/C-0	1	<b>577640</b>	
500	1100	PLS50 500 S12	E6/C-0	1	<b>577650</b>	
600	1200	PLS50 600 S12	E6/C-0	1	<b>577660</b>	
750	1350	PLS50 750 S12	E6/C-0	1	<b>577675</b>	

OPTIONS							
Special model				PU/pcs.	Part.-No.		
<b>Front Fixing</b>							
Spindle tube end with interior thread M10				1	<b>515062</b>		
Spindle tube end with interior thread M12				1	<b>515063</b>		
<b>Drive housing painted/powder coated in other RAL colours</b>							
<b>Lump sum for coating</b>						<b>516030</b>	
Specify at order stage:				1 – 20	<b>516004</b>		
				21 – 50	<b>516004</b>		
				51 – 100	<b>516004</b>		
				from 101	<b>516004</b>		
<b>Extra length connecting cable:</b>							
5 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>						<b>501037</b>	
10 m – non-halogen, grey – 3 x 1,0 mm <sup>2</sup>						<b>501039</b>	
<b>Accessories for front / rear suspension</b>							
B29VA Eyebolt M12x40mm, Ø8 mm, stainless steel					1	<b>105430</b>	
B28ST Clevis M10x20 mm, galvanized, thread M10x50 mm					1	<b>105520</b>	
<b>Microprocessor programming S12</b>							
Electronic stroke reduction 24V S12					1	<b>524190</b>	
Programming drives 24V / 230V S12					1	<b>524180</b>	
<b>Other lengths available on request</b>							
<b>Optional accessories</b>				PU/pcs.	Part.-No.		
M-COM Configuration module for synchronised multi-drive systems					1	<b>524177</b>	

OVERVIEW OF BRACKETS				1	2	3	4	5	6	7
Typical applications										
Frame bracket				K70	K82-1	K82-1	K121	K127-1	K121-1	K121-1
Mounting aid				clamping ring B6 (50 mm-G1/8)						
Bracket accessories				clamping ring B6 (50 mm-G1/8)						
Casement bracket				F28-1, F10.8S, F10.10	F28-1	F28	F10.11	F36	F30	
Special application				Witect 50, Wing 105 D	AWS 57RO, Wing 105D	Heroal 085D	Heroal 085D	roof window	Schüco AWS 57RO	Wicona Witect 50
Space requirement		min.	[mm]	120	50	50	35	35	50	50
Window material		Alu		●	●	●	●	●	●	●
		Wood		●	●					
		PVC		●	●					
Type of window and mounting	Bottom hung	inward	HSK	FM						
				RM						
			NSK	FM						
				RM						
		outward	HSK	RM		●				
				PR						
			NSK	RM						
				PR						
	Top hung	inward	HSK	FM						
				RM						
			NSK	FM						
				RM						
		outward	HSK	RM		●				
				PR						
			NSK	RM						
				PR						
	Side hung	inward	HSK	FM						
				RM						
			NSK	FM						
				RM						
Roof		outward	HSK	RM	●	●	●			
				PR						
NSK	RM					●	●			
	PR					●	●			
Sky-light	outward	HSK	RM	●	●					
		NSK	RM							
FAB(*1)		Solo	[mm]				450 – 1300			
		Sync2	[mm]				1200 – 2500			
FAH(*1)		Solo	[mm]				450 – 1500			
		Sync2	[mm]				450 – 2500			

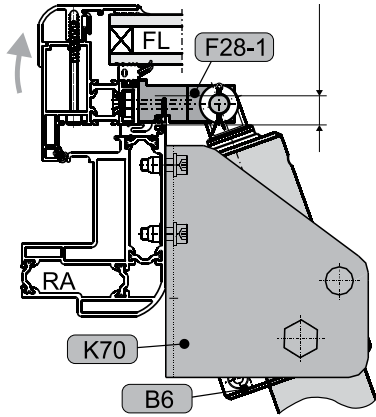
### LEGEND

● suitable    ■ not recommended

(\*1) Sample value of the casement dimensions. The actual casement dimensions depend on the stroke and the position of the drives to the hinges. The values of FAB/FAH are to be used analogue for side hung windows.

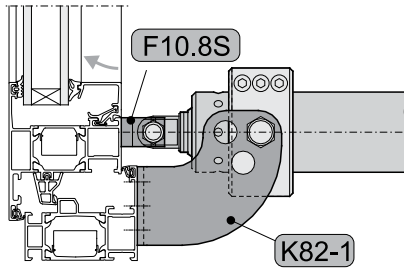
TYPICAL APPLICATIONS

1 RM, HSK, roof



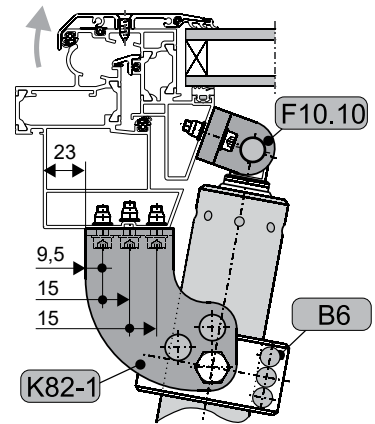
View on aluminium window

1 RM, HSK, op-hung outward opening



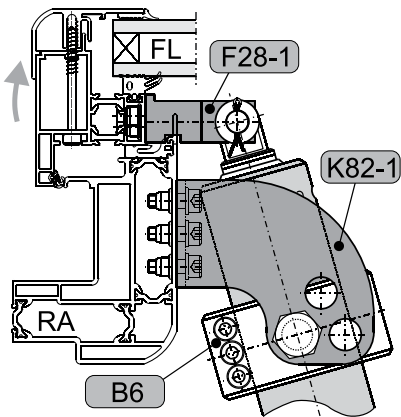
View on steel window

2 RM, HSK, roof



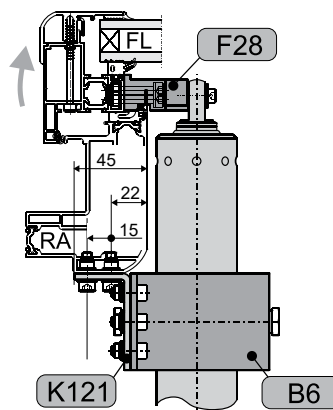
View on aluminium window

3 RM, HSK, roof



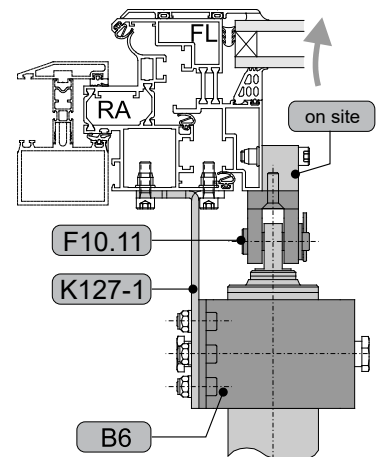
View on aluminium window

4 RM, NSK, roof



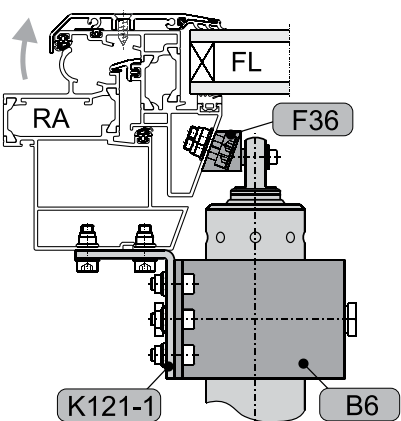
View on aluminium window

5 RM, NSK, roof



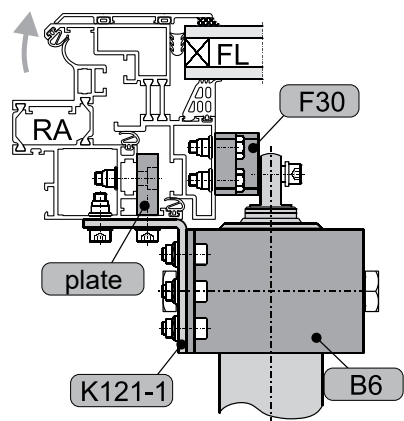
View on aluminium window

6 RM, NSK, roof



View on aluminium window

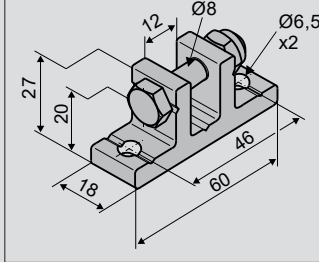
7 RM, NSK, roof



View on aluminium window

### CASEMENT BRACKETS

F10.85



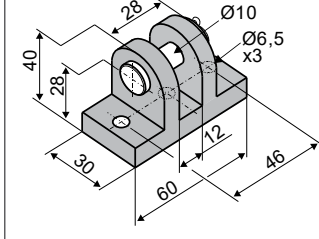
**Application**

Surface mounting on the **main closing edge** of casement profiles of outward opening windows, for drives with **front or rear suspension** with bore **Ø8 mm**

**Part.-No. 151105**

**Material/Finish**  
aluminium  
**Feature/Equipment**  
1x nut M8,  
1x screw M8x35  
**Load**  
max. 3000 N

F10.10



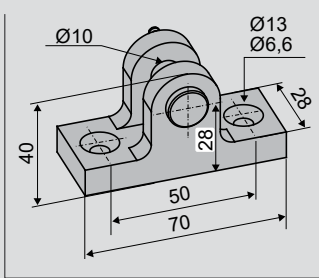
**Application**

Surface mounting on the **main closing edge** of the casement profiles of outward opening windows, for drives with **front or rear suspension** with bore **Ø10 mm**

**Part.-No. 151201**

**Material/Finish**  
aluminium, stainless steel  
**Feature/Equipment**  
1x bolt Ø10 mm,  
washer, split pin  
**Load**  
max. 5000 N

F10.11



**Application**

Surface mounting on the **side closing edge** of casement/ window frame profiles of in-/outward opening windows or on skylights, for drives with **front or rear suspension** with bore **Ø10 mm**, mounting holes aligned with central axis of drive

**Part.-No. 151202**

**Material/Finish**  
aluminium, stainless steel  
**Feature/Equipment**  
1x bolt Ø10 mm,  
washer,  
cotter pin  
**Load**  
max. 5000 N

F40



**Application**

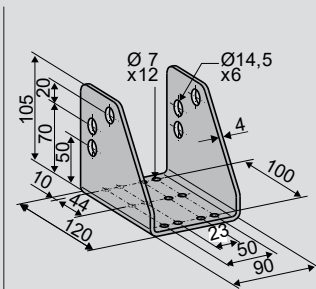
Surface mounting on the **main closing edge** of the casement profiles of outward opening roof windows, for drives with **front or rear suspension** with bore **Ø8 mm**

**Part.-No. 155172**

**Material/Finish**  
aluminium  
**Feature/Equipment**  
1x screw M8x35,  
nut M8  
**Load**  
max. 3000 N

## FRAME BRACKETS

K70

**Application**

**Surface mounting** on the **main closing edge** of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for **swivelling suspension** of drives  
**PLS with B6**

**Part-No. 155002**

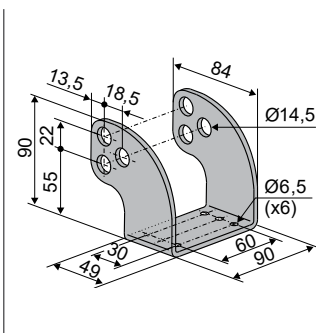
**Material/Finish**  
steel galvanized  
**Feature/Equipment**  
drilled holes Ø14,5 mm

**Accessories**

**B6** clamp ring PLS  
(Ø50mm, G1/8)

**Part-No. 576001**

K82-1

**Application**

**Surface mounting** on the **main closing edge** of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for **swivelling suspension** of drives  
**PLS with B6**

**Part-No. 151321**

**Material/Finish**  
stainless steel  
**Feature/Equipment**  
drilled holes Ø14,5 mm

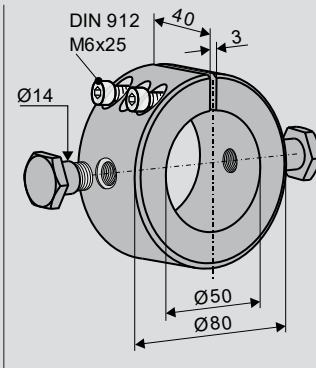
**Accessories**

**B6** clamp ring PLS  
(Ø50mm, G1/8)

**Part-No. 576001**

## OPTIONAL ACCESSORIES

B6

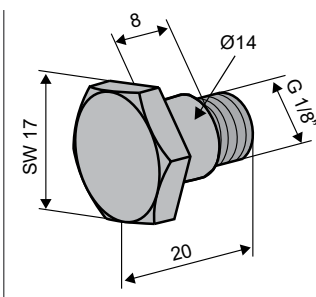
**Application**

**Adjustable clamping** of the **PLS** drive housing, for surface mounting with **swivelling suspension** on **K70, K82-1, K121, K 21-1, K127-1** (preferably on outward opening windows.)

**Part-No. 576001**

**Material/Finish**  
aluminium (antreated),  
stainless steel  
**Feature/Equipment**  
2x B9 collar screw  
Ø14mm, G1/8,  
2x cylinder head screw  
M6x25

B9

**Application**

**Swivelling suspensin** of the clamp ring **B6** for **PLS** for U-shaped frame brackets with bore **Ø14,5 mm**

**Part-No. 172900**

**Material/Finish**  
stainless steel  
**Feature/Equipment**  
Collar Ø14 mm, G1/8"

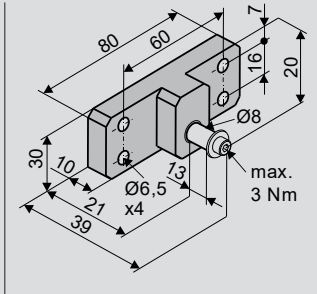
### SPECIFIC APPLICATIONS

SCHÜCO AWS 57RO, WICONA WICTEC 50, RAICO WING 105D – HSK				
<b>F10.85</b>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of casement profiles of outward opening windows, for drives with <b>front or rear suspension</b> with bore <b>Ø8 mm</b></p>	<p><b>Part-No. 151105</b>  <b>Material/Finish</b>                      aluminium  <b>Feature/Equipment</b>                      1x nut M8,                      1x screw M8x35  <b>Load</b>                      max. 3000 N</p>	
<b>K82-1</b>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for <b>swivelling suspension</b> of drives <b>PLS with B6</b></p>	<p><b>Part-No. 151321</b>  <b>Material/Finish</b>                      stainless steel  <b>Feature/Equipment</b>                      drilled holes Ø14,5 mm</p>	
		<b>Accessories</b>	<b>Part-No. 576001</b>	
		<b>B6</b> Clamp ring PLS (Ø50 mm, G1/8)		
SCHÜCO AWS 57RO – NSK				
<b>F36</b>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of outward opening casement profiles of roof windows <b>Schüco AWS 57RO</b>, for drives with <b>front suspension</b> with bore <b>Ø8 mm</b></p>	<p><b>Part-No. 155170</b>  <b>Material/Finish</b>                      aluminium (natural anodized), stainless steel  <b>Feature/Equipment</b>                      1x bolt Ø8 mm, screw M4, washer A4,3</p>	
<b>K121-1</b>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of window frame profiles of outward opening roof windows <b>Schüco AWS 57RO</b>, <b>Wicona Wictec 50</b>, <b>Metra</b> for <b>swivelling suspension</b> of drives <b>PLS with B6</b></p>	<p><b>Part-No. 155117</b>  <b>Material/Finish</b>                      stainless steel  <b>Feature/Equipment</b>                      without clamp ring B6</p>	
		<b>Accessories</b>	<b>Part-No. 576001</b>	
		<b>B6</b> Clamp ring PLS (Ø50 mm, G1/8)		

## SPECIFIC APPLICATIONS

## WICONA WICTEC 50 – NSK

F30

**Application**

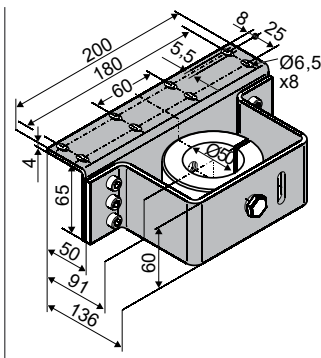
**Surface mounting** on the **side closing edge** of the outward opening casement profiles of roof windows **Wicona Wictec 50**, for drives with **front suspension** with bore **Ø8 mm**

**Part.-No. 155160**

**Material/Finish**  
aluminium  
(natural anodized),  
stainless steel

**Feature/Equipment**  
1x bolt Ø8 mm,  
screw M4,  
washer A4,3

K121-1

**Application**

**Surface mounting** on the **side closing edge** of window frame profiles of outward opening roof windows **Schüco AWS 57RO**, **Wicona Wictec 50**, **Metra** for **swivelling suspension** of drives **PLS** with **B6**

**Part.-No. 155117**

**Material/Finish**  
stainless steel

**Feature/Equipment**  
without clamp ring B6

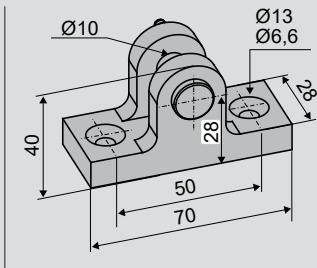
**Accessories**

**B6** Clamp ring PLS  
(Ø50 mm, G1/8)

**Part.-No. 576001**

## Roof window – NSK

F10.11

**Application**

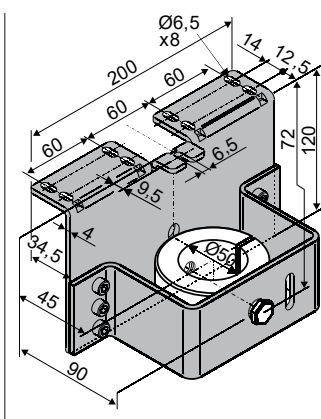
**Surface mounting** on the **side closing edge** of casement/window frame profiles of in-/outward opening windows or on skylights, for drives with **front or rear suspension** with bore **Ø10 mm**, mounting holes aligned with central axis of drive

**Part.-No. 151202**

**Material/Finish**  
aluminium, stainless steel

**Feature/Equipment**  
1x bolt Ø10 mm,  
washer,  
cotter pin  
**Load**  
max. 5000 N

K127-1

**Application**

**Surface mounting** on the **side closing edge** of window frame profiles of outward opening roof windows for **swivelling suspension** of drives **PLS** with **B6**

**Part.-No. 155118**

**Material/Finish**  
stainless steel

**Feature/Equipment**  
without clamp ring B6

**Accessories**

**B6** Clamp ring PLS  
(Ø50 mm, G1/8)

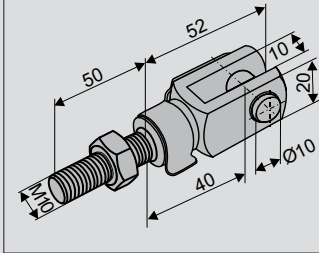
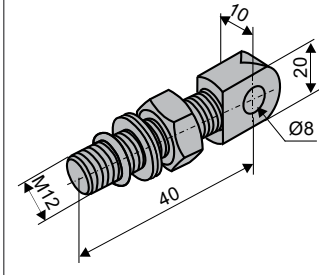
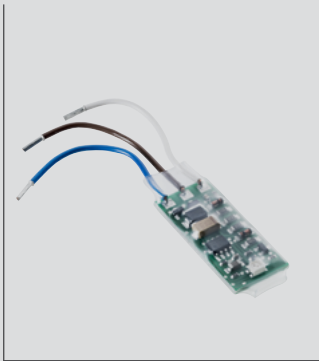
**Part.-No. 576001**

### SPECIFIC APPLICATIONS

HEROAL 085 / 180 – HSK				
<b>F28-1</b>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of outward opening casement profiles of roof windows <b>Heroal 085D</b>, for drives with <b>front suspension</b> with bore <b>Ø10 mm</b></p>	<p><b>Part-No. 155154</b>  <b>Material/Finish</b>                      aluminium (natural anodized), stainless steel  <b>Feature/Equipment</b>                      1x bolt Ø10 mm, 1x screw M5, 1x washer A5,3 1x split pin 2x20</p>	
<b>K82-1</b>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for <b>swivelling suspension</b> of drives <b>PLS</b> with <b>B6</b></p>	<p><b>Part-No. 151321</b>  <b>Material/Finish</b>                      stainless steel  <b>Feature/Equipment</b>                      drilled holes Ø14,5 mm</p>	
		<p><b>Accessories</b>  <b>B6</b> Clamp ring PLS (Ø50 mm, G1/8)</p>	<p><b>Part-No. 576001</b></p>	
HEROAL 085 / 180 – NSK				
<b>F28</b>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of outward opening casement profiles of roof windows <b>Heroal 085D</b>, for drives with <b>front suspension</b> with bore <b>Ø10 mm</b></p>	<p><b>Part-No. 155155</b>  <b>Material/Finish</b>                      aluminium (natural anodized), stainless steel  <b>Feature/Equipment</b>                      1x bolt Ø10 mm, screw M5, washer A5,3</p>	
<b>K121</b>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of window frame profiles of outward opening roof windows <b>Schüco RS 106D</b>, <b>Heroal 085D</b> for <b>swivelling suspension</b> of drives <b>PLS</b> with <b>B6</b></p>	<p><b>Part-No. 155110</b>  <b>Material/Finish</b>                      stainless steel  <b>Feature/Equipment</b>                      without clamping ring B6</p>	
		<p><b>Accessories</b>  <b>B6</b> Clamp ring PLS (Ø50 mm, G1/8)</p>	<p><b>Part-No. 576001</b></p>	

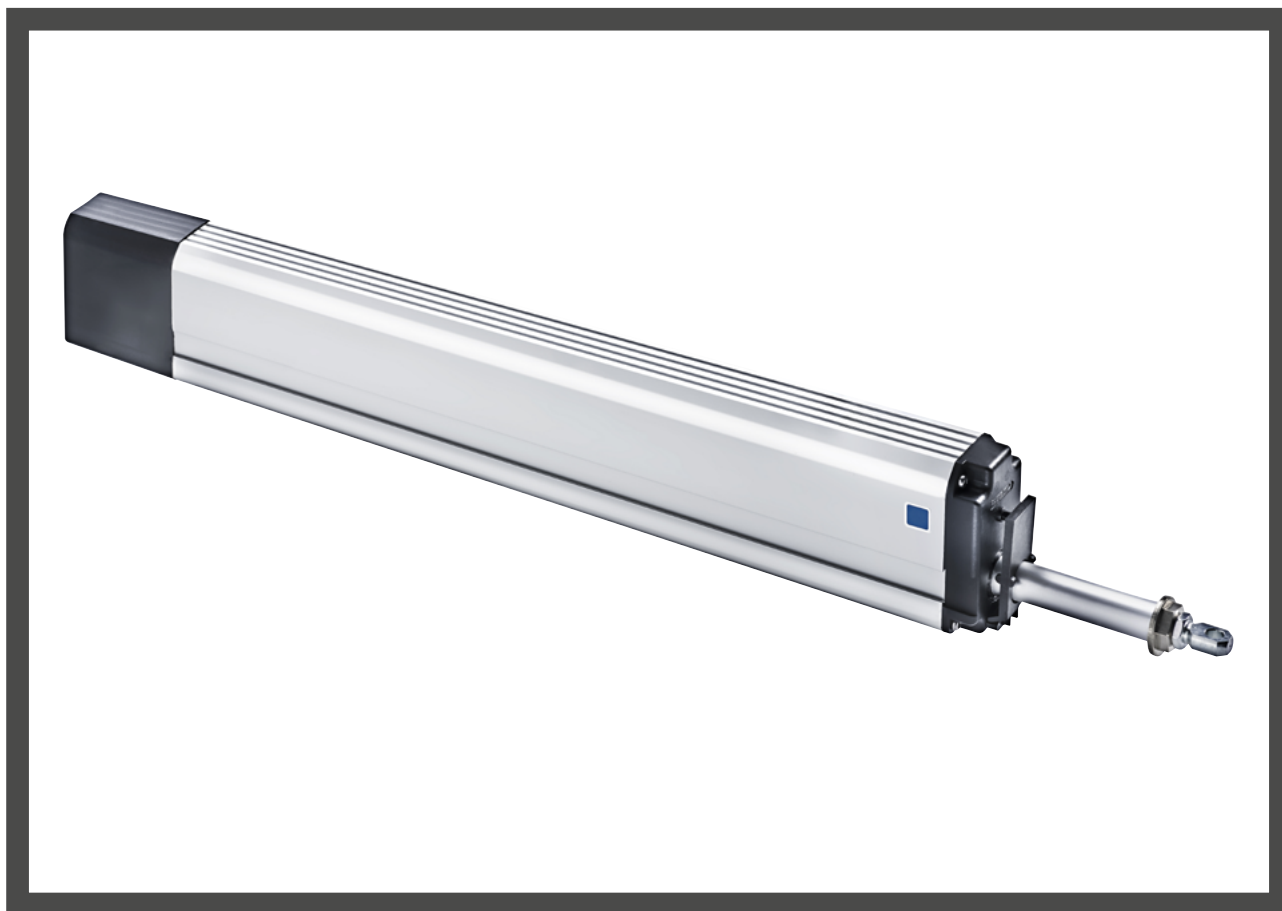


## OPTIONAL ACCESSORIES

Clevis			
<b>B28ST</b>		<b>Application</b> Clevis for rear or front suspension of spindle drives with <b>M10</b> thread in the rear base cap or in the spindle tube	<b>Part.-No. 105520</b> <b>Material/Finish</b> steel galvanized <b>Feature/Equipment</b> Clevis M10 x 50 mm with spring bolt Ø10 mm and thread M10x 50 mm 1x nut M10 + Nordlock-safety-washer + O-ring, max. screw-in depth in the drive 25 mm
Eyebolt			
<b>B29VA</b>		<b>Application</b> Eyebolt for rear or front suspension of spindle drives with <b>M12</b> thread in the rear base cap or in the spindle tube	<b>Part.-No. 105430</b> <b>Material/Finish</b> stainless steel <b>Feature/Equipment</b> M12x 40 (eye Ø8,2 mm), 1x nut M12 + Nordlock-safety-washer + o-ring, minimum depth drive 25 mm
Main control unit			
<b>M-COM</b>		<b>Application</b> <b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems <b>Rated voltage:</b> 24 V DC (19 V ... 28 V) <b>Current consumption:</b> <12 mA <b>Drive type:</b> S12	<b>Part.-No. 524177</b> <b>Protection rating</b> IP30 rubber envelope <b>Ambient temperature range</b> 0 °C ... + 70 °C <b>Dimensions</b> 45 x 17 x 6 mm <b>Connecting wires</b> 3 wires 0,5 mm <sup>2</sup> x 50 mm <b>Feature/Equipment</b> Printed circuit board with components and connection wires to be installed in connection box to be supplied on site

## CASEMENT BRACKETS AND FRAME BRACKETS

Special model	PU/pcs.	Part.-No.
<b>Casement brackets painted / powder coated in other RAL colours</b>		
<b>Lump sum for coating</b>		<b>516030</b>
Specify at order stage:	1 – 20	<b>516032</b>
	21 – 50	<b>516032</b>
	51 – 100	<b>516032</b>
	from 101	<b>516032</b>
<b>Frame brackets painted / powder coated in other RAL colours</b>		
<b>Lump sum for coating</b>		<b>516030</b>
Specify at order stage:	1 – 20	<b>516031</b>
	21 – 50	<b>516031</b>
	51 – 100	<b>516031</b>
	from 101	<b>516031</b>



### SPECIAL FEATURES SP

- For natural ventilation, smoke and heat exhausting systems
- Robust corrosion-resistant design
- Aluminium housing anodized finish or optionally in RAL colors - with plastic end caps
- Easy installation due to lateral dovetail guidance
- Phosphated steel spindle, aluminium spindle tube anodised finish, damped end positions
- Available in 24V DC and 230V AC
- Limit switch to protect against overload

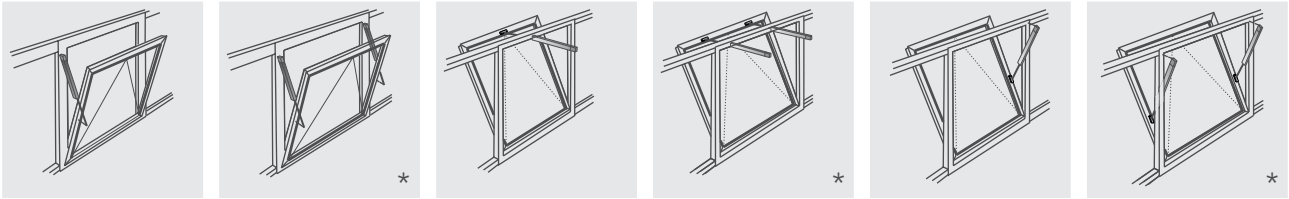
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804.

The LCA results of the different product types are listed at the end of this product catalogue.

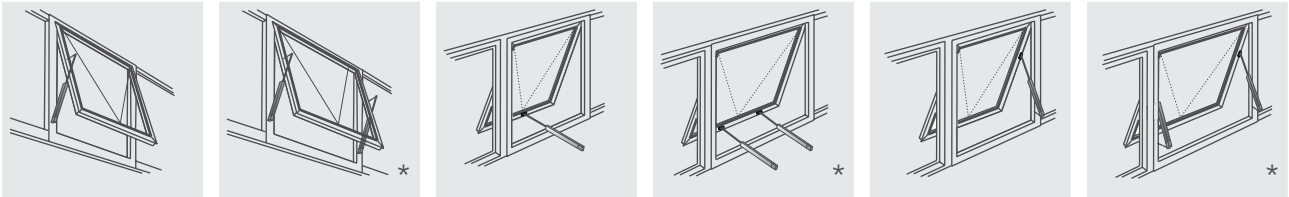
The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

**FACADE**

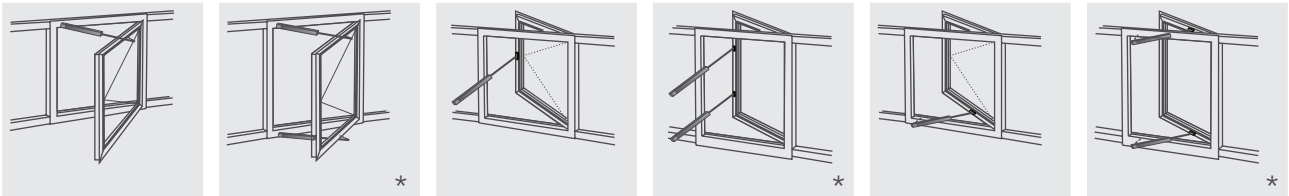
Bottom-hung



Top-hung

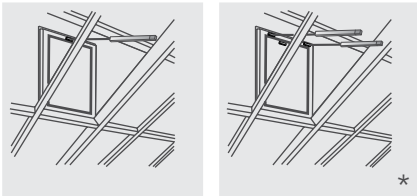


Side-hung

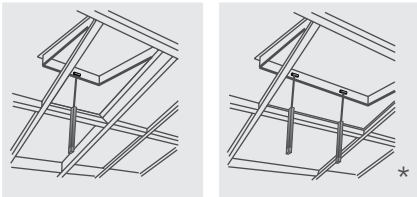


**ROOF**

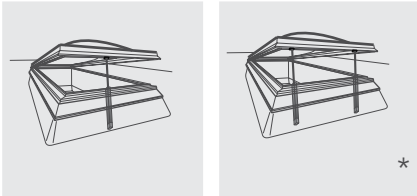
Bottom-hung



Top-hung



Skylight



Glass pyramid

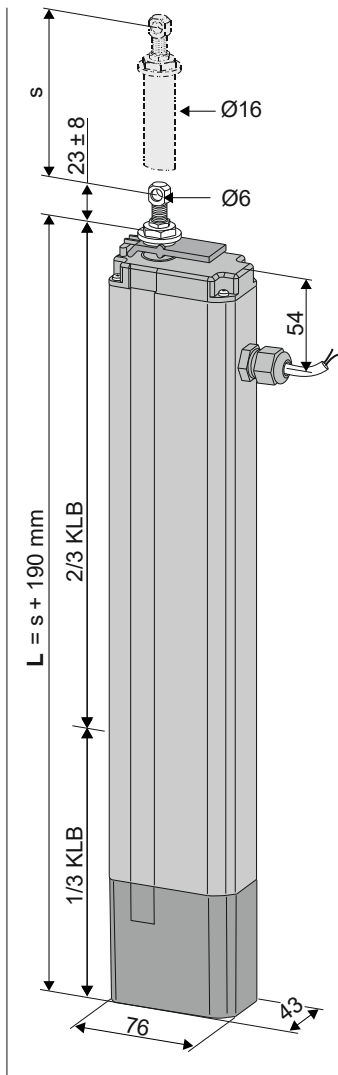


\* Monitored motion run up to  $s = 300$  mm with USKM (Controll modul Part.-No.: 512140)

- Application: natural ventilation and RWA
- Cut-off via limit switch
- „Z“-Version: Potential free NC contact for closed end position feedback (max. 24 V, 500 mA)
- Preferably application for skylight domes

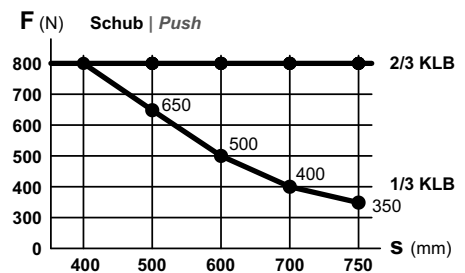
### Options

- Rear suspension (only to 500 mm stroke)
- Stroke reduction
- Protection rating IP65



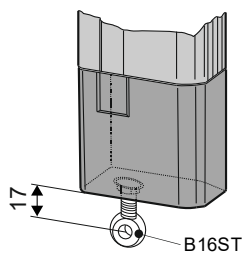
### TECHNICAL DATA

$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,8 A
$I_A$	Cut-off current	1,0 A
$P_N$	Rated power	20 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 54
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	800 N
$F_A$	Pushing force max.	



$F_H$	Pullout force	3000 N (fastening depended)
	Spindle tube	aluminium
	Connecting cable	non-halogen, grey SP8: 2 x 0,75 mm <sup>2</sup> , ~ 1 m SP8-Z: 4 x 0,75 mm <sup>2</sup> , ~ 1 m
$v$	Speed	$v_{\text{pull}} = 7,0 \text{ mm/s}$ $v_{\text{push}} = 7,0 \text{ mm/s}$
<b>S</b>	Stroke	100 – 750 mm
<b>L</b>	Length	s + 190 mm see order data
	Sound pressure level	≤ 70 dB (A)

### OPTION



The rear suspension is fitted at the factory.  
Only up to 500 mm stroke possible!

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	290	SP8 100 S2 24V	E6/C-0	1	514110	
		SP8-Z 100 S2 24V		1	514310	
200	390	SP8 200 S2 24V	E6/C-0	1	514120	
		SP8-Z 200 S2 24V		1	514320	
300	490	SP8 300 S2 24V	E6/C-0	1	514130	
		SP8-Z 300 S2 24V		1	514330	
400	590	SP8 400 S2 24V	E6/C-0	1	514140	
		SP8-Z 400 S2 24V		1	514340	
500	690	SP8 500 S2 24V	E6/C-0	1	514150	
		SP8-Z 500 S2 24V		1	514350	
600	790	SP8 600 S2 24V	E6/C-0	1	514160	
		SP8-Z 600 S2 24V		1	514360	
750	940	SP8 750 S2 24V	E6/C-0	1	514175	
		SP8-Z 750 S2 24V		1	514375	

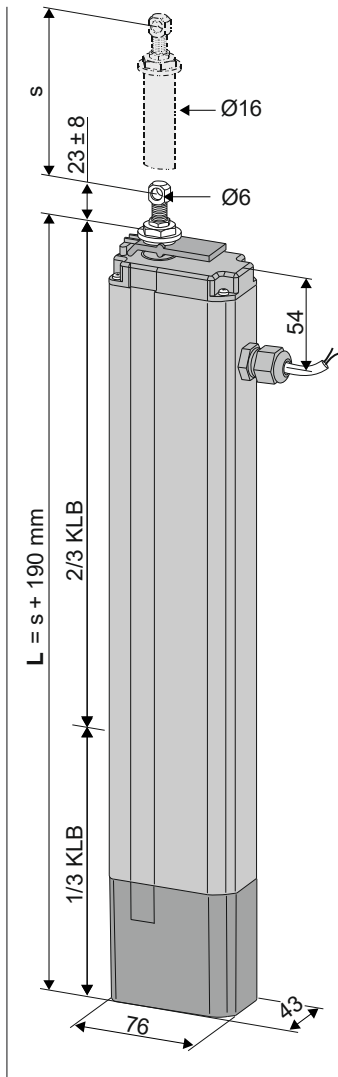
OPTIONS						
Special model				PU/pcs.	Part.-No.	
<b>Rear Suspension</b>						
Cape for rear suspension (only to 500 mm stroke) incl. eyebolt B165T M8 x 40 mm, bore Ø8 mm				1	512002	
<b>Protection rating IP65</b>						
Drive with additional gaskets for IP65					512005	
<b>Mechanical stroke reduction</b>						
Stroke reduction without construction length - mechanically					516000	
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>					516030	
Specify at order stage:				1 – 20	516004	
				21 – 50	516004	
				51 – 100	516004	
				from 101	516004	
<b>Extra length connecting cable:</b>						
3 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					501023	
5 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					501024	
10 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					501026	
5 m – non-halogen, grey – 4 x 0,75 mm <sup>2</sup> („Z“-Version)					501044	
10 m – non-halogen, grey – 4 x 0,75 mm <sup>2</sup> („Z“-Version)					501046	



- Application: natural ventilation as single-drive
- Cut-off via limit switch
- Potential free NC contact for closed end position feedback (max. 24 V, 500 mA)
- Parallel connection up to 8 drives in one group
- Preferably application for skylight domes
- Minimum basic length of housing for stroke  $s = 300$  mm

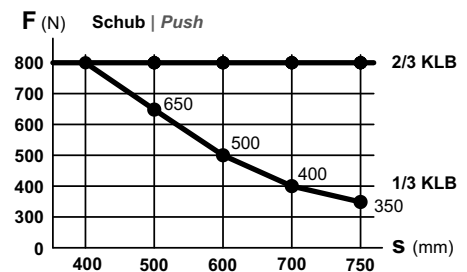
### Options

- Stroke reduction (for  $s < 300$  mm)
- Rear suspension (only to 500 mm stroke)
- Protection rating IP65



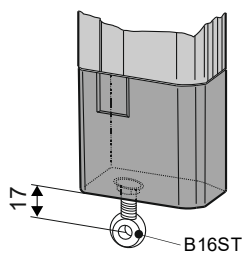
### TECHNICAL DATA

$U_N$	Rated voltage	230 V AC (50 Hz)
$I_N$	Rated current	0,12 A
$I_A$	Cut-off current	0,2 A
$P_N$	Rated power	30 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 54
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	800 N
$F_A$	Pushing force max.	



$F_H$	Pullout force	3000 N (fastening depended)
	Spindle tube	aluminium
	Connecting cable	non-halogen, grey – 6 x 0,75 mm <sup>2</sup> , ~ 1 m
$v$	Speed	7,0 mm/s  7,0 mm/s
$s$	Stroke	300 – 750 mm
$L$	Length	$s + 190$ mm see order data
	Minimum length of housing	490 mm ( $s \geq 300$ mm)
	Sound pressure level	$\leq 70$ dB (A)

### OPTION



The rear suspension is fitted at the factory.  
Only up to 500 mm stroke possible!

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
300	490	SP8-Z 300 S2 230V	E6/C-0	1	496231	
400	590	SP8-Z 400 S2 230V	E6/C-0	1	496241	
500	690	SP8-Z 500 S2 230V	E6/C-0	1	496251	
600	790	SP8-Z 600 S2 230V	E6/C-0	1	496261	
750	940	SP8-Z 750 S2 230V	E6/C-0	1	496276	

OPTIONS			
Special model	PU/pcs.	Part.-No.	
<b>Rear Suspension</b>			
Cape for rear suspension (only to 500 mm stroke) incl. eyebolt B165T M8 x 40 mm, bore Ø8 mm	1	512002	
<b>Protection rating IP65</b>			
Drive with additional gaskets for IP65		512005	
<b>Mechanical stroke reduction</b>			
Stroke reduction without construction length - mechanically		516000	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		516030	
Specify at order stage:	1 – 20	516004	
	21 – 50	516004	
	51 – 100	516004	
	from 101	516004	
<b>Extra length connecting cable:</b>			
3 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>		501163	
5 m – non-halogen, grey – 6 x 0,75 mm <sup>2</sup>		501167	

OVERVIEW OF BRACKETS					1	2	3	4	5	6	
Typical applications											
Frame bracket					K7	K57, K57.2, K57.3	K59	K57, K57.2, K57.3, K59	K92	K82	
Mounting aid								K9			
Bracket accessories					B13	B10 inkl.				B13	
Casement bracket					F12	F1, F1V, F1.1, F10.6					
Special application					Sky light Essmann				Sky light Lamilux		
Space requirement			min.	[mm]	120	40	35	50	60	45	
Window material		Alu				●	●	●	●	●	
		Wood				●	●	●	●	●	
		PVC			●	●	●	●	●	●	
Type of window and mounting	Bottom hung	inward	HSK	FM				■		■	
				RM							
			NSK	FM							
			RM								
		outward	HSK	RM				●		●	
				PR		●	●		●		
	NSK		RM								
		PR									
	Top hung	inward	HSK	FM				■		■	
				RM							
			NSK	FM							
			RM								
		outward	HSK	RM				●		●	
				PR		●	●		●		
	NSK		RM								
		PR									
	Side hung	inward	HSK	FM				■		■	
				RM							
			NSK	FM							
				RM							
	Roof	outward	HSK	RM				●		●	
				PR		●	●		●		
			NSK	RM							
				PR		●	●		●		
Sky-light	outward	HSK	RM	●	●	●		●	●		
		NSK	RM								
FAB(*1)			Solo	[mm]	1200	450 – 1300					
FAH(*1)			Solo	[mm]	1200	450 – 1500					

### LEGEND

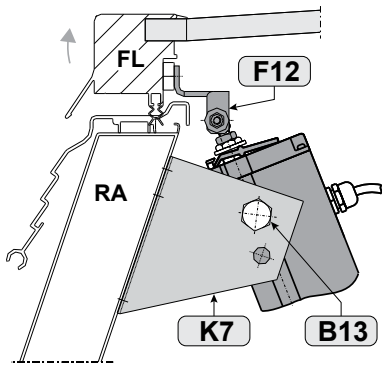
- suitable
- not recommended

(\*1) Sample value of the casement dimensions. The actual casement dimensions depend on the stroke and the position of the drives to the hinges. The values of FAB/FAH are to be used analogue for side hung windows.



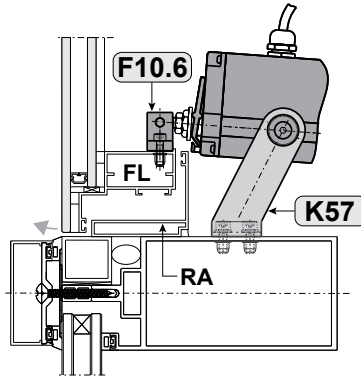
TYPICAL APPLICATIONS

1 RM, HSK, sky light



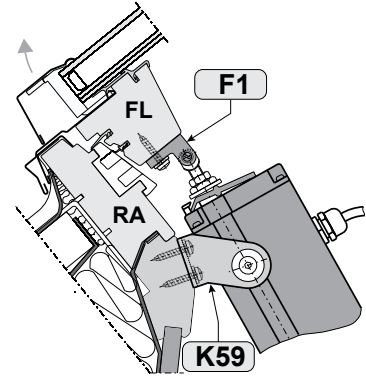
View on sky light Essmann

2 RM, HSK, top hung outward opening



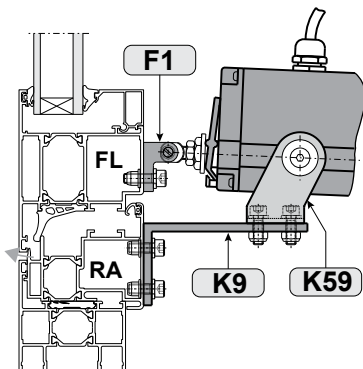
View on aluminium window

3 RM, HSK, roof



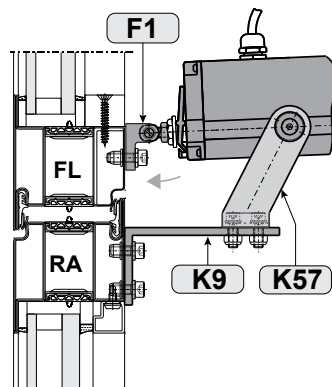
View on wooden window

4 RM, HSK, top hung outward opening



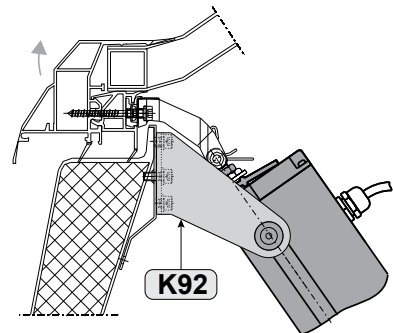
View on aluminium window

4 RM, HSK, top hung outward opening



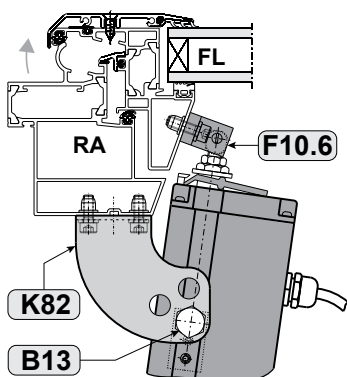
View on steel window

5 RM, HSK, sky light



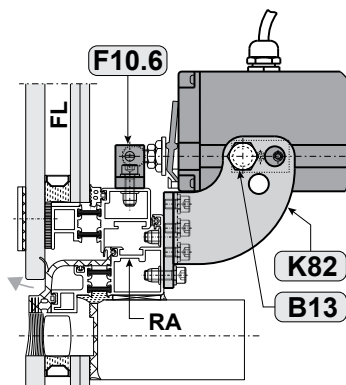
View on sky light Lamilux

6 RM, HSK, roof



View on aluminium window

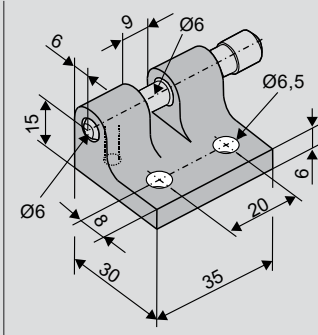
6 RM, HSK, top hung outward opening



View on aluminium window

### CASEMENT BRACKETS

F1



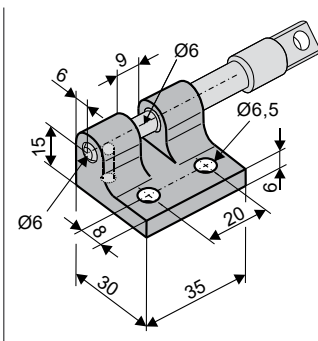
**Application**

**Surface mounting** on the **main closing edge** of casement profiles of outward opening windows or skylights, for drives with **front or rear suspension** with bore **Ø6 mm**, manual removal of the drive is possible

**Part-No. 150102**

**Material/Finish**  
aluminium, diecast  
**Feature/Equipment**  
1x locking bolt  
Ø6 mm  
**Load**  
max. 1000 N

F1.1



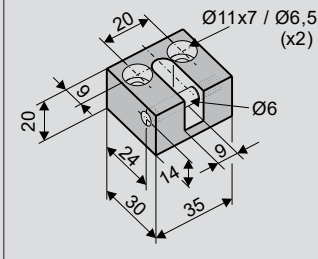
**Application**

**Surface mounting** on the **main closing edge** of casement profiles of outward opening windows or skylights, for drives with **front or rear suspension** with bore **Ø6 mm**, manual removal of the drive is possible

**Part-No. 150110**

**Material/Finish**  
aluminium, diecast  
**Feature/Equipment**  
1x locking spring bolt  
Ø6 mm  
**Load**  
max. 600 N

F1V



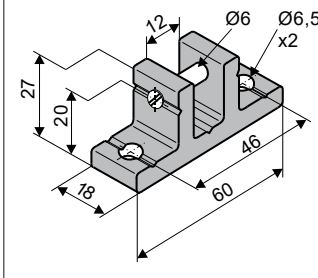
**Application**

**Surface mounting** on the **main closing edge** of casement profiles of outward opening windows or skylights, for drives with **front or rear suspension** with bore **Ø6 mm**

**Part-No. 150101**

**Material/Finish**  
aluminium  
**Feature/Equipment**  
1x grubscrew Ø6 mm  
**Load**  
max. 1600 N

F10.6



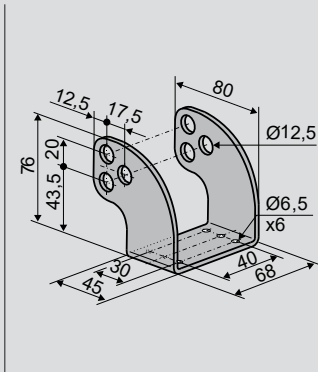
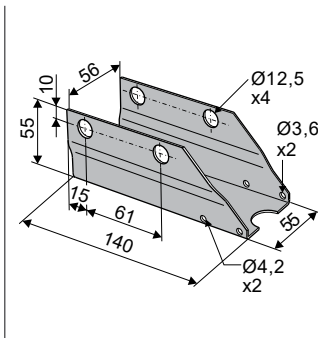
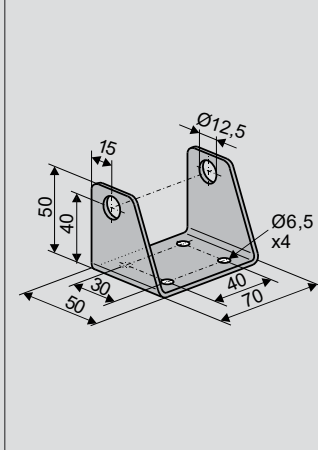
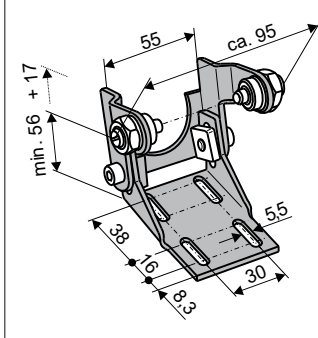
**Application**

**Surface mounting** on **main closing edge** of casement profiles of outward opening windows or skylights, for drives with **front or rear suspension** with bore **Ø6 mm**, threaded stud bolt

**Part-No. 151000**

**Material/Finish**  
aluminium  
**Feature/Equipment**  
1x stud bolt Ø6 mm  
**Load**  
max. 1600 N

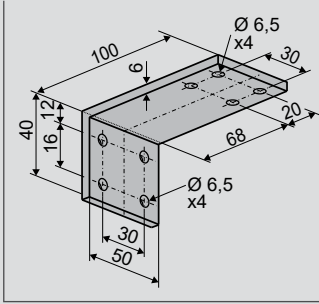
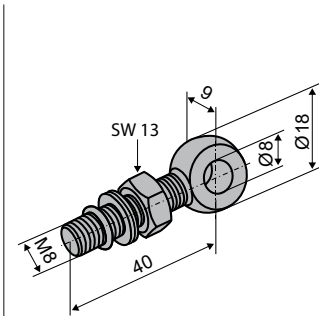
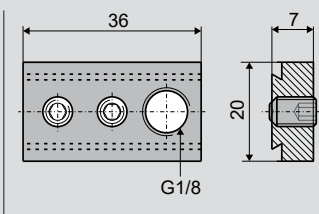
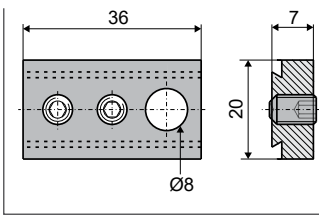
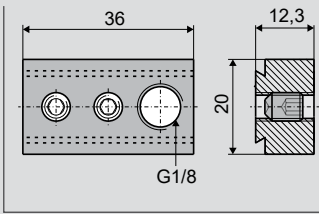
## FRAME BRACKETS

K82		<p><b>Application</b></p> <p><b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for <b>swivelling suspension</b> of drives</p> <p><b>PLA with B4, SP with B13, LKS with B7</b></p>	<p><b>Part.-No. 151320</b></p> <p><b>Material/Finish</b> stainless steel</p> <p><b>Feature/Equipment</b> drilled holes Ø12,5 mm</p>			
<b>Accessories</b>						
<p><b>B13</b> clamp block SP (12 mm, G1/8) thick</p>		<p><b>Part.-No. 513901</b></p>				
K4-L		<p><b>Application</b></p> <p><b>Surface mounting</b> on the <b>main closing edge</b> of the upstand of skylight domes</p> <p><b>Eternit</b> for swivelling suspension of drives</p> <p><b>PLA with B4, SP with B11,</b></p>	<p><b>Part.-No. 155610</b></p> <p><b>Material/Finish</b> steel galvanized</p> <p><b>Feature/Equipment</b> 2x screw Taptite M4x10, 1x nut M4, 1x screw M4x65</p>			
<b>Accessories</b>						
<p><b>B11</b> clamp block SP (G1/8)</p>		<p><b>Part.-No. 513902</b></p>				
K5		<p><b>Application</b></p> <p><b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for <b>swivelling suspension</b> of drives</p> <p><b>PLA with B4, SP8 with B13, LKS with B7</b></p>	<p><b>Part.-No. 155800</b></p> <p><b>Material/Finish</b> steel galvanized</p> <p><b>Feature/Equipment</b> drilled holes Ø12,5 mm</p>			
<b>Accessories</b>						
<p><b>B13</b> clamp block SP (12 mm, G1/8)</p>		<p><b>Part.-No. 513901</b></p>				
<p><b>K21K</b> Frame bracket</p>		<p><b>Part.-No. 159900</b></p>				
<p><b>K21L</b> Frame bracket</p>		<p><b>Part.-No. 159905</b></p>				
K17		<p><b>Application</b></p> <p><b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for <b>swivelling suspension</b> of drives</p> <p><b>PLA with B5, SP with B12</b></p>	<p><b>Part.-No. 159200</b></p> <p><b>Material/Finish</b> steel galvanized</p> <p><b>Feature/Equipment</b> adjustable height</p>			
<b>Accessories</b>						
<p><b>B12</b> clamp block SP (7,0 mm thick, Ø8 mm)</p>		<p><b>Part.-No. 513903</b></p>				

### FRAME BRACKETS

<p><b>K57</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of the window frame of outward opening roof windows or skylight domes for <b>swivelling suspension</b> of drives <b>SP</b>, Space in between clamp axis and fixing level <b>75 mm</b></p>	<p><b>Part.-No. 160930</b>  <b>Material/Finish</b>                      steel galvanized  <b>Feature/Equipment</b>                      2x B10 clamping bolts</p>	
<p><b>Accessories</b></p>		<p><b>K9</b> Frame bracket <b>Part.-No. 158501</b></p>		
<p><b>K57.2</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of the window frame of outward opening roof windows or skylight domes for <b>swivelling suspension</b> of drives <b>SP</b>, Space in between clamp axis and fixing plane <b>70 mm</b></p>	<p><b>Part.-No. 160931</b>  <b>Material/Finish</b>                      steel galvanized  <b>Feature/Equipment</b>                      2x B10 clamping bolts</p>	
<p><b>Accessories</b></p>		<p><b>K9</b> Frame bracket <b>Part.-No. 158501</b></p>		
<p><b>K57.3</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of the window frame of outward opening roof windows or skylight domes for <b>swivelling suspension</b> of drives <b>SP</b>, Space in between clamp axis and fixing plane <b>125 mm</b></p>	<p><b>Part.-No. 160935</b>  <b>Material/Finish</b>                      steel galvanized  <b>Feature/Equipment</b>                      2x B10 clamping bolts</p>	
<p><b>K59</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of the window frame of outward opening roof windows or skylight domes for <b>swivelling suspension</b> of drives <b>SP</b>, Space in between clamp axis and fixing plane <b>40 mm</b></p>	<p><b>Part.-No. 160934</b>  <b>Material/Finish</b>                      steel, powdercoated (RAL 9006-silver)  <b>Feature/Equipment</b>                      2x B10 clamping bolts</p>	
<p><b>Accessories</b></p>		<p><b>K9</b> Frame bracket <b>Part.-No. 158501</b></p>		

## OPTIONAL ACCESSORIES

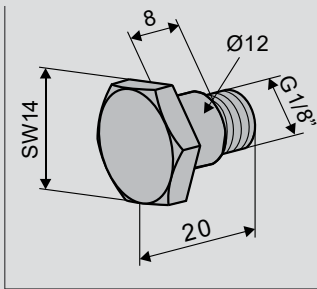
Window console				
<b>K9</b>		<b>Application</b> Shift the fastening level of the frame brackets <b>K57</b> , <b>K57.2</b> and <b>K59</b> from the horizontal to the vertical side of the <b>main closing edge</b> of window frames	<b>Part-No. 158501</b>  <b>Material/Finish</b> aluminium	
<b>Eyebolt</b>				
<b>B16ST</b>		<b>Application</b> Eye bolt for <b>rear or front suspension</b> of spindle drives with <b>M8</b> thread in the rear base cap or in the spindle tube	<b>Part-No. 100044</b>  <b>Material/Finish</b> steel galvanized <b>Feature/Equipment</b> M8x40 (Eye Ø8 mm), 1x nut M8, 1x Nordlock-safety-washer, 1x O-ring max. screw-in depth in the drive 25 mm	
<b>B16VA</b>			<b>Part-No. 100144</b>  <b>Material/Finish</b> stainless steel (V2A)	
<b>Clamp blocks</b>				
<b>B11</b>		<b>Application</b> <b>Swivelling suspension</b> of drives <b>SP8</b> on frame brackets <b>K4-L</b> with collar screw <b>B8</b>	<b>Part-No. 513902</b>  <b>Material/Finish</b> aluminium <b>Feature/Equipment</b> 7,0 mm thick, thread G1/8", incl. 2 collar screws B8, Ø12 mm	
<b>B12</b>		<b>Application</b> <b>Swivelling suspension</b> of drives <b>SP8</b> on frame brackets <b>K17</b>	<b>Part-No. 513903</b>  <b>Material/Finish</b> aluminium <b>Feature/Equipment</b> 7,0 mm thick, bore Ø8,2 mm 2 pieces	
<b>B13</b>		<b>Application</b> <b>Swivelling suspension</b> of drives <b>SP8</b> on frame brackets <b>K5</b> , <b>K7</b> , <b>K82</b> with collar screw <b>B8</b>	<b>Part-No. 513901</b>  <b>Material/Finish</b> aluminium <b>Feature/Equipment</b> 12,3 mm thick, thread G1/8", incl. 2 collar screws B8, Ø12 mm	

### SPECIFIC APPLICATIONS

SKY-LIGHT LAMILUX				
K92		<p><b>Application</b></p> <p><b>Surface mounting</b> on the <b>main closing edge</b> of the upstand of skylight domes <b>Lamilux</b> for <b>swivelling suspension</b> of drives <b>SP</b>. For the front suspension the original casment bracket of Lamilux is used</p>	<p><b>Part.-No. 160937</b></p> <p><b>Material/Finish</b> steel, powder coated (RAL 9010 white)</p> <p><b>Feature/Equipment</b> 2x B10 clamping bolts</p>	
SKY-LIGHT ESSMANN TYP 810				
F12		<p><b>Application</b></p> <p><b>Surface mounting</b> on the <b>main closing edge</b> of the casement profiles of skylight domes <b>Essmann 810</b> for drives with <b>front suspension</b> with bore <b>Ø6 mm</b></p>	<p><b>Part.-No. 151500</b></p> <p><b>Material/Finish</b> steel galvanized</p> <p><b>Feature/Equipment</b> 1x screw M6, washer, nut</p> <p><b>Load</b> max. 800 N</p>	
K7		<p><b>Application</b></p> <p><b>Surface mounting</b> on the <b>main closing edge</b> of the upstand of skylight domes <b>Essmann 810</b> for <b>swivelling suspension</b> of drives</p> <p><b>PLA</b> with <b>B4</b>, <b>SP</b> with <b>B13</b>, <b>LKS</b> with <b>B7</b></p>	<p><b>Part.-No. 157500</b></p> <p><b>Material/Finish</b> steel galvanized</p> <p><b>Feature/Equipment</b> drilled holes Ø12,5 mm</p>	
	<p><b>Accessories</b></p> <p><b>B13</b> clamp block SP (12 mm, G1/8)</p>	<p><b>Part.-No. 513901</b></p>		

## OPTIONAL ACCESSORIES

B8



## Application

Swivelling suspension of the clamp rings  
**B4 for PLA**  
**B7 for LKS**  
 or of the clamping blocks  
**B11, B13 for SP**  
 for U-shaped frame brackets with bore **Ø12,5 mm**

Part.-No. 172800

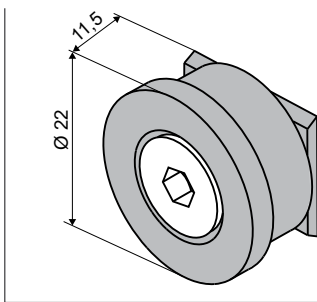
## Material/Finish

stainless steel

## Feature/Equipment

collar Ø12 mm, G1/8"

B10



## Application

Swivelling suspension of drives  
**SP8** on frame brackets **K57,**  
**K57.2, K57.3, K59, K92**

Part.-No. 155010

## Material/Finish

cast steel, nickel plated

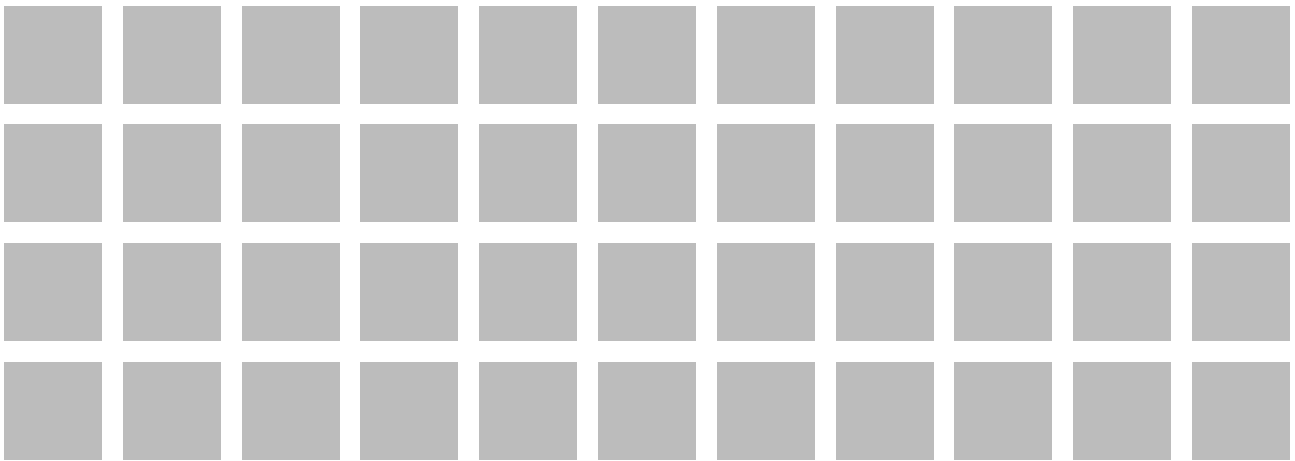
## Feature/Equipment

2 pieces (for drilled holes Ø20 mm)

## CASEMENT BRACKETS AND FRAME BRACKETS

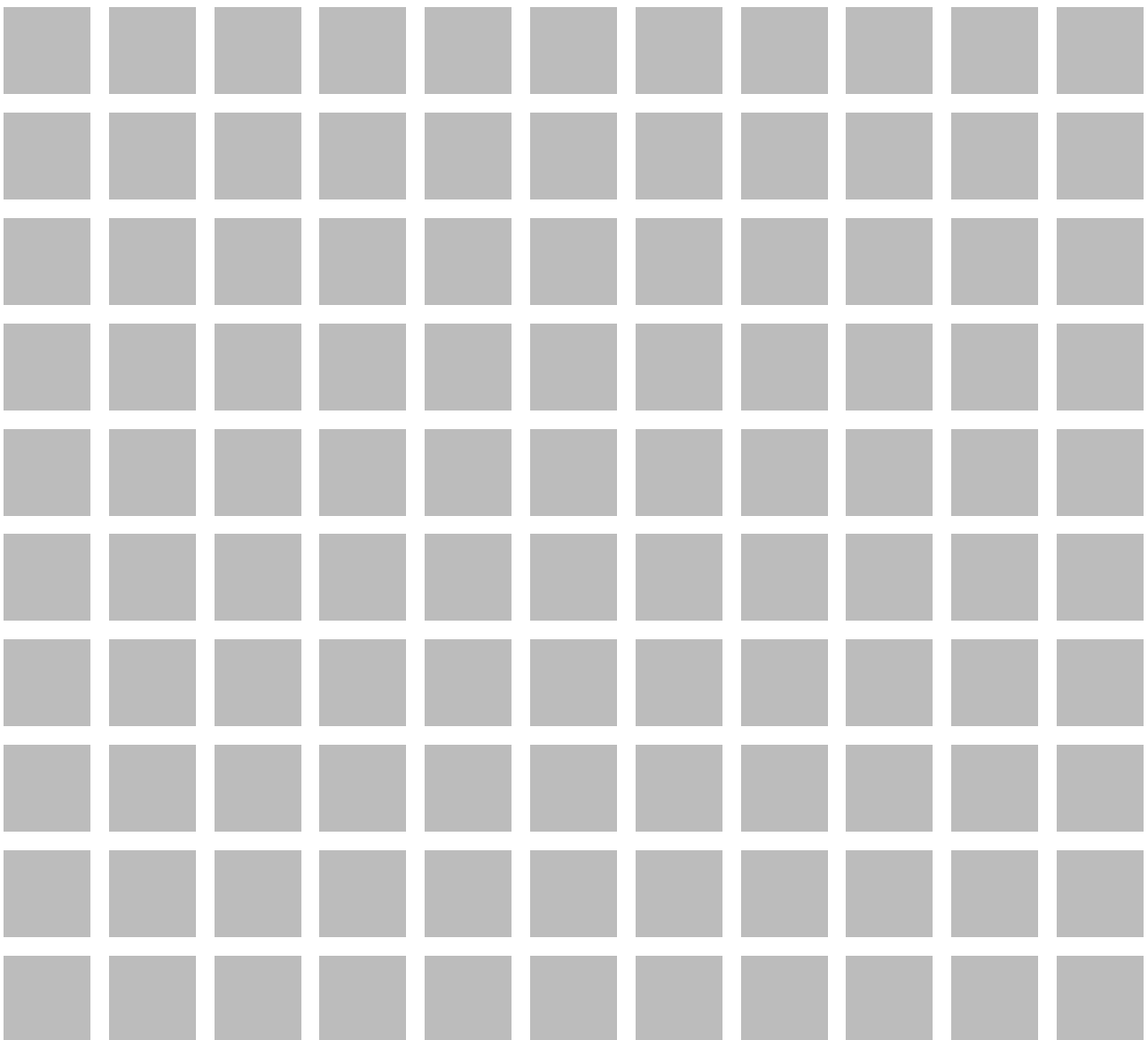
## Special accessories

Special model	PU/pcs.	Part.-No.			
<b>Casement brackets painted / powder coated in other RAL colours</b>					
<b>Lump sum for coating</b>		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516032</b>			
	21 – 50	<b>516032</b>			
	51 – 100	<b>516032</b>			
	from 101	<b>516032</b>			
<b>Frame brackets painted / powder coated in other RAL colours</b>					
<b>Lump sum for coating</b>		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516031</b>			
	21 – 50	<b>516031</b>			
	51 – 100	<b>516031</b>			
	from 101	<b>516031</b>			

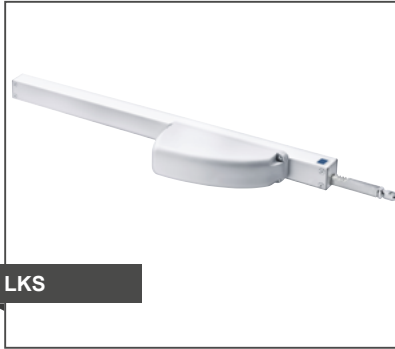


# 3

## Rack and pinion drives





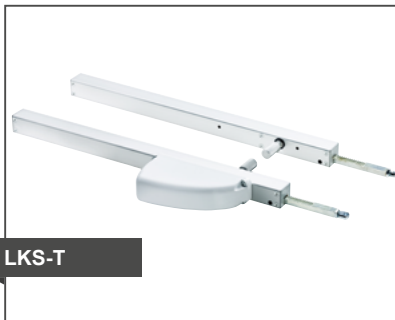


LKS

### LKS RACK AND PINION DRIVES

- Model 24V DC, S2
- Pulling/Pushing force 550 N
- Stroke length 100 – 1000 mm
- Speed 6,0 mm/s
- Housing (WxH) 30 x 30 mm x length depending on stroke
- Motor-gear-unit 40 x 113 x 156 mm
- Opening mechanism Chromated stainless steel rack
- Version Solo
- Protection rating IP54

LKS



LKS-T

### LKS-T RACK AND PINION DRIVES

- Model 24V DC, S2
- Pulling/Pushing force 550 N
- Stroke length 300 – 1000 mm
- Speed 6,0 mm/s
- Housing (WxH) 30 x 30 mm x length depending on stroke
- Opening mechanism Chromated stainless steel rack
- Version Solo with follower and connection shaft
- Protection rating IP54

LKS  
T



LKS-TV

### LKS-TV RACK AND PINION DRIVES

- Model 24V DC, S2
- Pulling/Pushing force 1100 N
- Stroke length 300 – 1000 mm
- Speed 6,0 mm/s
- Housing (WxH) 30 x 30 mm x length depending on stroke
- Opening mechanism Chromated stainless steel rack
- Version Tandem with connection shaft
- Protection rating IP54

LKS  
TV

RACK AND PINION DRIVES																		
Type	Form	Model		Stroke	Force		Speed		Stroke in	Cut-off current	Use			Location		Functions		
		Type of cut-off	Rated voltage	Range	Pushing force	Pulling force	OPEN	CLOSE	60 s	Max.	Natural ventilation	RWA	NRWG	Facade	Roof	Run monitoring	Synchronised run	Sequence control
			[VDC]	[mm]	[N]	[N]	[mm/s]	[mm/s]	[mm]	[A]								
LKS	LKS (SOLO)	S2	24	100–1000	550	550	6,0	6,0	350	0,8	●	●		●	●	○		○
	LKS-T			300–1000	550	550				0,8	●	●		■	●		●	○
	LKS-TV			300–1000	1100	1100				1,6	●	●		■	●		●	○

**LEGEND**

- suitable      ■ not recommended
- S2                internal load dependend cut-off switch
- only with external control module USKM



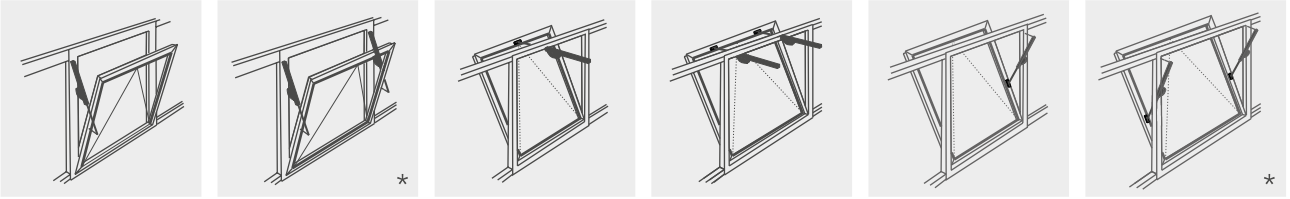
### SPECIAL FEATURES LKS

- For natural ventilation and smoke and heat exhausting
- Robust corrosion-resistant design
- Slim natural anodised aluminium housing (30 x 30 mm)
- Grey plastic housing for motor-gear unit
- Easy installation due to adjustable clamp ring as well as front and rear suspension
- Chromated stainless steel rack with end position dampening

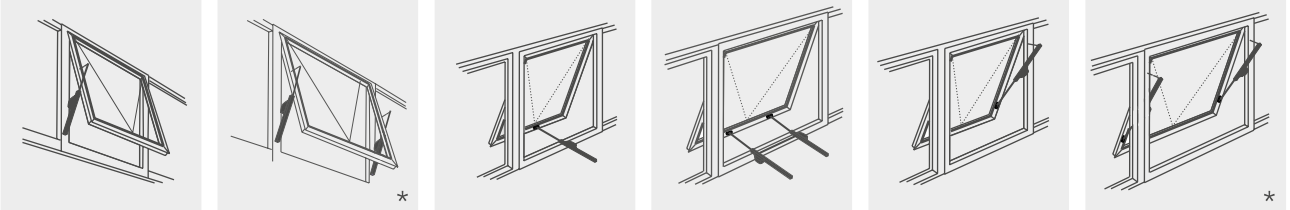
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

**FACADE**

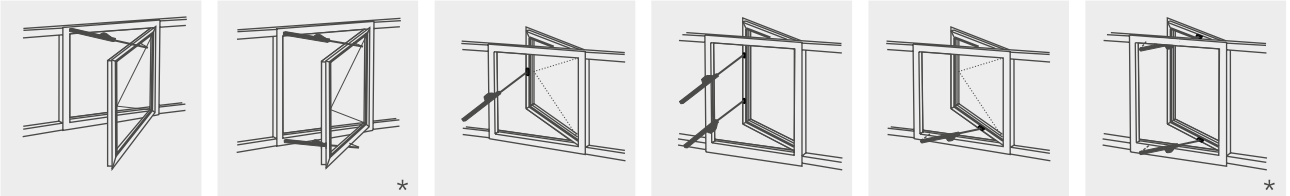
Bottom-hung



Top-hung

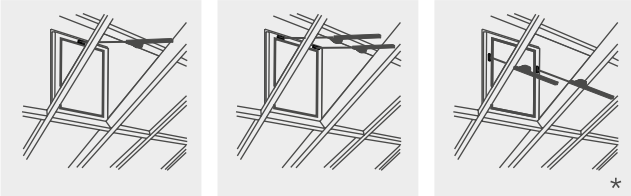


Side-hung

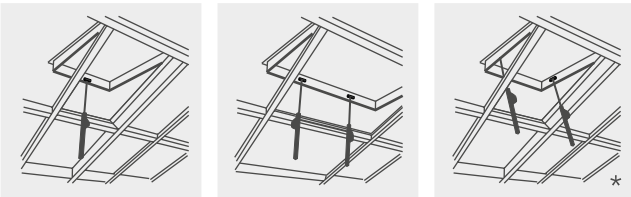


**ROOF**

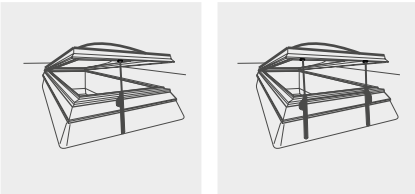
Bottom-hung



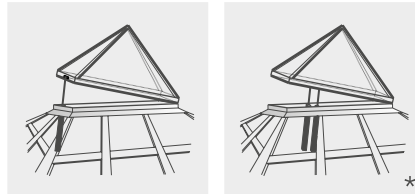
Top-hung



Sky light



Glass pyramid

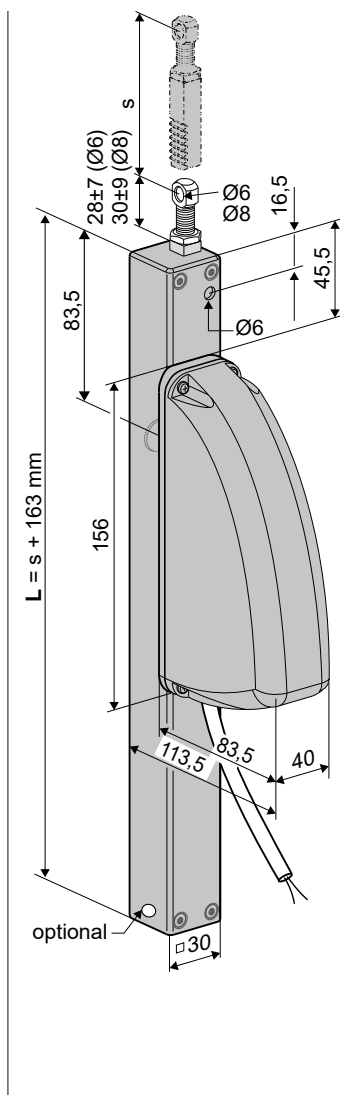


\*Monitored motion run up to s = 300 mm with USKM (Controll modul Part.-No.: 512140)

- Application: natural ventilation and RWA as single-drive
- Internal load dependend cut-off switch S2

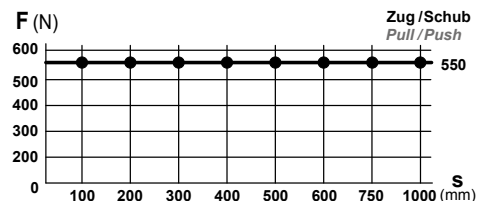
### Options

- Drillings for front / rear suspension
- Monitored motion run of 2 drives up to  $s = 300$  mm via USKM



### TECHNICAL DATA

$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,6 A
$I_A$	Cut-off current	0,8 A
$P_N$	Rated power	15 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 54
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	550 N
$F_A$	Pushing force max.	



$F_H$	Pullout force	1.800 N (fastening depended)
	Rack	stainless steel
	Connecting cable	non-halogen, grey 2 x 0,75 mm <sup>2</sup> , ~ 1 m
$v$	Speed	$\swarrow = 6,0$ mm/s $\searrow = 6,0$ mm/s
$s$	Stroke	100 – 1000 mm
$L$	Length	s + 163 mm see order data
	Sound pressure level	≤ 70 dB (A)

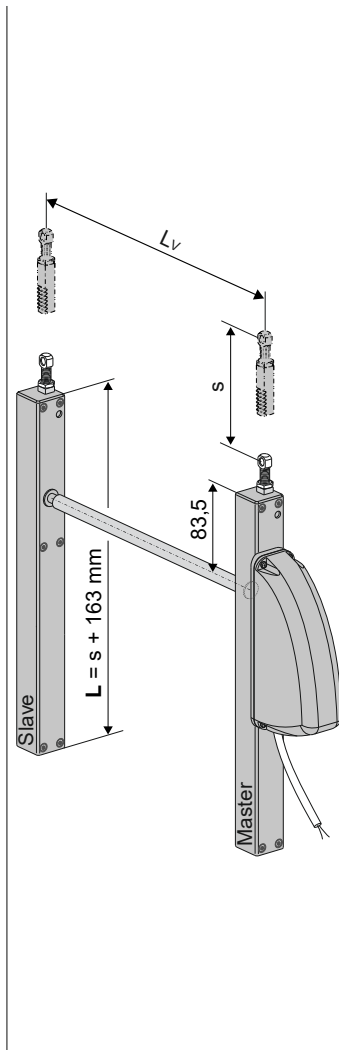
ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	263	LKS 100 S2	E6/C-0	1	513100.N	
200	363	LKS 200 S2	E6/C-0	1	513200.N	
300	463	LKS 300 S2	E6/C-0	1	513300.N	
400	563	LKS 400 S2	E6/C-0	1	513400.N	
500	663	LKS 500 S2	E6/C-0	1	513500.N	
600	763	LKS 600 S2	E6/C-0	1	513600.N	
750	913	LKS 750 S2	E6/C-0	1	513800.N	
1000	1163	LKS 1000 S2	E6/C-0	1	513805.N	

OPTIONS						
Special model			PU/pcs.	Part.-No.		
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>					516030	
Specify at order stage:			1 – 20		516004	
			21 – 50		516004	
			51 – 100		516004	
			from 101		516004	
<b>Extra length connecting cable:</b>						
3 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					501023	
5 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					501024	
10 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					501026	
<b>Accessories for fron / rear suspension</b>						
2 additional holes Ø6 mm in the bottom of of housing for rear suspension with K28, K29				1	520901	
<b>Mechanic stroke reduction</b>						
Stroke reduction without construction length - mechanically				1	516000	
<b>Other lengths available on request</b>						
<b>Tandem control with or without sequence control</b>				PU/pcs.	Part.-No.	
<b>Connection shaft</b>						
USKM (s ≤ 300mm)				1	512140	

- Application: natural ventilation and RWA as single-drive
- Internal load dependent cut-off switch S2
- Drive with follower operated by the connection shaft to divide the force on 2 points

### Options

- Drillings for front / rear suspension
- Connection shaft with different lengths



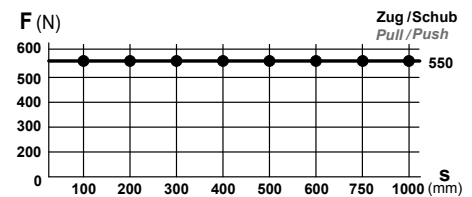
### TECHNICAL DATA

$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,6 A
$I_A$	Cut-off current	0,8 A
$P_N$	Rated power	15 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 54

Ambient temperature range -5 °C ... +60 °C

$F_Z$  Pulling force max. 550 N

$F_A$  Pushing force max.



$F_H$  Pullout force 1.800 N (fastening depended)

Rack stainless steel

Connecting cable non-halogen, grey 2 x 0,75 mm<sup>2</sup>, ~ 1 m

$v$  Speed 6,0 mm/s 6,0 mm/s

$s$  Stroke 300 – 1000 mm

$L$  Length s + 163 mm  
see order data

$L_v$  Connection shaft Standard length see order data

Sound pressure level ≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
300	463	LKS T 300 S2	E6/C-0	1	513300.T	
500	563	LKS T 500 S2	E6/C-0	1	513500.T	
600	663	LKS T 600 S2	E6/C-0	1	513600.T	
750	913	LKS T 750 S2	E6/C-0	1	513800.T	
1000	1163	LKS T 1000 S2	E6/C-0	1	513805.T	

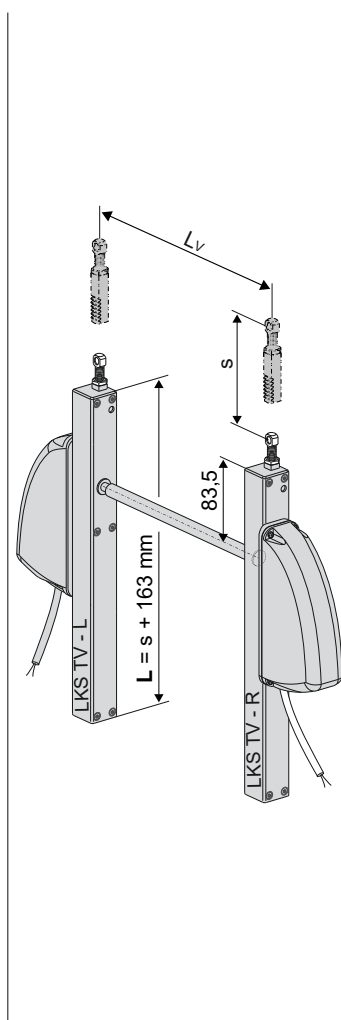
OPTIONS						
Special model			PU/pcs.	Part.-No.		
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>					516030	
Specify at order stage:				1 – 20	516004	
				21 – 50	516004	
				51 – 100	516004	
				from 101	516004	
<b>Extra length connecting cable:</b>						
3 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					501023	
5 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					501024	
10 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					501026	
<b>Accessories for front / rear suspension</b>						
2 additional holes Ø6 mm in the bottom of of housing for rear suspension with K28, K29				1	520901	
<b>Mechanic stroke reduction</b>						
Stroke reduction without construction length - mechanically				1	516000	
<b>Other lengths available on request</b>						
Accessories	Lv [mm]		PU/pcs.	Part.-No.		
<b>Connection shaft</b>						
B17-1	1000		1	513050		
B17-2	1500		1	513052		



- Application: natural ventilation and RWA as single-drive
- Internal load dependent cut-off switch S2
- 2 drives mechanical synchronised by the connection shaft

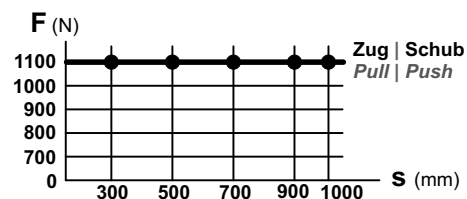
### Options

- Drillings for front / rear suspension
- Connection shaft with different lengths



### TECHNICAL DATA

$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	1,2 A
$I_A$	Cut-off current	2 x 0,8 A
$P_N$	Rated power	30 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 54
	Ambient temperature range	-5 °C ... +60 °C
$F_Z$	Pulling force max.	1100 N
$F_A$	Pushing force max.	1100 N



$F_H$	Pullout force	2 x 1.500 N (fastening depended)
	Rack	stainless steel
	Connecting cable	non-halogen, grey 2 x 0,75 mm <sup>2</sup> , ~ 1 m
<b>v</b>	Speed	$\overset{\curvearrowright}{\times}$ 6,0 mm/s $\overset{\curvearrowleft}{\times}$ 6,0 mm/s
<b>s</b>	Stroke	300 – 1000 mm
<b>L</b>	Length	s + 163 mm see order data
$L_v$	Connection shaft	Standard length see order data
	Sound pressure level	≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
300	463	LKS TV 300 S2	E6/C-0	1	<b>513300.TV</b>	
500	563	LKS TV 500 S2	E6/C-0	1	<b>513500.TV</b>	
600	463	LKS TV 600 S2	E6/C-0	1	<b>513600.TV</b>	
750	913	LKS TV 750 S2	E6/C-0	1	<b>513800.TV</b>	
1000	1163	LKS TV 1000 S2	E6/C-0	1	<b>513805.TV</b>	

OPTIONS						
Special model			PU/pcs.	Part.-No.		
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>					<b>516030</b>	
Specify at order stage:				1 – 20	<b>516004</b>	
				21 – 50	<b>516004</b>	
				51 – 100	<b>516004</b>	
				from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>						
3 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					<b>501023</b>	
5 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					<b>501024</b>	
10 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					<b>501026</b>	
<b>Accessories for front / rear suspension</b>						
2 additional holes Ø6 mm in the bottom of of housing for rear suspension with K28, K29				1	<b>520901</b>	
<b>Mechanic stroke reduction</b>						
Stroke reduction without construction length - mechanically				1	<b>516000</b>	
<b>Other lengths available on request</b>						
<b>Accessories</b>						
	Lv [mm]		PU/pcs.	Part.-No.		
<b>Connection shaft</b>						
B17-1	1000		1	<b>513050</b>		
B17-2	1500		1	<b>513052</b>		

OVERVIEW OF BRACKETS											
Typical applications			1	2	3	4	5	6			
Frame bracket			K5, K82	K5	K28	K29	K29	K41			
Mounting aid				K21	K15, K16		K21				
Bracket accessories			B7		Rear holes	Front holes	Front holes	Front holes			
Casement bracket			F1, F1V, F1.1, F2.1, F10.6		F1, F1V, F2.1, F10.6			F12			
Special use								Sky light Essmann			
Space requirement		min. [mm]	50	40 – 50	40	40	40 – 50	90			
Window material		Alu	●	●	●	●	●				
		Wood	●	●	●	●	●				
		PVC	●	●	●	●	●	●			
Type of window and mounting	Bottom hung	in-ward	HSK	FM		■			■		
				RM							
			NSK	FM			●				
				RM							
		out-ward	HSK	RM		●				●	
				PR	●			●			
			NSK	RM			●				
				PR							
	Top hung	in-ward	HSK	FM		■				■	
				RM							
			NSK	FM				●			
				RM							
		out-ward	HSK	RM		●				●	
				PR	●			●			
			NSK	RM			●				
				PR							
Side hung	in-ward	HSK	FM		■				■		
			RM								
		NSK	FM				●				
			RM								
Roof	out-ward	HSK	RM		●			●			
			PR	●			●				
		NSK	RM		●			●			
			PR	●			●				
Sky-light	out-ward	HSK	RM	●			●		●		
		NSK	RM								
FAB*1		Solo	[mm]					700 – 1300			
		Sync2	[mm]					1200 – 2500			
FAH*1		Solo	[mm]					450 – 1500			
		Sync2	[mm]					450 – 2500			

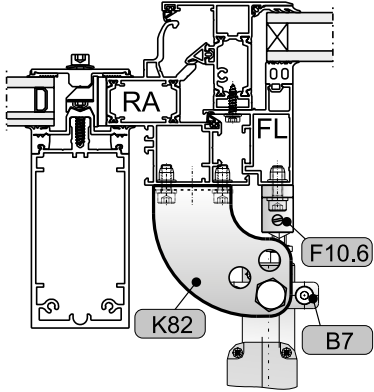
### LEGEND

● suitable      ■ not recommended

\*1 Sample value of the casement dimensions. The actual casement dimensions depend on the stroke and the position of the drives to the hinges. The values of FAB/FAH are to be used analogue for side hung windows.

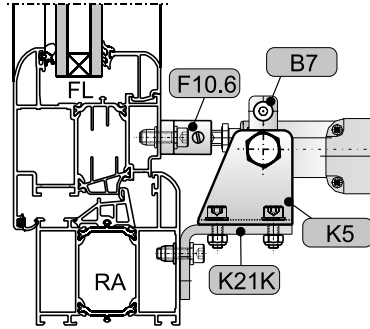
TYPICAL APPLICATIONS

1 RM, HSK, roof



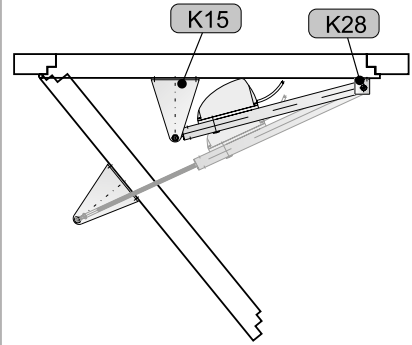
View on aluminium window

2 RM, HSK, top-hung outward opening



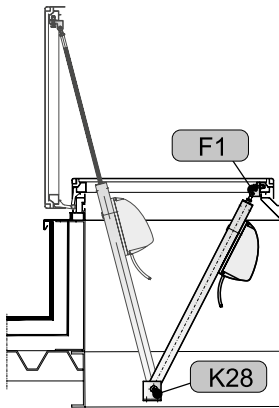
View on PVC-window

2 RM, NSK, side-hung inward opening



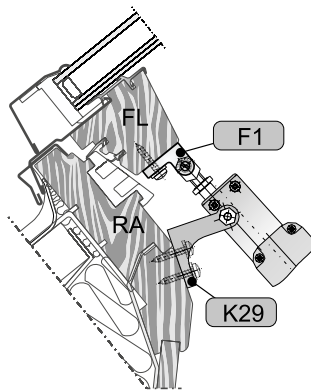
View for example

3 RM, HSK, roof



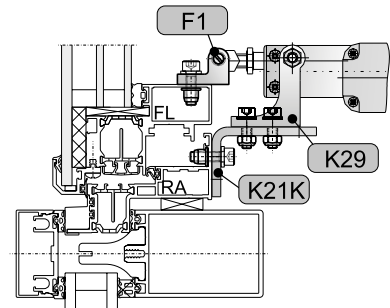
View on roof window

4 RM, HSK, roof



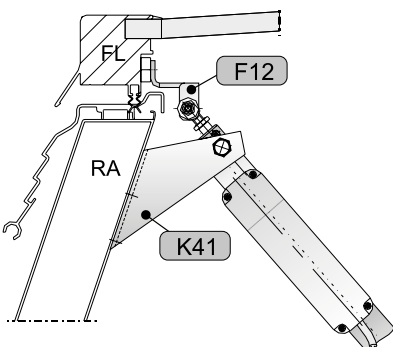
View on wooden window

5 RM, HSK, top-hung outward opening



View on aluminium window

6 RM, HSK, sky light

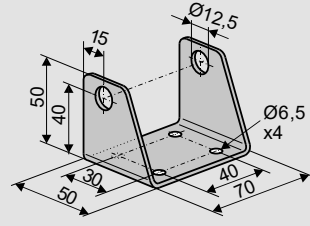
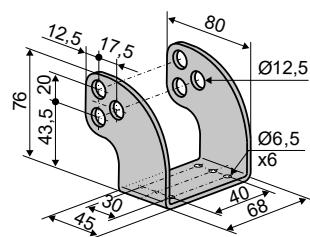
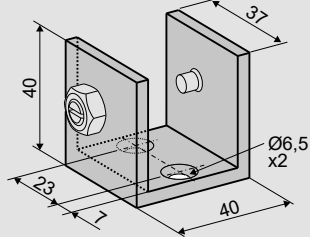
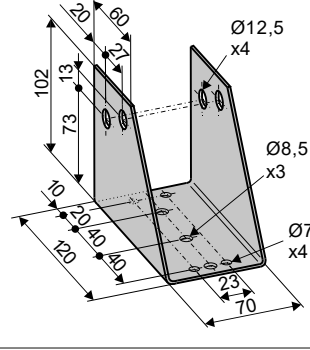


View on sky light Essmann

CASEMENT BRACKETS

<p><b>F1</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of casement profiles of outward opening windows or skylights, for drives with <b>front or rear suspension</b> with bore <b>Ø6 mm</b>, manual removal of the drive is possible</p>	<p><b>Part.-No. 150102</b>  <b>Material/Finish</b>          aluminium, diecast  <b>Feature/Equipment</b>          1x Locking bolt          Ø6 mm  <b>Load</b>          max. 1000 N</p>	
<p><b>F1.1</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of casement profiles of outward opening windows or skylights, for drives with <b>front or rear suspension</b> with bore <b>Ø6 mm</b>, manual removal of the drive is possible</p>	<p><b>Part.-No. 150110</b>  <b>Material/Finish</b>          aluminium, diecast  <b>Feature/Equipment</b>          1x Locking spring bolt          Ø6 mm  <b>Load</b>          max. 600 N</p>	
<p><b>F1V</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of casement profiles of outward opening windows or skylights, for drives with <b>front or rear suspension</b> with bore <b>Ø6 mm</b></p>	<p><b>Part.-No. 150101</b>  <b>Material/Finish</b>          aluminium  <b>Feature/Equipment</b>          1x grubscrew Ø 6 mm  <b>Load</b>          max. 1600 N</p>	
<p><b>F10.6</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on <b>main closing edge</b> of casement profiles of outward opening windows or skylights, for drives with <b>front or rear suspension</b> with bore <b>Ø6 mm</b>, threaded stud bolt</p>	<p><b>Part.-No. 151000</b>  <b>Material/Finish</b>          aluminium  <b>Feature/Equipment</b>          1x stud bolt Ø6 mm  <b>Load</b>          max. 1600 N</p>	

## CASEMENT BRACKETS

<p><b>K5</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for <b>swivelling suspension</b> of drives  <b>PLA with B4,</b>  <b>SP with B13,</b>  <b>LKS with B7</b></p>	<p><b>Part.-No. 155800</b>  <b>Material/Finish</b>  steel, galvanized  <b>Feature/Equipment</b>  bore holes <math>\varnothing 12,5</math> mm</p>	
<p><b>Accessories</b></p>			
<p><b>B7</b> clamp ring LKS (30 x 30 mm, G1/8)</p>		<p><b>Part.-No. 513900</b></p>	
<p><b>K21K</b> Frame bracket</p>		<p><b>Part.-No. 159900</b></p>	
<p><b>K21L</b> Frame bracket</p>		<p><b>Part.-No. 159905</b></p>	
<p><b>K82</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles or on the mullion/transom of outward opening (roof-)windows, for <b>swivelling suspension</b> of drives  <b>PLA with B4,</b>  <b>SP with B13,</b>  <b>LKS with B7</b></p>	<p><b>Part.-No. 151320</b>  <b>Material/Finish</b>  stainless steel  <b>Feature/Equipment</b>  bore holes <math>\varnothing 12,5</math> mm</p>	
<p><b>Accessories</b></p>			
<p><b>B7</b> clamp ring LKS (30 x 30 mm, G1/8)</p>		<p><b>Part.-No. 513900</b></p>	
<p><b>K28</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles (or on the mullion/transom) of outward opening (roof-)windows, for <b>swivelling suspension</b> of drives <b>LKS with front or rear</b> bore <math>\varnothing 6,0</math> mm</p>	<p><b>Part.-No. 160800</b>  <b>Material/Finish</b>  aluminium, nature  <b>Feature/Equipment</b>  2x grubscrew M8,  nut M8  <b>Load</b>  max. 600 N</p>	
<p><b>Accessories</b></p>			
<p>2 rear holes <math>\varnothing 6</math> mm</p>		<p><b>Part.-No. 520901</b></p>	
<p><b>K7</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>main closing edge</b> of the upstand of skylight domes <b>Essmann 810</b> for <b>swivelling suspension</b> of drives  <b>PLA with B4,</b>  <b>SP with B13,</b>  <b>LKS with B7</b></p>	<p><b>Part.-No. 157500</b>  <b>Material/Finish</b>  steel galvanized  <b>Feature/Equipment</b>  drilled holes <math>\varnothing 12,5</math> mm</p>	
<p><b>Accessories</b></p>			
<p><b>B7</b> clamp ring LKS (30 x 30 mm, G1/8)</p>		<p><b>Part.-No. 513900</b></p>	

CASEMENT BRACKETS

<b>K29</b> 	<b>Application</b> <b>Surface mounting</b> on the <b>main closing edge</b> of window frame profiles (or on the mullion/transom) of outward opening (roof-) windows, for <b>swivelling suspension</b> of drives <b>LKS</b> with <b>front or rear bore Ø6,0 mm</b>	<b>Part.-No. 160900</b>  <b>Material/Finish</b> aluminium, nature <b>Feature/Equipment</b> 2x grubscrew M8, nut M8 <b>Load</b> max. 600 N			
	<b>Accessories</b>  <b>2 rear holes</b> Ø 6 mm  <b>K21K</b> Frame bracket  <b>K21L</b> Frame bracket	<b>Part.-No. 520901</b>   <b>Part.-No. 159900</b>  <b>Part.-No. 159905</b>			

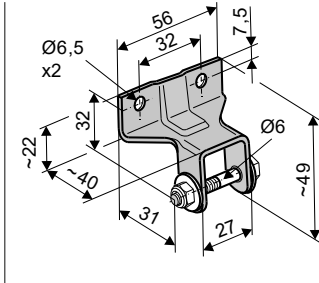
ACCESSORIES

<b>Frame bracket</b>					
<b>K21K</b> 	<b>Application</b> Shift the fastening level of the frame brackets <b>K5</b> , <b>K29</b> from the horizontal to the vertical position of the <b>main closing edge</b> of window frame profiles	<b>Part.-No. 159900</b>  <b>Material/Finish</b> steel, galvanized			
	<b>K21L</b> 	<b>Application</b> Shift the fastenings of the frame brackets <b>K5</b> , <b>K29</b> from the horizontal to the vertical position of the <b>main closing edge</b> of window frame profiles	<b>Part.-No. 159905</b>  <b>Material/Finish</b> steel, galvanized		
<b>Clamp ring</b>					
<b>B7</b> 	<b>Application</b> <b>Adjustable clamping</b> of the <b>LKS</b> drive housing, for surface mounting with <b>swivelling suspension</b> on <b>K5</b> , <b>K7</b> , <b>K82</b> , (preferably on outward opening windows)	<b>Part.-No. 513900</b>  <b>Material/Finish</b> aluminium (E6/C-0), stainless steel <b>Feature/Equipment</b> 2x B8 collar screw Ø12mm, G1/8 2x cylinder head screw M6x50			

## SPECIFIC APPLICATIONS

## SKY-LIGHT ESSMANN TYP 810

F12



## Application

**Surface mounting** on the **main closing edge** of the casing profiles of skylight domes **Essmann 810** for drives with **front suspension** with bore **Ø6 mm**

Part.-No. 151500

**Material/Finish**  
steel, galvanized

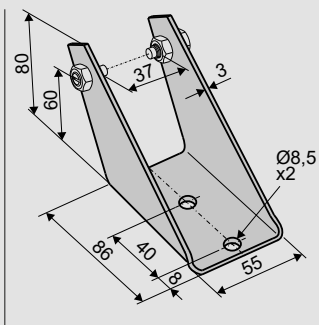
**Feature/Equipment**

1x screw M6,  
washer,  
nut

**Load**

max. 800 N

K41



## Application

**Finish mounting** on the main closing edge (**HSK**) of the upstand of skylight domes **Essmann 810** for **swivelling suspension** of drives **LKS**

Part.-No. 160910

**Material/Finish**  
steel, galvanized

**Feature/Equipment**

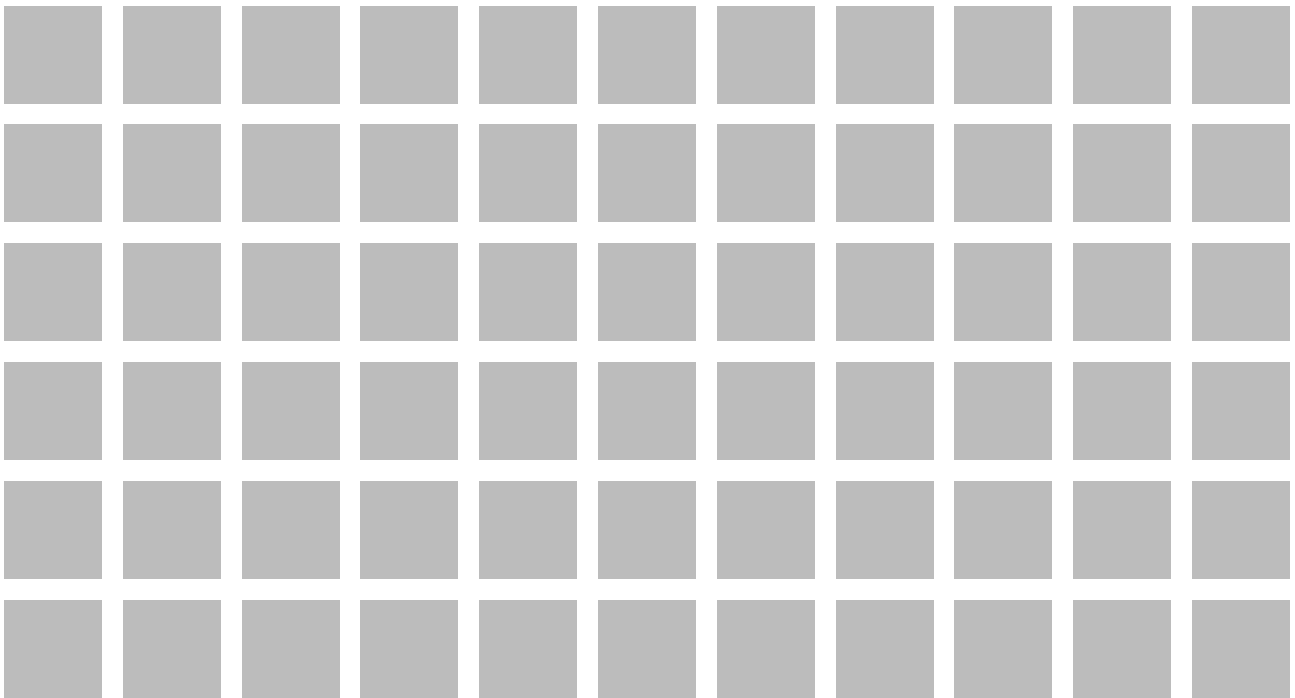
2x grubscREW M8,  
nut M8



### OPTIONAL ACCESSORIES

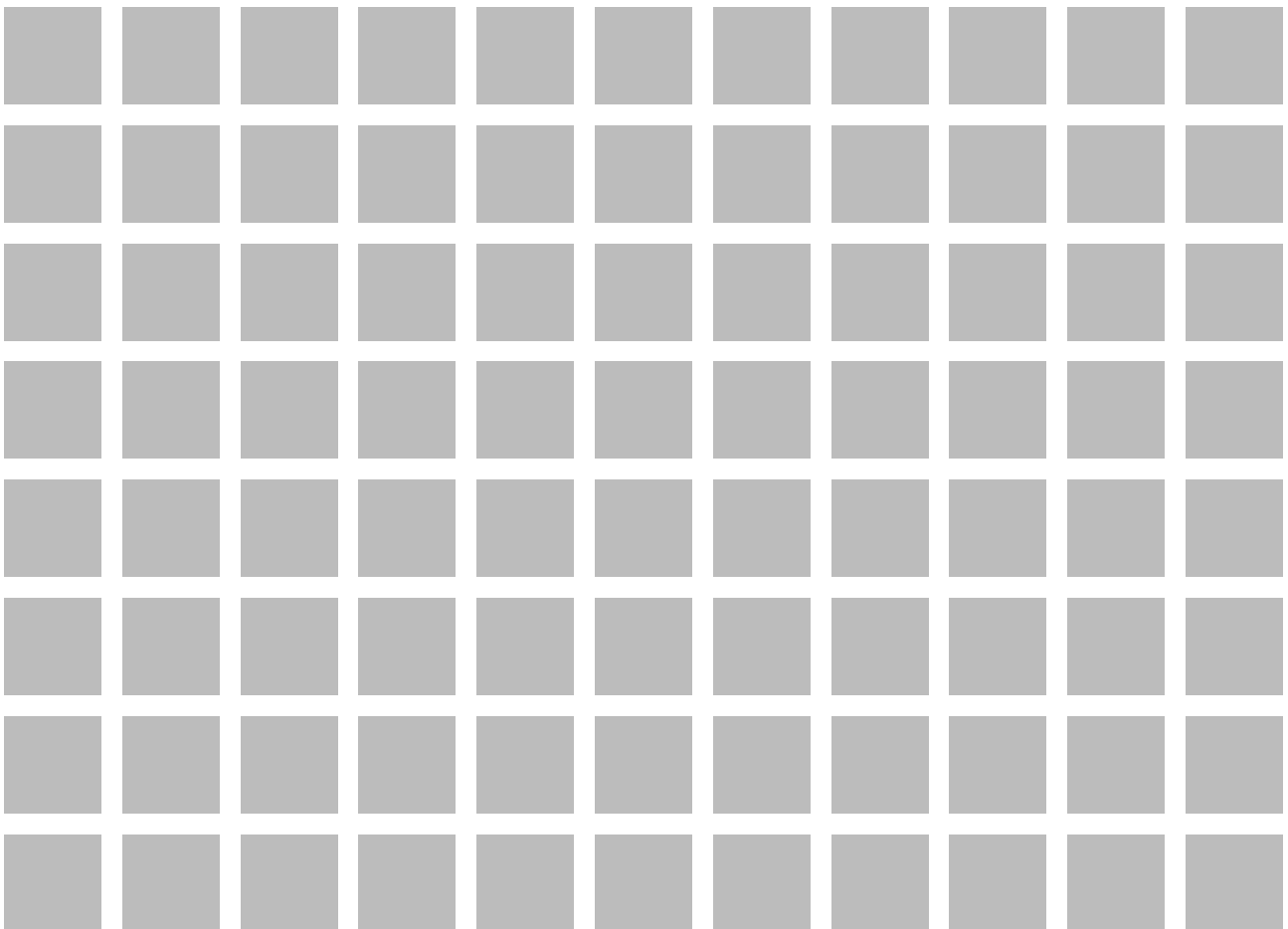
Collar screw			
<b>B8</b>		<p><b>Application</b>                      Swivelling suspension of the clamp rings  <b>B4 for PLA</b>  <b>B7 for LKS</b>                      or of the clamping blocks  <b>B11, B13 for SP</b>                      for U-shaped frame brackets with bore <b>Ø12 mm</b></p>	<p><b>Part.-No. 172800</b>  <b>Material/Finish</b>                      stainless steel (1.4305)  <b>Feature/Equipment</b>                      collar Ø12 mm, G1/8"</p>

Special model	PU/pcs.	Part.-No.		
<b>Casement brackets painted / powder coated in other RAL colours</b>				
<b>Lump sum for coating</b>		<b>516030</b>		
Specify at order stage:	1 – 20	<b>516032</b>		
	21 – 50	<b>516032</b>		
	51 – 100	<b>516032</b>		
	from 101	<b>516032</b>		
<b>Frame brackets painted / powder coated in other RAL colours</b>				
<b>Lump sum for coating</b>		<b>516030</b>		
Specify at order stage:	1 – 20	<b>516031</b>		
	21 – 50	<b>516031</b>		
	51 – 100	<b>516031</b>		
	from 101	<b>516031</b>		



# 4

## Folding arm drives





### FTA600 R FOLDING ARM DRIVES

- Model 24V DC, S12
- Pulling/Pushing force 215 Nm / 215 Nm
- Stroke length (lever) 0 – 93 Degree
- Speed 2,0 Degree/s (45 s für 90°)
- Housing (WxH) 40 x 56 x 421 mm, aluminum
- Opening mechanism Lever arm 20 x 30 x 405 mm, aluminum
- Version Solo with roller for air inlets
- Protection rating IP32

FTA600  
R



### FTA600 DF FOLDING ARM DRIVES

- Model 24V DC, S12
- Pulling/Pushing force 215 Nm / 215 Nm
- Stroke length (lever) 0 – 93 Degree
- Speed 2,0 Degree/s (45 s for 90°)
- Housing (WxH) 40 x 56 x 421 mm, aluminum
- Opening mechanism Lever arm 20 x 30 x 381 mm, aluminum
- Version Solo with knuckle joint for side-hung inward opening windows
- Protection rating IP32

FTA600  
DF



### FTA600 GF FOLDING ARM DRIVES

- Model 24V DC, S12
- Pulling/Pushing force 215 Nm / 215 Nm
- Stroke length (lever) 0 – 93 Degree
- Speed 2,0 Degree/s (45 s for 90°)
- Housing (WxH) 40 x 56 x 421 mm, aluminum
- Opening mechanism Lever arm 20 x 30 x 444 mm, aluminum
- Version Solo with slide rail for side hung outward opening windows
- Protection rating IP32

FTA600  
GF

FOLDING ARM DRIVES																	
Type	Form	Model		Stroke	Torque		Running time		Cut-off current	Use			Location		Functions		
		Type of cut-off	Rated voltage	Range	Opening torque	Closing torque	OPEN	CLOSE	Max.	Natural ventilation	RWA	NRWG	Facade	Roof	Run monitoring	Synchronised run	Sequence control
			[VDC]	[mm]	[Nm]	[Nm]	[mm/s]	[mm/s]	[A]								
FTA	FTA R	S12	24	0 – 93	215	215	45,0	45,0	1,4	●	●	●	●		●	●	●
	FTA DF					215				●	●	●	●		●	●	●
	FTA GF					215				●	●	●	●	■	●	●	●

**LEGEND**

● suitable      ■ not recommended

S12 internal intelligent cut-off switch for synchronised run and programmable functions



### SPECIAL FEATURES FTA600

- For natural ventilation, smoke and heat exhausting systems and ferralux® NRWG (EN12101-2)
- Type:
  - R – with role: The folding arm opens via role for air inlets at 90°
  - DF – with knuckle-joint for opening/closing of side hung inward opening windows at 90°
  - GF – with slide rail for opening/closing of side hung outward opening windows at 90°
- Opening time of 45 s for 90° opening angle
- Programmable voltage free contact
- Robust corrosion-resistant design
- Easy installation due to holes in the end caps of housing
- Programmable parameters of Internal Intelligent Control Electronics S12
  - Synchronised multi-operation and sequence control without add. devices
  - Electronic soft-start, soft-close and soft-stop at end of stroke control
  - Stroke, force, speed
  - Rebate control
- Integrated plug solution
- Suitable for M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives

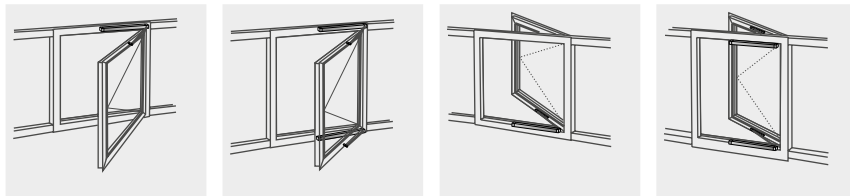
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804.

The LCA results of the different product types are listed at the end of this product catalogue.

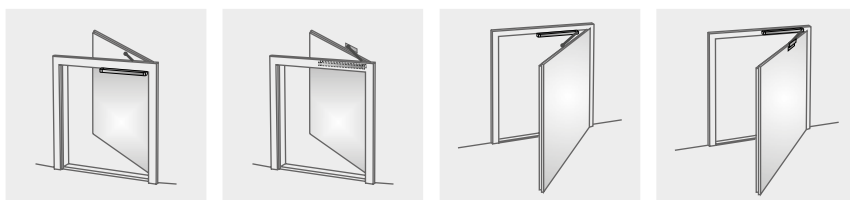
The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

**FACADE**

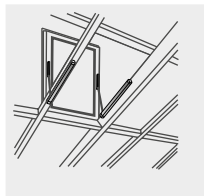
Side-hung (FTA600 DF/GF)

**INLET AIR**

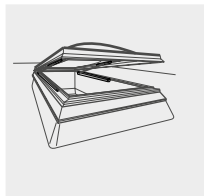
Floor-to-ceiling windows (FTA600 R)

**ROOF**

Bottom-hung (FTA600 GF)



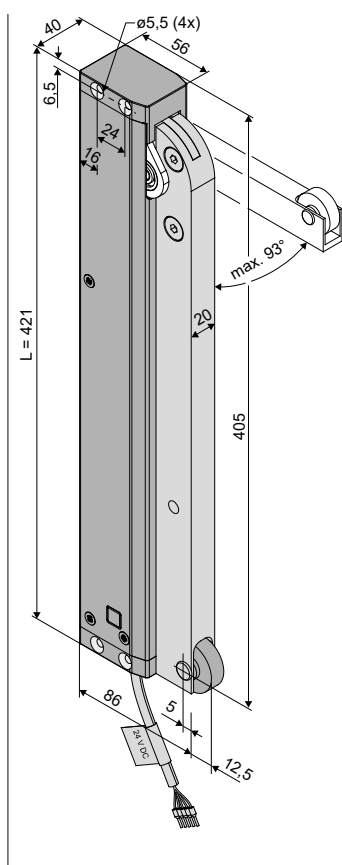
Sky-light (FTA600 GF)



- Application: natural ventilation, RWA
- Mainly for supply air openings
- Internal Intelligent Control Electronics S12
- Programmable contact for opener
- Unified plug solution for AUMÜLLER chain drives and AUMÜLLER folding arm drives

### Options

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





### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	1,0 A
<b>I<sub>A</sub></b>	Cut-off current	1,4 A
<b>P<sub>N</sub></b>	Rated power	24 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
<b>M<sub>A</sub></b>	Force (Torque) OPEN (max.)	600 N (~ 215 Nm)
<b>M<sub>Z</sub></b>	Force (Torque) CLOSE (max.)	600 N (~ 215 Nm)
<b>F<sub>H</sub></b>	Pullout force	3000 N (fastening depended)
	Lever arm	aluminium (RAL9006)
	Connecting cable	non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 3 m
<b>t</b>	Running time (0° – 90°) (constant at 2/3 load)	45 s (2,0%/s)  45 s (2,0%/s)
<b>s</b>	Stroke length (lever)	0 – 93 DEG (± 5%)
<b>L</b>	Length	421 mm
	Potential free contact	max. 24 VDC / 0,5A programmable
	Sound pressure level	≤ 70 dB (A)

ORDER DATA						
s [DEG]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
0° – 93°	421	FTA600 R S12 24V	E6/C-0	1	<b>524144</b>	
Accessories				PU/pcs.	Part.-No.	
<b>K88</b> Casement bracket FTA600 R				1	<b>524156</b>	

OPTIONS			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 24V S12	1	<b>524190</b>	
Programming drives 24V / 230V S12		<b>524180</b>	
Optional accessories		PU/pcs.	Part.-No.
Configuration module for synchronised multi-drive systems		1	<b>524177</b>

**OPTIONAL ACCESSORIES**

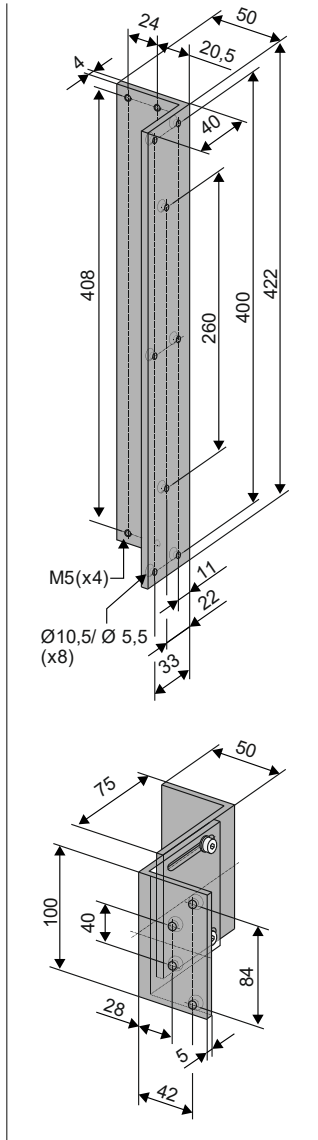
Main control unit and plug solution									
<p><b>M-COM</b></p> 	<p><b>Application</b>  <b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt;12 mA</p> <p><b>Drive type:</b> S12</p> <p><b>Protection rating</b> IP30 rubber envelope</p>	<p><b>Part.-No. 524177</b></p> <p><b>Ambient temperature range</b> 0 °C ... + 70 °C</p> <p><b>Dimensions</b> 45 x 17 x 6 mm</p> <p><b>Connecting wires</b> 3 wires 0,5 mm<sup>2</sup> x 50 mm</p> <p><b>Feature/Equipment</b> Printed circuit board with components and connection wires to be installed in connection box to be supplied on site</p>							
<p><b>Wire Click</b></p> 	<p><b>Wire Click:</b> Unified plug solution for AUMÜLLER chain drives and AUMÜLLER folding arm drives.</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Connecting cable:</b> non-halogen, grey 5 x 0,5 mm<sup>2</sup></p> <p><b>Terminal:</b> to 1,5 mm<sup>2</sup></p>	<p><b>Feature/Equipment</b></p> <ul style="list-style-type: none"> <li>• Flexible cable length</li> <li>• Connect multiple drives in series connection</li> <li>• Torsion-plug</li> <li>• Locking hooks prevent withdrawal of the plug under tensile load</li> <li>• Strain relief according DIN EN 60335-1 by screwing the housing halves</li> </ul>							
<p><b>VARIANTS:</b></p> <table border="1"> <tr> <td>3 m cable length - 24V DC</td> <td>Part.-No. 501251</td> </tr> <tr> <td>5 m cable length - 24V DC</td> <td>Part.-No. 501252</td> </tr> <tr> <td>10 m cable length - 24V DC</td> <td>Part.-No. 501253</td> </tr> </table>				3 m cable length - 24V DC	Part.-No. 501251	5 m cable length - 24V DC	Part.-No. 501252	10 m cable length - 24V DC	Part.-No. 501253
3 m cable length - 24V DC	Part.-No. 501251								
5 m cable length - 24V DC	Part.-No. 501252								
10 m cable length - 24V DC	Part.-No. 501253								



### OPTIONAL ACCESSORIES

#### Casement bracket

K88



#### Application

**Surface mounting** on the **side closing edge** of frame profiles of inward opening floor-to-ceiling windows as air inlets.

Angle bracket **422 mm** for mounting of FTA600-R on the frame profile.

Two angle brackets 100 mm for mounting on the floor-to-ceiling windows as sliding guidance of the carrier role, adjustable for compensation of the overlap.

**Part.-No. 524156**

**Material/Finish**  
aluminium

**Feature/Equipment**

1x angle 50x40x422

(t = 4) mm

2x angles 50x75x100

(t = 5) mm

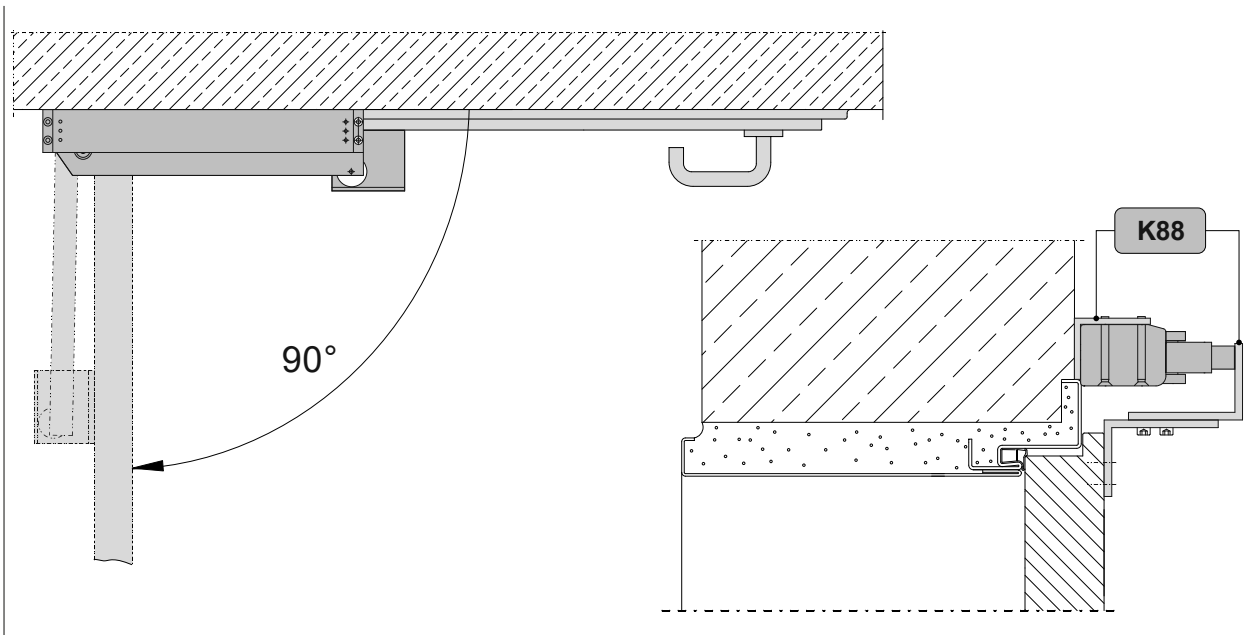
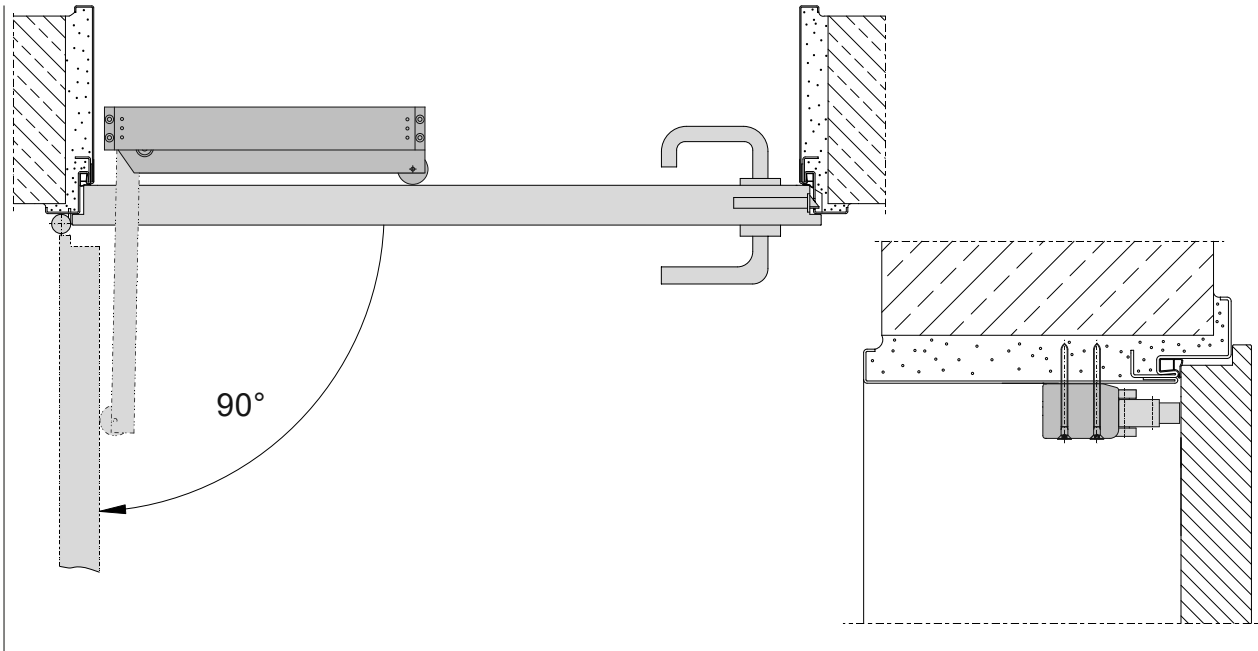
fixing screws and nuts

**Load**

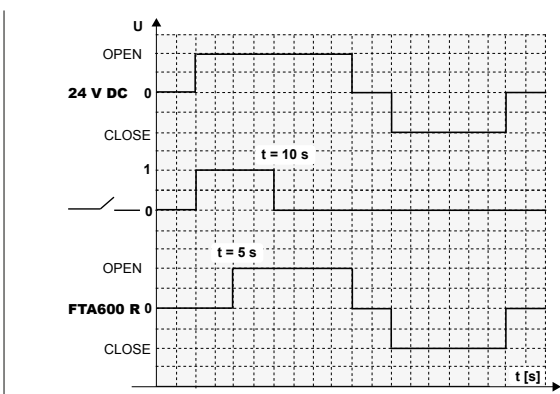
max. 600 N

Special model	PU/pcs.	Part.-No.		
Frame brackets painted / powder coated in other RAL colours				
Lump sum for coating		<b>516030</b>		
Specify at order stage:	1 – 20	<b>516031</b>		
	21 – 50	<b>516031</b>		
	51 – 100	<b>516031</b>		
	from 101	<b>516031</b>		

Typical applications



Contact diagramm



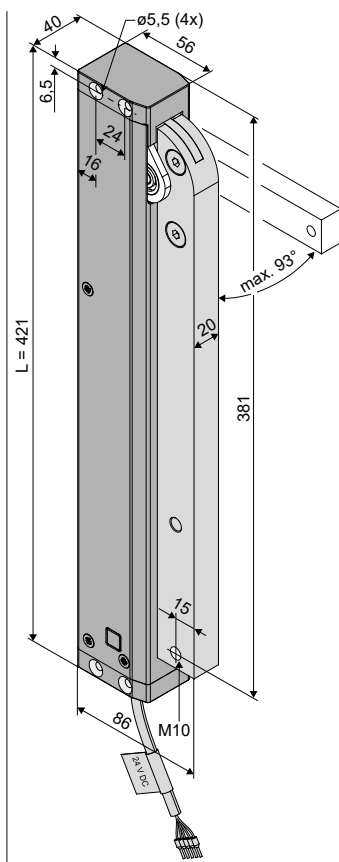
After application of the voltage, the floor-to-ceiling windows lock contact is activated for 10 seconds. With a delay of about 5 seconds, the drive arm of the folding arm drives FTA600 R starts moving and opens to an angle of max. 93°.

During the closing operation, the floor-to-ceiling window lock contact is not activated.

- Application: natural ventilation, RWA
- Mainly for opening and closing of side-hung inward opening windows
- Internal Intelligent Control Electronics S12
- Programmable contact for feedback
- Unified plug solution for AUMÜLLER chain drives and AUMÜLLER folding arm drives

### Options

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





### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	1,0 A
<b>I<sub>A</sub></b>	Cut-off current	1,4 A
<b>P<sub>N</sub></b>	Rated power	20 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
<b>M<sub>A</sub></b>	Force (Torque) OPEN (max.)	600 N (~215 Nm)
<b>M<sub>Z</sub></b>	Force (Torque) CLOSE (max.)	600 N (~215 Nm)
<b>F<sub>H</sub></b>	Pullout force	3000 N (fastening depended)
	Lever arm	aluminium (RAL9006)
	Connecting cable	non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 3 m
<b>t</b>	Running time (0° – 90°) (constant at 2/3 load)	45 s (2,0%/s)  45 s (2,0%/s)
<b>s</b>	Stroke length (lever)	0 – 93 DEG (± 5%)
<b>L</b>	Length	421 mm
	Potential free contact	max. 24 VDC / 0,5A programmable
	Sound pressure level	≤ 70 dB (A)

ORDER DATA						
s [DEG]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
0° – 93°	421	FTA600 DF S12 24V	E6/C-0	1	<b>524145</b>	
Accessories				PU/pcs.	Part.-No.	
<b>K103</b> Casement bracket FTA600 DF				1	<b>524172</b>	

OPTIONS			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 24V S12	1	<b>524190</b>	
Programming drives 24V / 230V S12		<b>524180</b>	
Optional accessories		PU/pcs.	Part.-No.
Configuration module for synchronised multi-drive systems		1	<b>524177</b>

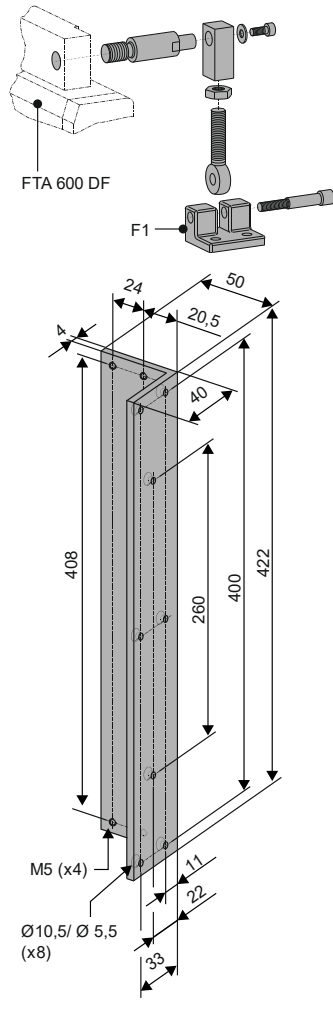
**OPTIONAL ACCESSORIES**

Main control unit and plug solution			
<p><b>M-COM</b></p> 	<p><b>Application</b>  <b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt;12 mA</p> <p><b>Drive type:</b> S12</p> <p><b>Protection rating</b> IP30 rubber envelope</p>	<p><b>Part.-No. 524177</b></p> <p><b>Ambient temperature range</b> 0 °C ... + 70 °C</p> <p><b>Dimensions</b> 45 x 17 x 6 mm</p> <p><b>Connecting wires</b> 3 wires 0,5 mm<sup>2</sup> x 50 mm</p> <p><b>Feature/Equipment</b> Printed circuit board with components and connection wires to be installed in connection box to be supplied on site</p>	
<p><b>Wire Click</b></p> 	<p><b>Wire Click:</b> Unified plug solution for AUMÜLLER chain drives and AUMÜLLER folding arm drives.</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Connecting cable:</b> non-halogen, grey 5 x 0,5 mm<sup>2</sup></p> <p><b>Terminal:</b> to 1,5 mm<sup>2</sup></p>	<p><b>Feature/Equipment</b></p> <ul style="list-style-type: none"> <li>• Flexible cable length</li> <li>• Connect multiple drives in series connection</li> <li>• Torsion-plug</li> <li>• Locking hooks prevent withdrawal of the plug under tensile load</li> <li>• Strain relief according DIN EN 60335-1 by screwing the housing halves</li> </ul>	
<b>VARIANTS:</b>			
3 m cable length - 24V DC		<b>Part.-No. 501251</b>	
5 m cable length - 24V DC		<b>Part.-No. 501252</b>	
10 m cable length - 24V DC		<b>Part.-No. 501253</b>	

### ACCESSORIES

#### Casement bracket

K103



#### Application

**Surface mounting** on the **side closing edge** of window frame profiles of **inward opening side-hung** windows. Angle bracket **422 mm** for mounting of FTA600-DF on the window frame profile. F1 for mounting on the casement profile and for the fixing with the knuckle joint, adjustable for compensation of the overlap.

**Part.-No. 524172**

**Material/Finish**  
aluminium

**Feature/Equipment**

1x angle 50x40x422

(t = 4) mm

1x casement bracket F1

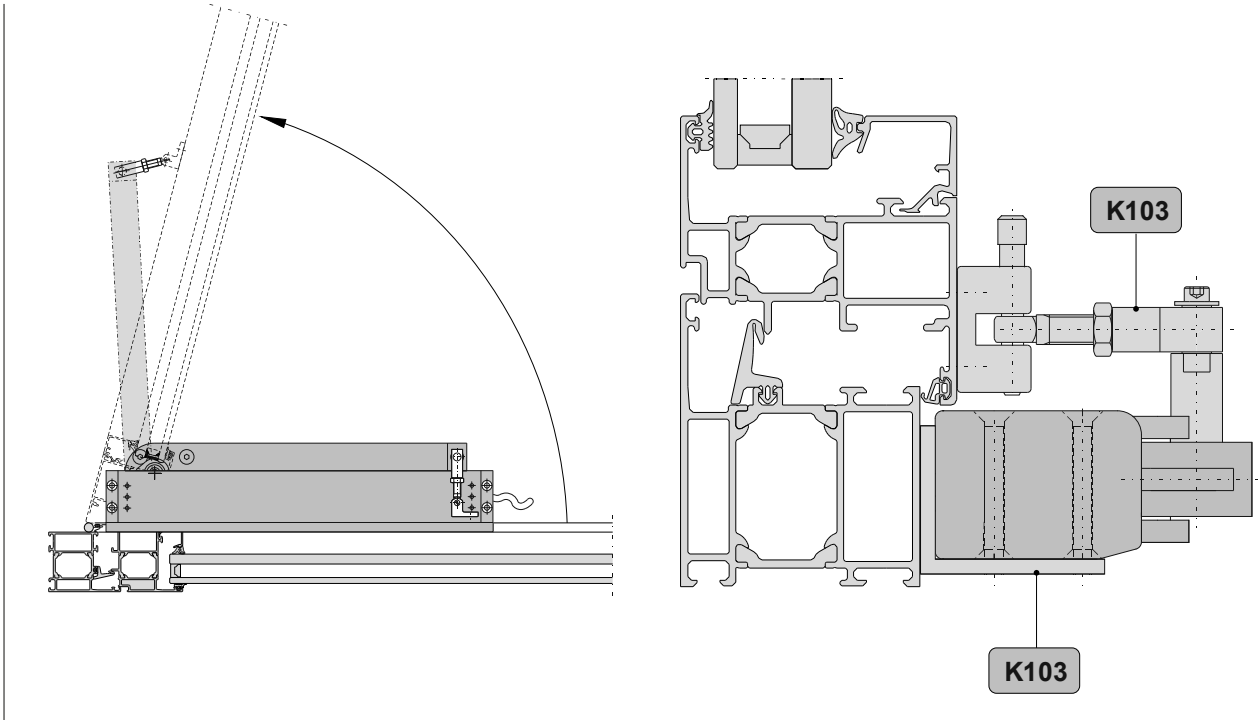
1x fixing accessories

**Load**

max. 600 N

Special model	PU/pcs.	Part.-No.		
Frame brackets painted / powder coated in other RAL colours				
Lump sum for coating		<b>516030</b>		
Specify at order stage:	1 – 20	<b>516031</b>		
	21 – 50	<b>516031</b>		
	51 – 100	<b>516031</b>		
	from 101	<b>516031</b>		

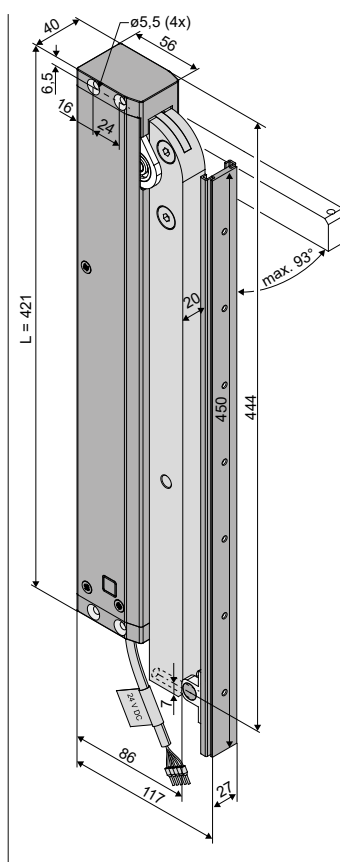
Typical applications



- Application: natural ventilation, RWA
- Mainly for opening and closing of side-hung outward opening windows
- Internal Intelligent Control Electronics S12
- Programmable contact for feedback
- Unified plug solution for AUMÜLLER chain drives and AUMÜLLER folding arm drives

### Options

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





### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	1,0 A
<b>I<sub>A</sub></b>	Cut-off current	1,4 A
<b>P<sub>N</sub></b>	Rated power	20 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
<b>M<sub>A</sub></b>	Force (Torque) OPEN (max.)	600 N (~215 Nm)
<b>M<sub>Z</sub></b>	Force (Torque) CLOSE (max.)	600 N (~215 Nm)
<b>F<sub>H</sub></b>	Pullout force	3000 N (fastening depended)
	Lever arm	aluminium (RAL9006)
	Connecting cable	non-halogen, grey 5 x 0,5 mm <sup>2</sup> , ~ 3 m
<b>t</b>	Running time (0° – 90°) (constant at 2/3 load)	45 s (2,0%/s)  45 s (2,0%/s)
<b>s</b>	Stroke length (lever)	0 – 93 DEG (± 5%)
<b>L</b>	Length	455 mm
	Potential free contact	max. 24 VDC / 0,5A programmable
	Sound pressure level	≤ 70 dB (A)

ORDER DATA						
s [DEG]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
0° – 93°	455	FTA600 GF S12 24V	E6/C-0	1	<b>524146</b>	
Accessories				PU/pcs.	Part.-No.	
<b>K104</b> Casement bracket FTA600 GF				1	<b>524173</b>	

OPTIONS			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Microprocessor programming S12</b>			
Electronic stroke reduction 24V S12	1	<b>524190</b>	
Programming drives 24V / 230V S12		<b>524180</b>	
Optional accessories		PU/pcs.	Part.-No.
Configuration module for synchronised multi-drive systems		1	<b>524177</b>

OPTIONAL ACCESSORIES

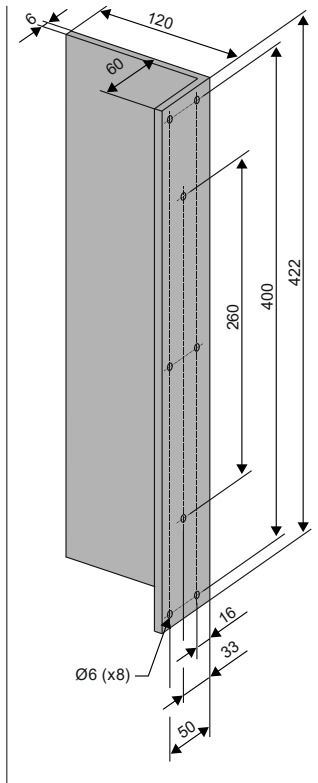
Main control unit and plug solution									
<p><b>M-COM</b></p> 	<p><b>Application</b>  <b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt;12 mA</p> <p><b>Drive type:</b> S12</p> <p><b>Protection rating</b> IP30 rubber envelope</p>	<p><b>Part.-No. 524177</b></p> <p><b>Ambient temperature range</b> 0 °C ... + 70 °C</p> <p><b>Dimensions</b> 45 x 17 x 6 mm</p> <p><b>Connecting wires</b> 3 wires 0,5 mm<sup>2</sup> x 50 mm</p> <p><b>Feature/Equipment</b> Printed circuit board with components and connection wires to be installed in connection box to be supplied on site</p>							
<p><b>Wire Click</b></p> 	<p><b>Wire Click:</b> Unified plug solution for AUMÜLLER chain drives and AUMÜLLER folding arm drives.</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Connecting cable:</b> non-halogen, grey 5 x 0,5 mm<sup>2</sup></p> <p><b>Terminal:</b> to 1,5 mm<sup>2</sup></p>	<p><b>Feature/Equipment</b></p> <ul style="list-style-type: none"> <li>• Flexible cable length</li> <li>• Connect multiple drives in series connection</li> <li>• Torsion-plug</li> <li>• Locking hooks prevent withdrawal of the plug under tensile load</li> <li>• Strain relief according DIN EN 60335-1 by screwing the housing halves</li> </ul>							
<p><b>VARIANTS:</b></p> <table border="1"> <tr> <td>3 m cable length - 24V DC</td> <td>Part.-No. 501251</td> </tr> <tr> <td>5 m cable length - 24V DC</td> <td>Part.-No. 501252</td> </tr> <tr> <td>10 m cable length - 24V DC</td> <td>Part.-No. 501253</td> </tr> </table>				3 m cable length - 24V DC	Part.-No. 501251	5 m cable length - 24V DC	Part.-No. 501252	10 m cable length - 24V DC	Part.-No. 501253
3 m cable length - 24V DC	Part.-No. 501251								
5 m cable length - 24V DC	Part.-No. 501252								
10 m cable length - 24V DC	Part.-No. 501253								



### ACCESSORIES

#### Casement bracket

K104



#### Application

**Surface mounting** on the **side closing edge** of window frame profiles of **outward opening side-hung** windows.

Angle bracket **422 mm** for mounting of FTA600-GF on the window frame profile.

The slide rail of has to be mounted on the casement profile.

**Part.-No. 524173**

**Material/Finish**  
aluminium

**Feature/Equipment**

1x angle 120x60x422

(t = 6) mm

4x countersunk screws,

M5x45 mm

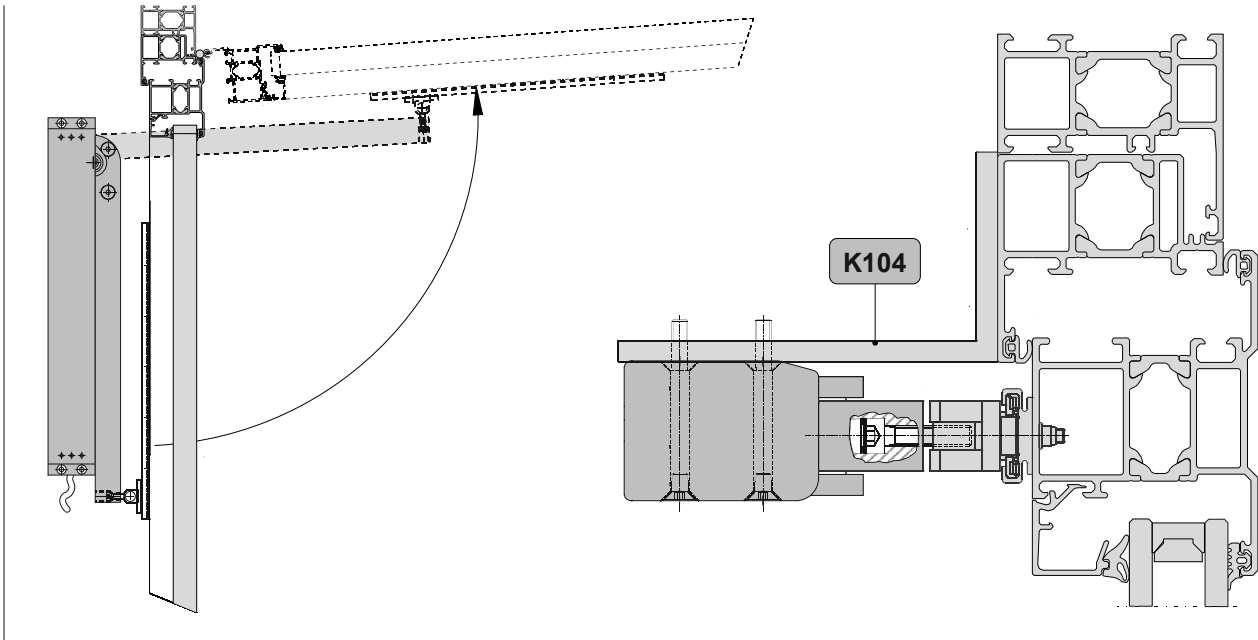
**Load**

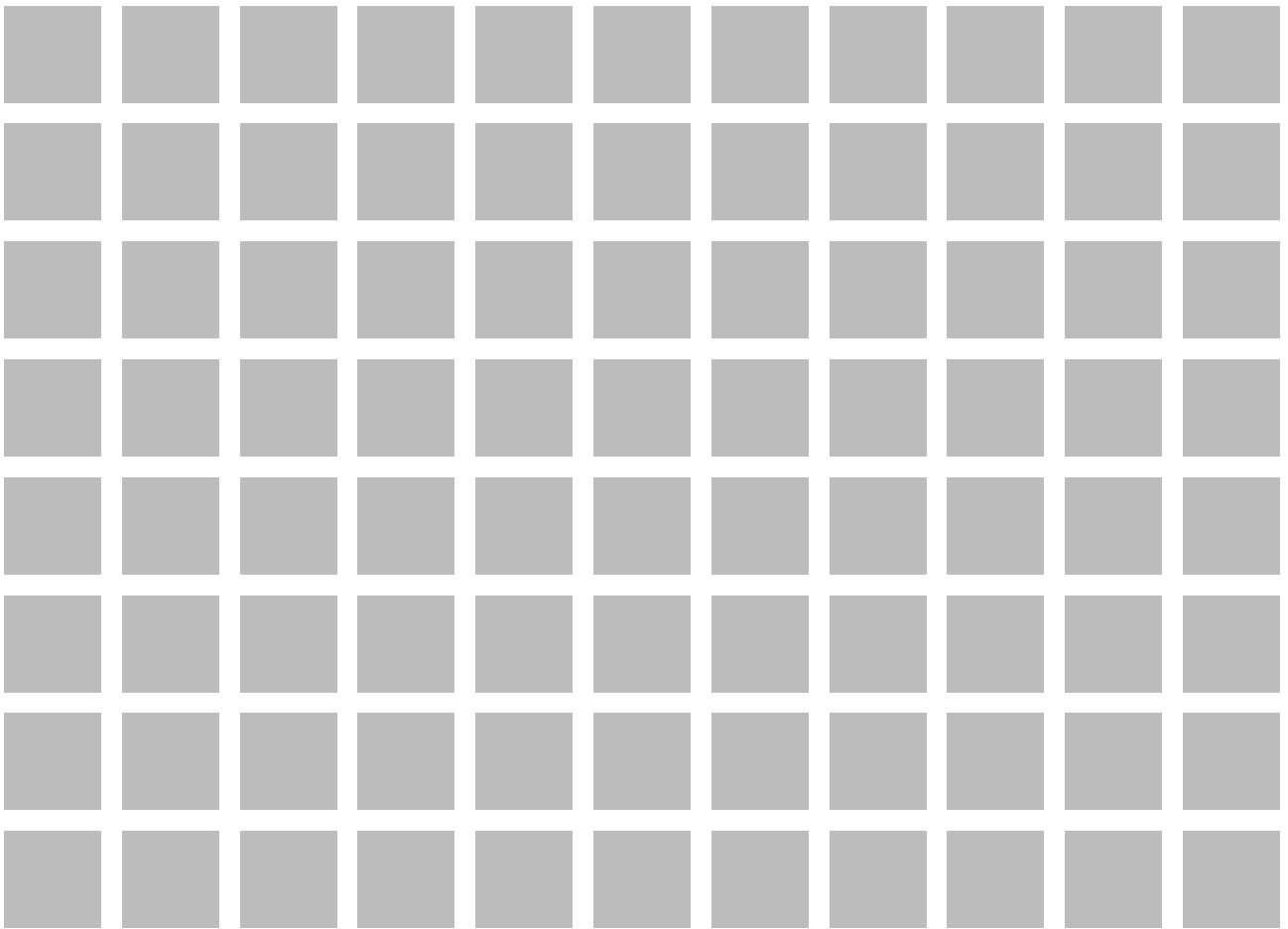
max. 600 N

Special model	PU/pcs.	Part.-No.			
<b>Frame brackets painted / powder coated in other RAL colours</b>					
<b>Lump sum for coating</b>		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516031</b>			
	21 – 50	<b>516031</b>			
	51 – 100	<b>516031</b>			
	from 101	<b>516031</b>			

**ATTENTION:** Slide rail may not be painted!

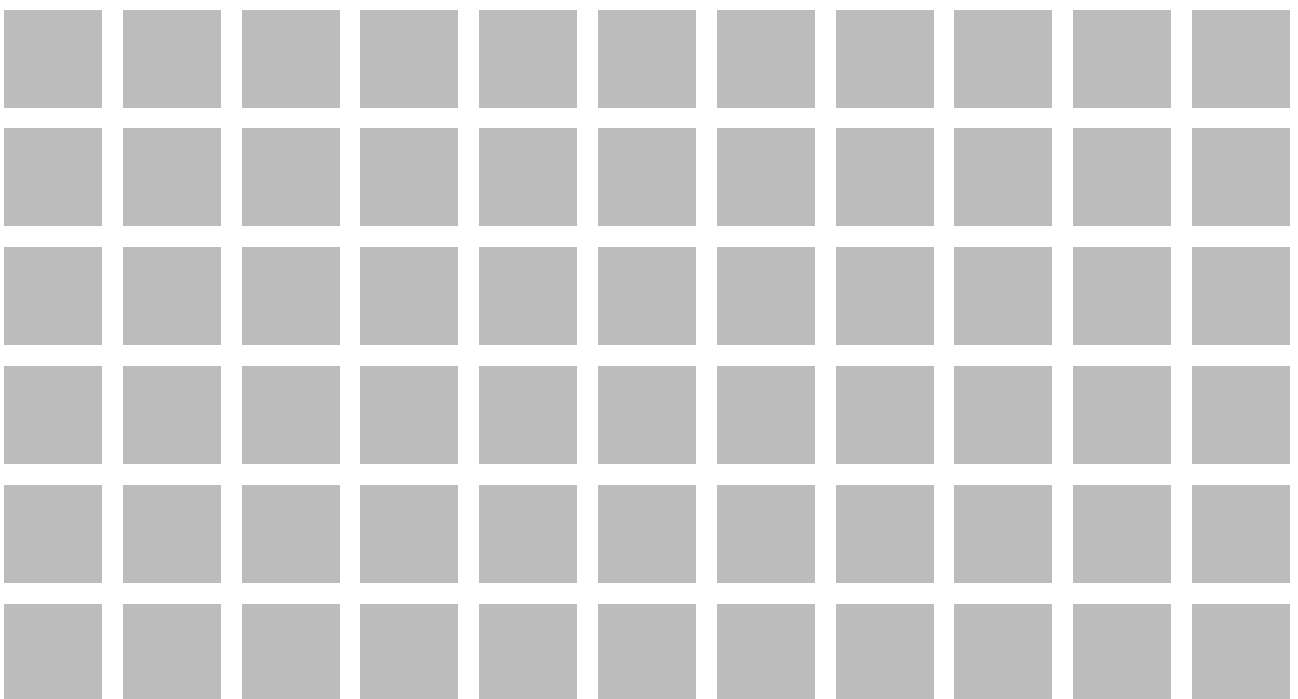
Typical applications





# 5

## Louvre drives





### LLA10 LOUVRE DRIVES

- Model 24V DC, S12
- Pulling / Pushing force 1000 N / 1000 N
- Stroke length 60 – 200 mm
- Speed 4 mm/s
- Housing (WxH) 35 x 35 mm, length depends on stroke
- Coupling adapter PA6 with milled groove (W x L x D):  
13,8 x 19 x 8 mm
- Version Solo
- Protection rating IP40

LLA10



### LLA16 LOUVRE DRIVES

- Model 24V DC, S12
- Pulling/Pushing force 1600 N / 1600 N
- Stroke length 60 – 200 mm
- Speed 4 mm/s
- Housing (WxH) 35 x 35 mm, length depends on stroke
- Coupling adapter PA6 with milled groove (W x L x D):  
13,8 x 19 x 8 mm
- Version Solo
- Protection rating IP40

LLA16

LOUVRE DRIVES																	
Type	Form	Model		Stroke	Force		Speed		Stroke in	Cut-off current	Use			Location		Functions	
		Type of cut-off	Rated voltage	Range	Pushing force	Pulling force	OPEN	CLOSE	60 s	Max.	Natural ventilation	RWA	NRWG	Facade	Roof	Run monitoring	Synchronised run
			[VDC]	[mm]	[N]	[N]	[mm/s]	[mm/s]	[mm]	[A]							
LLA	LLA10	S12	24	60 – 200	1000	1000	4,0	4,0	200	1,0	●	●	●	●	■	●	●
	LLA16			60 – 200	1600	1600				1,2	●	●	●	●	■	●	●

**LEGEND**

● suitable    ■ not recommended

S12 Internal Intelligent Control Electronics for synchronised run and programmable functions



### SPECIAL FEATURES LLA

- For smoke and heat exhausting, natural ventilation and ferralux® NRWG (EN12101-2)
- Push button for the selection of the running direction
- Robust corrosion-resistant design
- Easy installation by concealed holes below the oblique end caps
- Coupling adapter with milling groove  $\varnothing 13,3 \times 9,2$  mm
- Programmable parameters of Internal Intelligent Control Electronics S12
  - ■ Synchronised multi-operation and sequence control without add. devices
  - ■ Electronic soft-start, soft-close and soft-stop at end of stroke control
    - ■ Stroke, force, speed
    - ■ Rebate control

For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

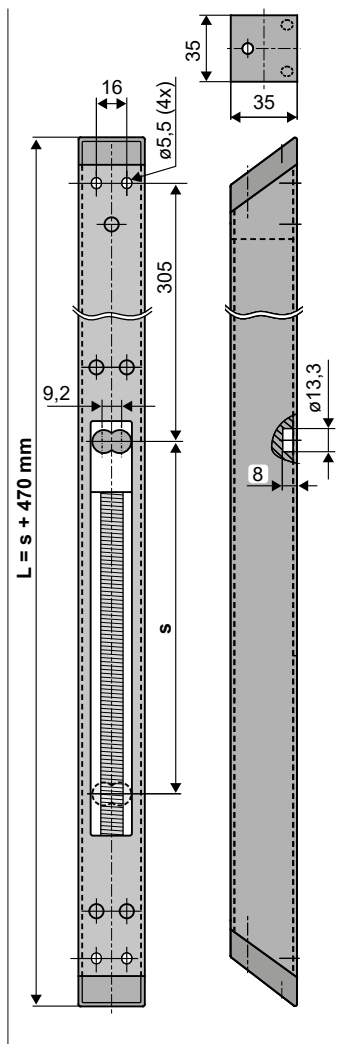
Typical applications



- Application: natural ventilation, RWA, ferralux®-NRWG
- Internal Intelligent Control Electronics S12
- Coupling adapter with double slot groove  $\varnothing 13,3 \times 9,2$  mm

### Options

- Programmable synchronised run (max. 4 drives) and special functions
- Programmable sequence control with locking drives (S3 / S12)
- Customized stroke and coupling adapter on request



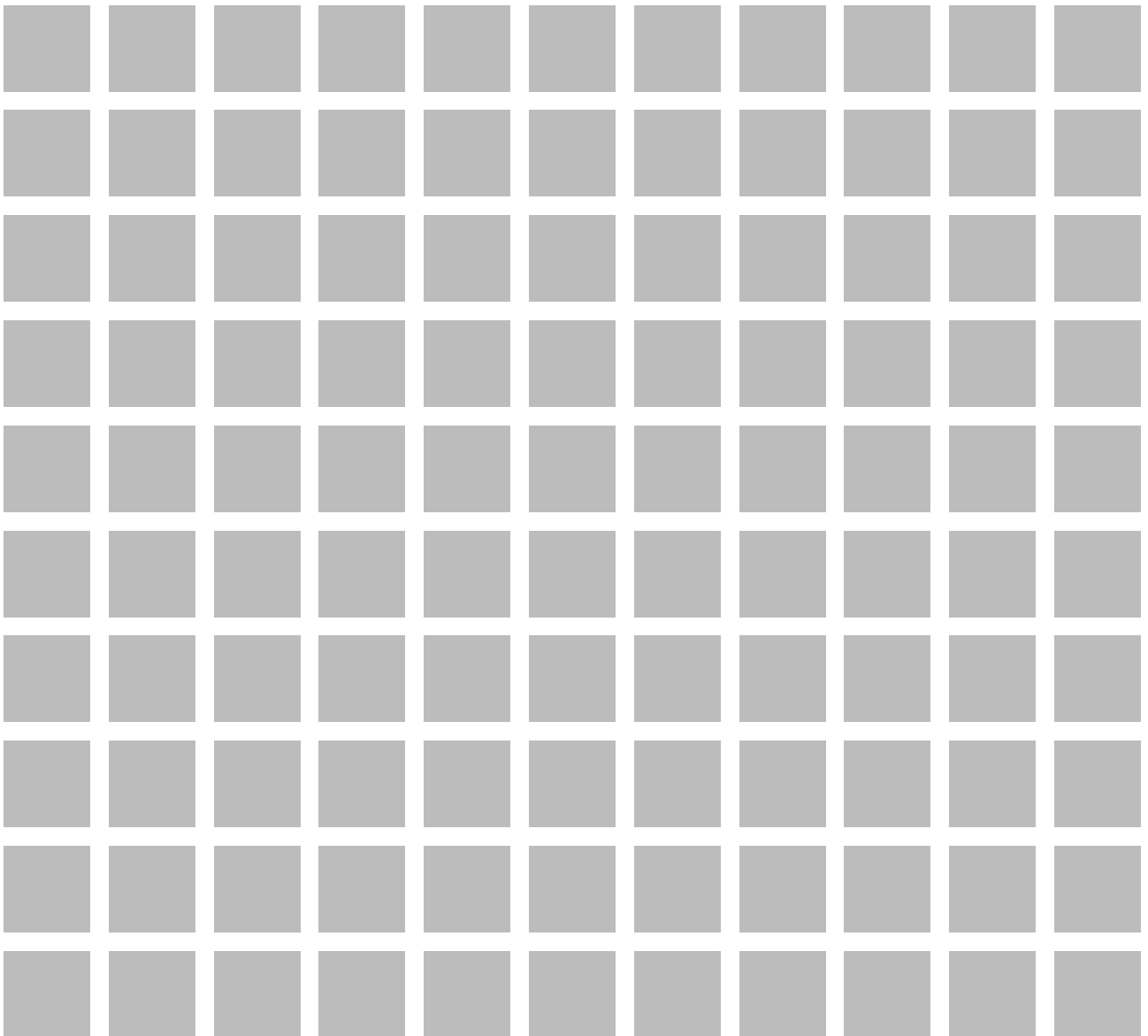
### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	LLA10: 0,6 A LLA16: 0,9 A
<b>I<sub>A</sub></b>	Cut-off current	LLA10: 1,0 A LLA16: 1,2 A
<b>P<sub>N</sub></b>	Rated power	LLA10: 15 W LLA16: 22 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 40
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>Z</sub></b>	Pulling force max.	LLA10: 1000 N LLA16: 1600 N
<b>F<sub>A</sub></b>	Pushing force	LLA10: 1000 N LLA16: 1600 N
<b>F<sub>H</sub></b>	Pullout force	5000 N (fastening depended)
	Coupling adapter	Polyamid PA6 with groove 13 x 22 x 8 mm
	Connecting cable	non-halogen, grey 3 x 0,5 mm <sup>2</sup> , ~ 3 m
<b>v</b>	Speed	$\mathbb{X}$ 4,0 mm/s $\mathbb{R}$ 4,0 mm/s
<b>S</b>	Stroke	60 – 200 mm
<b>L</b>	Length	s + 470 mm see order data
	Sound pressure level	≤ 70 dB (A)



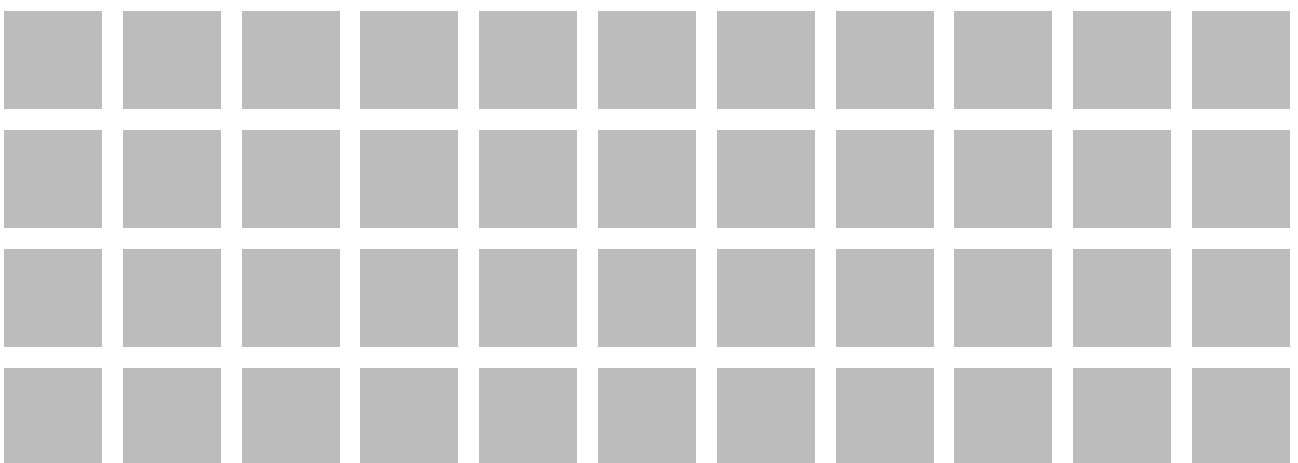
ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
60	530	LLA10 60 S12	E6/C-0	1	<b>520306</b>	
120	590	LLA10 120 S12	E6/C-0	1	<b>520312</b>	
200	670	LLA10 200 S12	E6/C-0	1	<b>520343</b>	
60	530	LLA16 60 S12	E6/C-0	1	<b>520406</b>	
120	590	LLA16 120 S12	E6/C-0	1	<b>520412</b>	
200	670	LLA16 200 S12	E6/C-0	1	<b>520423</b>	

OPTIONS			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>			
5 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501034</b>	
10 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501036</b>	
<b>Microprocessor programming S12</b>			
Programming drives 24V / 230V S12	1	<b>524180</b>	
Electronic stroke reduction 24V S12	1	<b>524190</b>	
Programming synchronised multi-drive systems 24V S3 / S12 (each drive)	1	<b>524182</b>	



# 6

## Locking drives





FVUI



FVUR



FVUB



FVUE

### FVU LOCKING DRIVES

- Model 24V DC
- Force 600 N
- Stroke 18 mm
- Runtime 5 s
- Housing (WxHxL) aluminium 26 x 26 mm, length depending on type
- Coupling adapter Locking plate (for FVUI)  
Locking angle (for FVUB and FVUR and FVUE)
- Versions FVUI, FVUB R, FVUB L, FVUR, FVUE
- Protection rating IP 32

FVUI

FVUR

FVUB

FVUE



FV

### FV LOCKING DRIVES

- Model 24V DC
- Force 600 N
- Stroke 15 mm
- Runtime 5 s
- Housing (WxHxL) aluminium 35 x 35 mm, length depending on type
- Coupling adapter Locking angle
- Versions FV1, FV3, FV4 with 1 – 3 locking points
- Protection rating IP32

FV



OFV

### OFV LOCKING DRIVES

- Model 24V DC, S3
- Torquet 10 Nm
- Rotation angle 90° / 180°
- Runtime 4,5 - 9 s
- Housing (WxHxL) aluminium/ABS 40 x 156 x 83 mm, grey
- Coupling adapter squered shaft for the chamber gearboxes
- Protection rating IP32

OFV

LOCKING DRIVES FV																	
Type	Form	Rated voltage	Locking stroke	Force		Runtime	Quiescent current	Opening drives		Use			Location		Functions		
				Pulling / Pushing force	Initial force			Type	Breaking current	Natural ventilation	RWA	NRWG	Facade	Roof	Run monitoring	Synchronised run	Sequence control
		[VDC]	[mm]	[N]	[N]	[s]	[A]		[A]								
FVUx	FVUI	24	18	600	1000	5,0	0,3	S3/S12	0,8	●	●	●	●	■		●	●
	FVUB	24	18	600	1000	5,0	0,3	S3/S12	0,8	●	●	●	●	■		●	●
	FVUR	24	18	600	1000	5,0	0,3	S3/S12	0,8	●	●	●	●	■		●	●
	FVUE	24	18	600	1000	5,0	0,3	S3/S12	0,8	●	●	●	●	■		●	●
FV	FV1	24		600	1000	5,0	0,3	○	○	●	●	●	●	■			●
	FV3							S1	0,8	●	●	●	●	■			●
	FV4							S2/S3/S12		●	●	●	●	■		●	●
OFV	OFV	24	0° – 180°	10 Nm	22 Nm	4,5 / 9,0	0,3	S1	0,9	●	●	●	●	■			●
								S2/S3/S12		●	●	●	●	■		●	●

LEGEND

● suitable    ■ not recommended

- S1 without internal cut-off switch for operation with RWA1000-, RWA1100-, RWA1050-systems
- S2 internal load dependend cut-off switch
- S3 internal load dependend cut-off switch, post cycle resistant, programmable for motion monitored run (up to 300 mm stroke) and sequence control
- S4 without internal cut-off switch, with pulse generator for operation with external load cut-off-switch or synchronisation controller
- S12 internal Intelligent Control Electronics S12 for synchronised run and programmable functions
- only with external control module USKM



### SPECIAL FEATURES FVUI

- For natural ventilation, smoke and heat exhausting and ferralux® NRWG (EN12101-2)
- With M-COM suitable internal load dependent cut-off switch and sequence control for drives (star wiring, drive current does not run over FVUx - sequence control via communication wire)
- Suitable for concealed mounting inside profiles
- Locking plate activates the multi-point locking systems of the windows via additional locking roller, it can be mounted on both sides and can be rotated with 180°
- Manual unlocking mechanism
- Robust corrosion-resistant design in a aluminium housing (415 x 26 x 26 mm)
- Concealed cable terminals and internal push button for setting the running direction

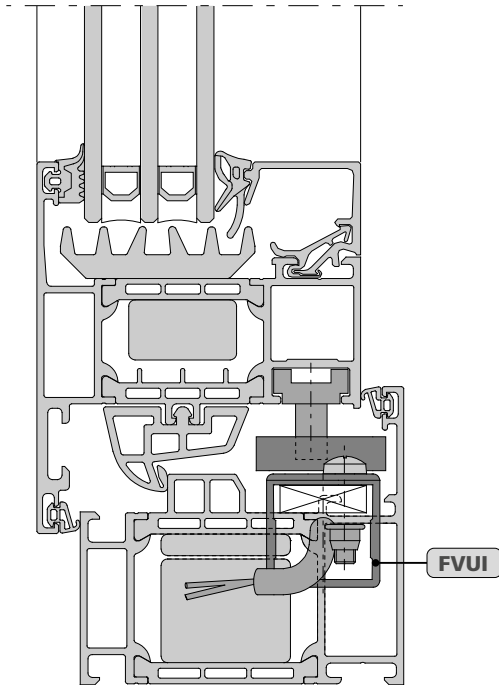
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804.

The LCA results of the different product types are listed at the end of this product catalogue.

The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

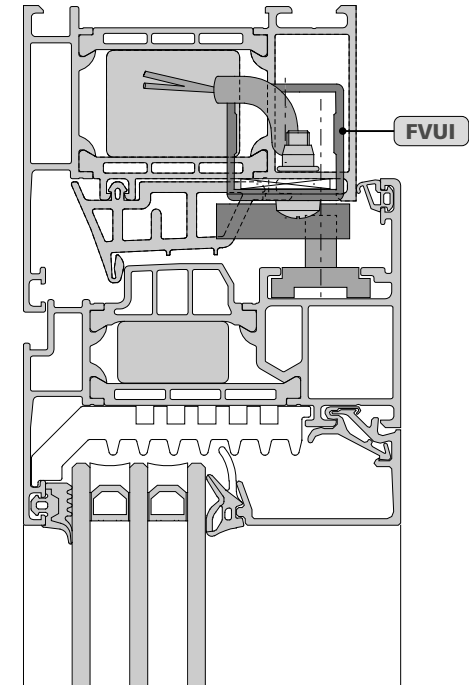
TYPICAL APPLICATIONS

1 Concealed mounting  
outward opening



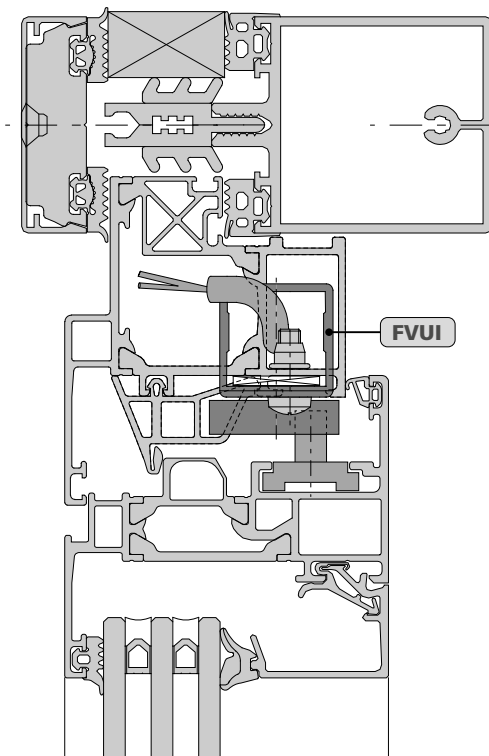
View on Alu window

2 Concealed mounting  
inward opening



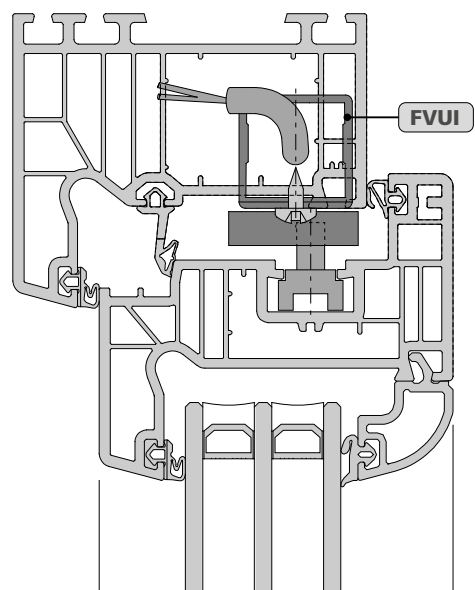
View on Alu window

3 Concealed mounting  
inward opening



View on Alu window

4 Concealed mounting  
inward opening



View on PVC window

- Application: natural ventilation, RWA, ferralux®-NRWG
- Surface or concealed mounting inside profiles
- Locking plate (8 mm) or optional locking plate (6 mm)
- Locking position selectable
- Manual unlocking mechanism
- Running direction adjustable

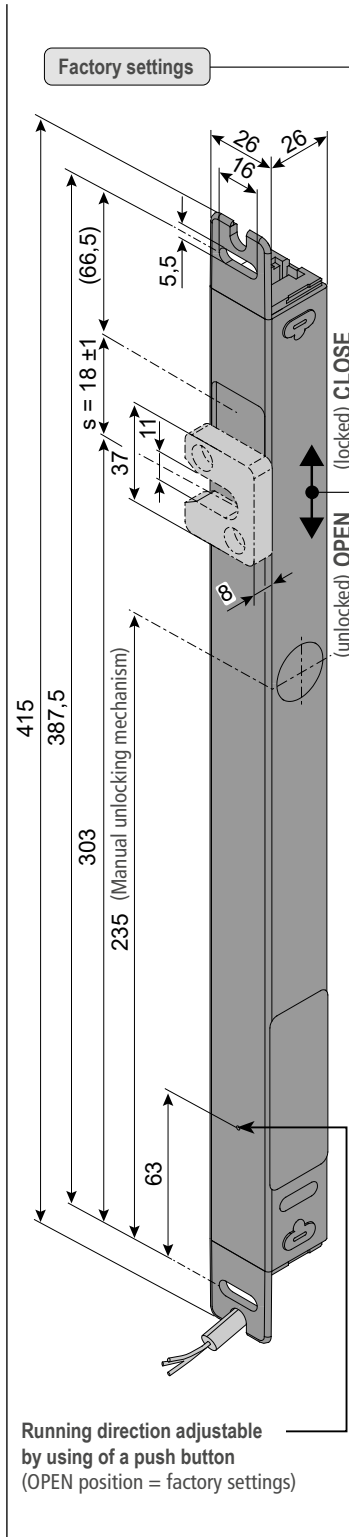
### Options

- Special functions programmable

- M-COM suitable internal Control Electronics and sequence control for drives S3 / S12
- Star wiring
- Current of the drives does not run over FVUI
- Sequence control via communication wire

### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	0,6 A
<b>I<sub>A</sub></b>	Cut-off current	~ 1,0 A
<b>P<sub>N</sub></b>	Rated power	15 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>A</sub></b>	Pushing force max.	~ 600 N
<b>F<sub>L</sub></b>	Breakout force max.	~ 1000 N
<b>F<sub>H</sub></b>	Pullout force max.	1.500 N
<b>t</b>	Running time	~ 5,0 s
<b>s</b>	Stroke	~ 18 mm (± 1)
	Connecting cable	non-halogen, grey Ø 6,2 mm, 3 x 0,5 mm <sup>2</sup> , ~ 3 m
	Coupling adapter	die-cast zinc
	Housing	aluminium (E6/C-O)
<b>L, (WxH)</b>	Dimensions	L = 415 mm, 26 x 26 mm (B x H)
	Sound pressure level	≤ 70 dB (A)

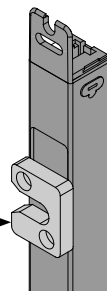


### MOUNTING POSSIBILITIES OF THE LOCKING PLATE

Locking plate is included separately (optional installation possible)

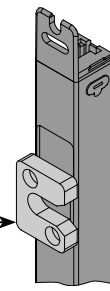
Mounting example "Version - 1"

Locking plate is included separately



Mounting example "Version - 2"

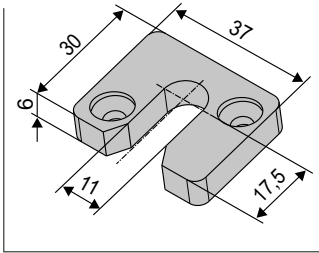
Locking plate is included separately



ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
18	415	FVUI	E6/C-0	1	515910	

OPTIONEN			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>			
5m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501034</b>	
10 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501036</b>	
<b>Microprocessor programming S12</b>			
Programming drives 24V / 230V S12		<b>524180</b>	
Optional accessories	PU/pcs.	Part.-No.	
M-COM Configuration module for synchronised multi-drive systems	1	<b>524177</b>	

**ACCESSORIES**

Locking plate			
<b>B31</b>		<p><b>Application</b>  <b>Locking plate 6 mm</b> alternative to the locking plate 8 mm due to limited rebate space</p>	<p><b>Part.-No. 515911</b>  <b>Material/Finish</b>                      die-cast zinc  <b>Feature/Equipment</b>                      37 x 30 x 6 mm</p>





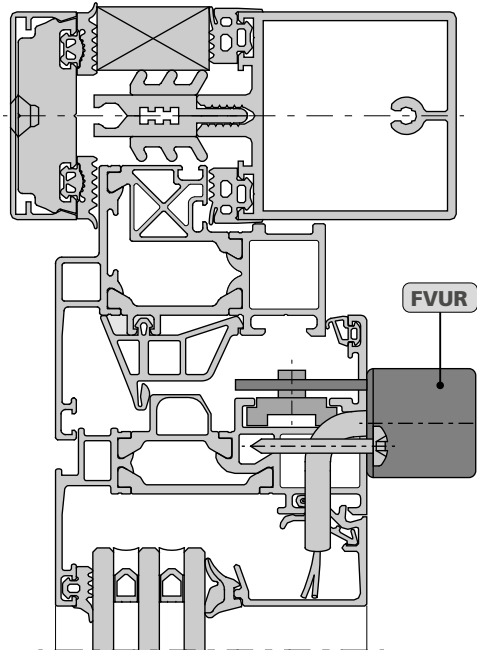
### SPECIAL FEATURES FVUR

- For natural ventilation, smoke and heat exhausting and ferralux® NRWG (EN12101-2)
- with M-COM suitable internal load dependent cut-off switch and sequence control for drives S3 / S12 (star wiring, drive current does not run over FVUx - sequence control via communication wire)
- Mounting on the window frame profiles of outward opening windows or on casement profiles of inward opening windows
- Coupling adapter activates the multi-point locking systems of the windows via additional locking roller
- Robust corrosion-resistant design in a aluminium housing (415 x 26 x 26 mm) or optionally in RAL colors
- Concealed cable terminals and internal push button for setting the running direction
- Coupling adapter customizable for project-/profile-specific demands

For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

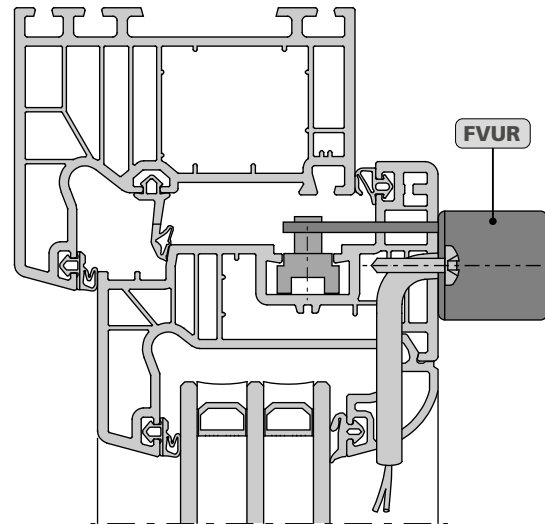
TYPICAL APPLICATIONS

1 FM, inward opening window



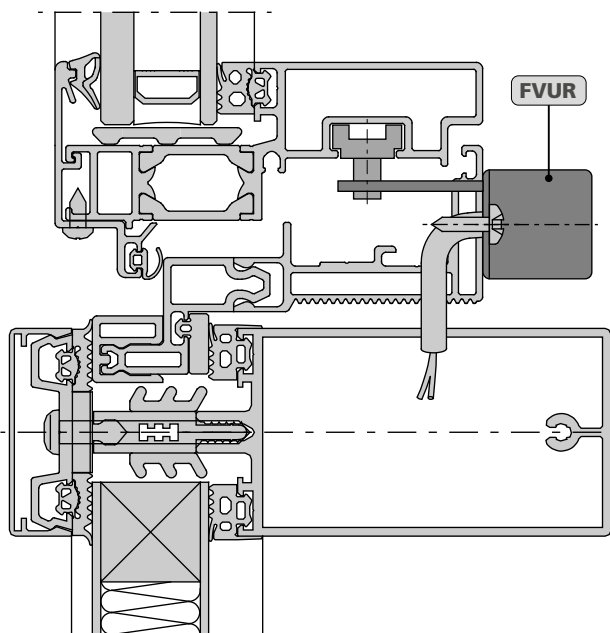
View on Alu window

2 FM, inward opening window



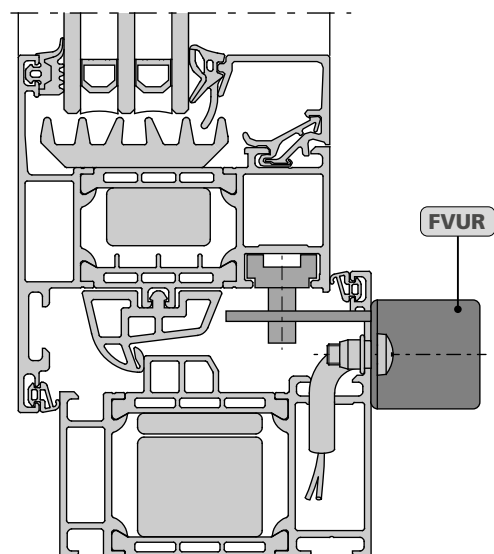
View on PVC window

3 RM, outward opening window



View on Alu window

4 RM, outward opening window



View on Alu window

- Application: natural ventilation, RWA, ferralux®-NRWG
- Surface mounting on the on the main / side closing edge (HSK / NSK) of the window frame profiles (RM) of inward opening windows
- Required mounting space 26 mm
- Locking drives for existing locking bar
- Running direction adjustable

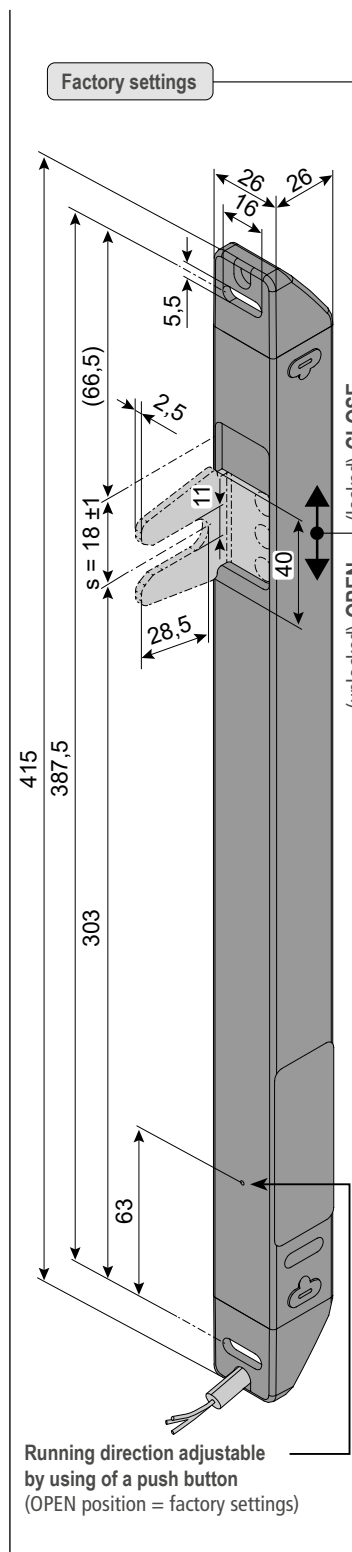
### Options

- Coupling adapter customizable for project-/profile-specific demands

- M-COM suitable internal Control Electronics and sequence control for drives S3 / S12
- Star wiring
- Current of the drives does not run over FVUR
- Sequence control via communication wire

### TECHNICAL DATA

$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,6 A
$I_A$	Cut-off current	~ 1,0 A
$P_N$	Rated power	15 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
$F_A$	Pushing force max.	~ 600 N
$F_L$	Breakout force max.	~ 1000 N
$F_H$	Pullout force max.	1.500 N
$t$	Running time	~ 5,0 s
$s$	Stroke	~ 18 mm ( $\pm 1$ )
	Connecting cable	non-halogen, grey $\varnothing 6,2$ mm, 3 x 0,5 mm <sup>2</sup> , ~ 3 m
	Coupling adapter	stainless steel
	Housing	aluminium (E6/C-O)
$L, (W \times H)$	Dimensions	L = 415 mm, 26 x 26 mm (B x H)
	Sound pressure level	$\leq 70$ dB (A)

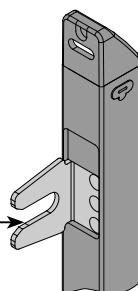


### MOUNTED POSSIBILITIES OF THE COUPLING ADAPTER

Coupling adapter is included separately (optional installation possible)

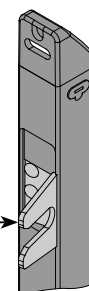
Mounting example "Version - 1"

Coupling adapter is included separately



Mounting example "Version - 2"

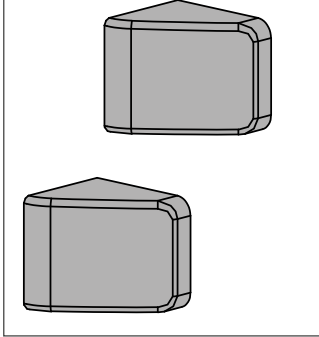
Coupling adapter is included separately



ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
18	415	FVUR	E6/C-0	1	515920	

OPTIONEN							
Special model				PU/pcs.	Part.-No.		
<b>Drive housing painted/powder coated in other RAL colours</b>							
<b>Lump sum for coating</b>						<b>516030</b>	
Specify at order stage:				1 – 20	<b>516004</b>		
				21 – 50	<b>516004</b>		
				51 – 100	<b>516004</b>		
				from 101	<b>516004</b>		
<b>Extra length connecting cable:</b>							
5m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>					<b>501034</b>		
10 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>					<b>501036</b>		
<b>Microprocessor programming S12</b>							
Programming drives 24V / 230V S12					<b>524180</b>		
Optional accessories				PU/pcs.	Part.-No.		
M-COM Configuration module for synchronised multi-drive systems				1	<b>524177</b>		

**ACCESSORIES**

Cover cap						
	<b>Application</b> Cover cap for FVUB and FVUR and FVUE (replacement part).		<b>Part.-No. 515921</b> <b>Material/Finish</b> plastic, RAL 7035 (light gray) <b>Feature/Equipment</b> 2 pieces			
			<b>Part.-No. 515923</b> <b>Material/Finish</b> plastic, RAL 9004 (black) <b>Feature/Equipment</b> 2 pieces			



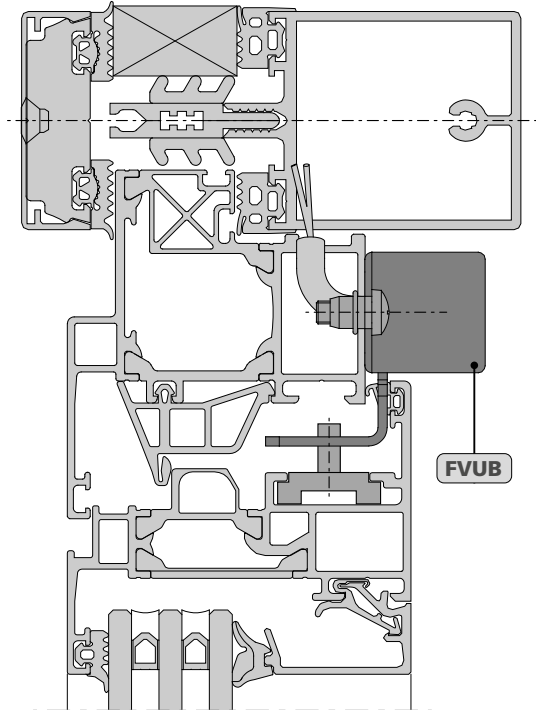
### SPECIAL FEATURES FVUB

- For natural ventilation, smoke and heat exhausting and ferralux® NRWG (EN12101-2)
- With M-COM suitable internal load dependent cut-off switch and sequence control for drives (star wiring, drive current does not run over FVUx - sequence control via communication wire)
- Mounting on the window frame profiles of inward opening windows
- Coupling adapter activates the multi-point locking systems of the windows via additional locking roller
- Robust corrosion-resistant design in a aluminium housing (415 x 26 x 26 mm) or optionally in RAL colors
- Concealed cable terminals and internal push button for setting the running direction
- Coupling adapter customizable for project-/profile-specific demands

For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

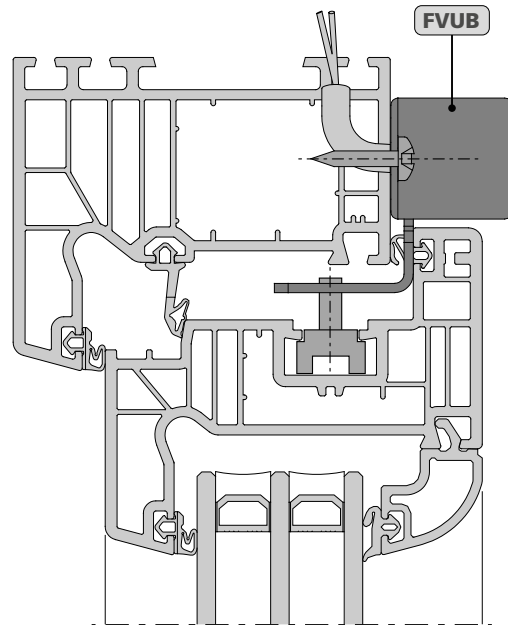
TYPICAL APPLICATIONS

1 RM, inward opening window



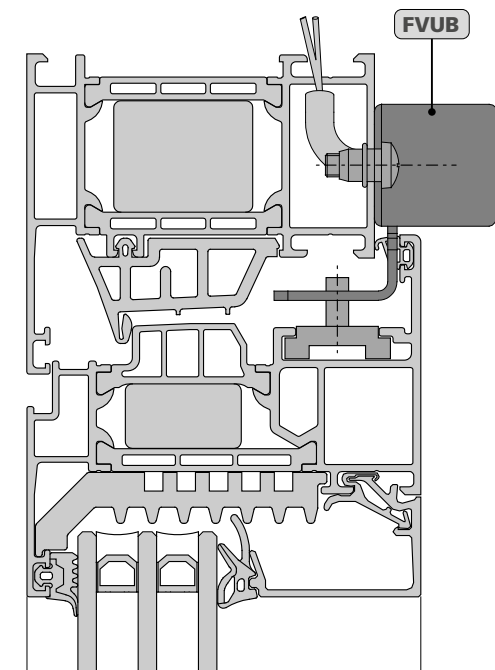
View on Alu window

2 RM, inward opening window



View on PVC window

3 RM, inward opening window



View on Alu window

- Application: natural ventilation, RWA, ferralux®-NRWG
- Surface mounting on the on the main / side closing edge (HSK / NSK) of the window frame profiles (RM) of inward opening windows
- Required mounting space 28 mm
- Locking drives for existing locking bar
- Running direction adjustable

### Options

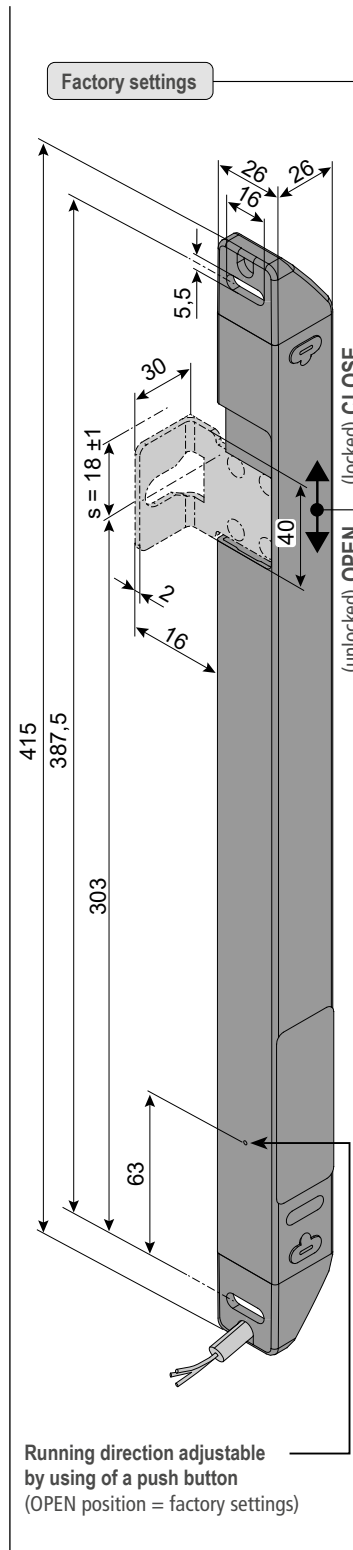
- Coupling adapter customizable for project-/profile-specific demands

(right)

- M-COM suitable internal Control Electronics and sequence control for drives S3 / S12
- Star wiring
- Current of the drives does not run over FVUB
- Sequence control via communication wire

### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19V ... 28V)
<b>I<sub>N</sub></b>	Rated current	0,6 A
<b>I<sub>A</sub></b>	Cut-off current	~ 1,0 A
<b>P<sub>N</sub></b>	Rated power	15 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>A</sub></b>	Pushing force max.	~ 600 N
<b>F<sub>L</sub></b>	Breakout force max.	~ 1000 N
<b>F<sub>H</sub></b>	Pullout force max.	1.500 N
<b>t</b>	Running time	~ 5,0 s
<b>s</b>	Stroke	~ 18 mm (± 1)
	Connecting cable	non-halogen, grey Ø 6,2 mm, 3 x 0,5 mm <sup>2</sup> , ~ 3 m
	Coupling adapter	stainless steel
	Housing	aluminium (E6/C-O)
<b>L, (WxH)</b>	Dimensions	L = 415 mm, 26 x 26 mm (B x H)
	Sound pressure level	≤ 70 dB (A)

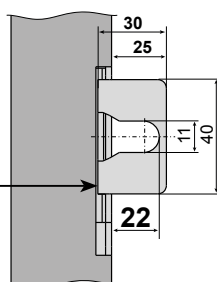


### MOUNTED POSSIBILITIES OF THE COUPLING ADAPTER

Coupling adapter is included separately

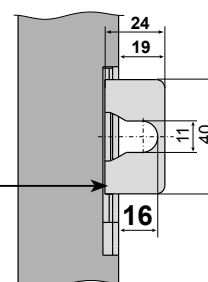
Accessories: Coupling adapter (separate order)

Coupling adapter is included separately



Accessories optional order Part.-No. 515931

Coupling adapter additionally order



- Application: natural ventilation, RWA, ferralux®-NRWG
- Surface mounting on the on the main / side closing edge (HSK / NSK) of the window frame profiles (RM) of inward opening windows
- Required mounting space 28 mm
- Locking drives for existing locking bar
- Running direction adjustable

**Options**

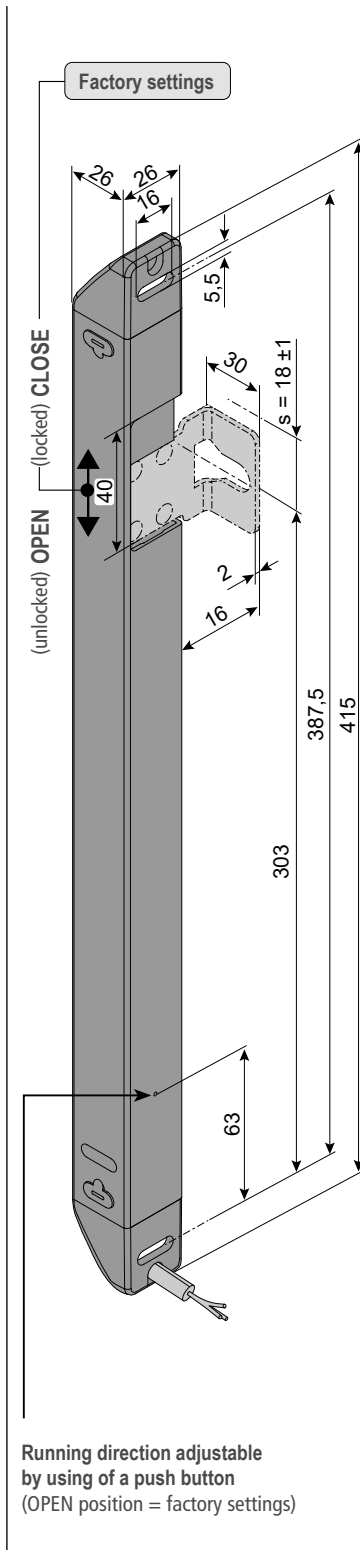
- Coupling adapter customizable for project-/profile-specific demands

(left)

- M-COM suitable internal Control Electronics and sequence control for drives S3 / S12
- Star wiring
- Current of the drives does not run over FVUB
- Sequence control via communication wire

**TECHNICAL DATA**

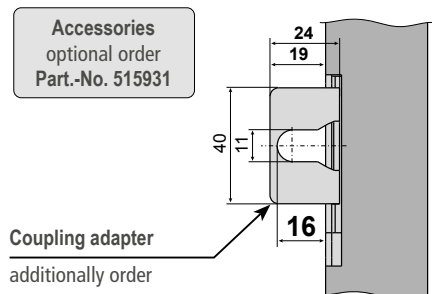
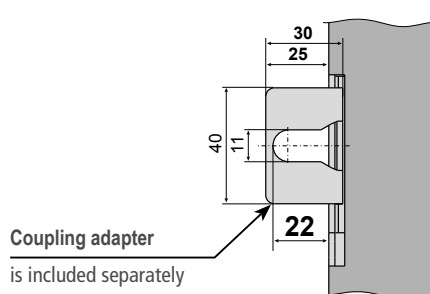
<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19V ... 28V)
<b>I<sub>N</sub></b>	Rated current	0,6 A
<b>I<sub>A</sub></b>	Cut-off current	~ 1,0 A
<b>P<sub>N</sub></b>	Rated power	15 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>A</sub></b>	Pushing force max.	~ 600 N
<b>F<sub>L</sub></b>	Breakout force max.	~ 1000 N
<b>F<sub>H</sub></b>	Pullout force max.	1.500 N
<b>t</b>	Running time	~ 5,0 s
<b>s</b>	Stroke	~ 18 mm (± 1)
	Connecting cable	non-halogen, grey ø 6,2 mm, 3 x 0,5 mm <sup>2</sup> , ~ 3 m
	Coupling adapter	stainless steel
	Housing	aluminium (E6/C-O)
<b>L, (WxH)</b>	Dimensions	L = 415 mm, 26 x 26 mm (B x H)
	Sound pressure level	≤ 70 dB (A)



**MOUNTED POSSIBILITIES OF THE COUPLING ADAPTER**

Coupling adapter is included separately

Accessories: Coupling adapter (separate order)

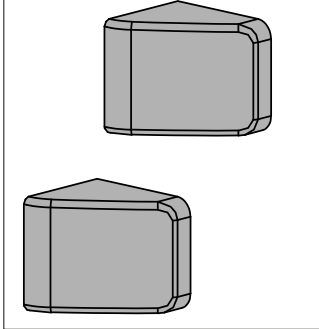
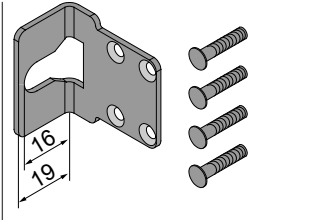




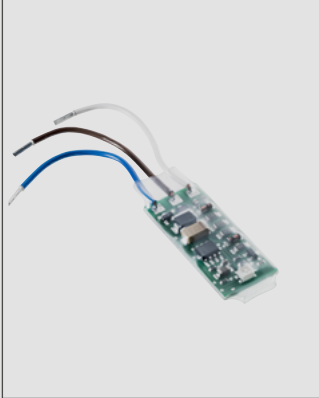
ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
18	415	FVUB R	E6/C-0	1	515930	
18	415	FVUB L	E6/C-0	1	515940	

OPTIONEN						
Special model	PU/pcs.	Part.-No.				
<b>Drive housing painted/powder coated in other RAL colours</b>						
<b>Lump sum for coating</b>		<b>516030</b>				
Specify at order stage:	1 – 20	<b>516004</b>				
	21 – 50	<b>516004</b>				
	51 – 100	<b>516004</b>				
	from 101	<b>516004</b>				
<b>Extra length connecting cable:</b>						
5m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501034</b>				
10 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501036</b>				
<b>Microprocessor programming S12</b>						
Programming drives 24V / 230V S12		<b>524180</b>				
Optional accessories	PU/pcs.	Part.-No.				
M-COM Configuration module for synchronised multi-drive systems	1	<b>524177</b>				

## ACCESSORIES

Cover cap						
	<b>Application</b> Cover cap for FVUB and FVUR and FVUE (replacement part).	<b>Part.-No. 515921</b> <b>Material/Finish</b> plastic, RAL 7035 (light gray) <b>Feature/Equipment</b> 2 pieces				
		<b>Part.-No. 515923</b> <b>Material/Finish</b> plastic, RAL 9004 (black) <b>Feature/Equipment</b> 2 pieces				
Coupling adapter						
<b>FVUB -16mm</b> 	<b>Application</b> Coupling adapter-16 mm for locking pin in the FVUB (coupling adapter length is 19 mm). As an alternative to the coupling adapter-22 mm (coupling adapter length is 25 mm).	<b>Part.-No. 515931</b> <b>Material/Finish</b> stainless steel <b>Feature/Equipment</b> 1x coupling adapter, 4x screws				

OPTIONAL ACCESSORIES

Main control unit			
<p><b>M-COM</b></p> 	<p><b>Application</b></p> <p><b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt;12 mA</p> <p><b>Drive type:</b> S12</p>	<p><b>Part.-No. 524177</b></p> <p><b>Protection rating</b> IP30 rubber coated</p> <p><b>Ambient temperature range</b> 0 °C ... + 70 °C</p> <p><b>Dimensions</b> 45 x 17 x 6 mm</p> <p><b>Connecting wires</b> 3 wires 0,5 mm<sup>2</sup> x 50 mm</p> <p><b>Feature/Equipment</b> Printed circuit board with components and connection wires to be installed in connection box to be supplied on site</p>	

OPTIONEN			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>			
5m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501034</b>	
10 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501036</b>	
<b>Microprocessor programming S12</b>			
Programming drives 24V / 230V S12		<b>524180</b>	
<b>Optional accessories</b>			
M-COM Configuration module for synchronised multi-drive systems	1	<b>524177</b>	



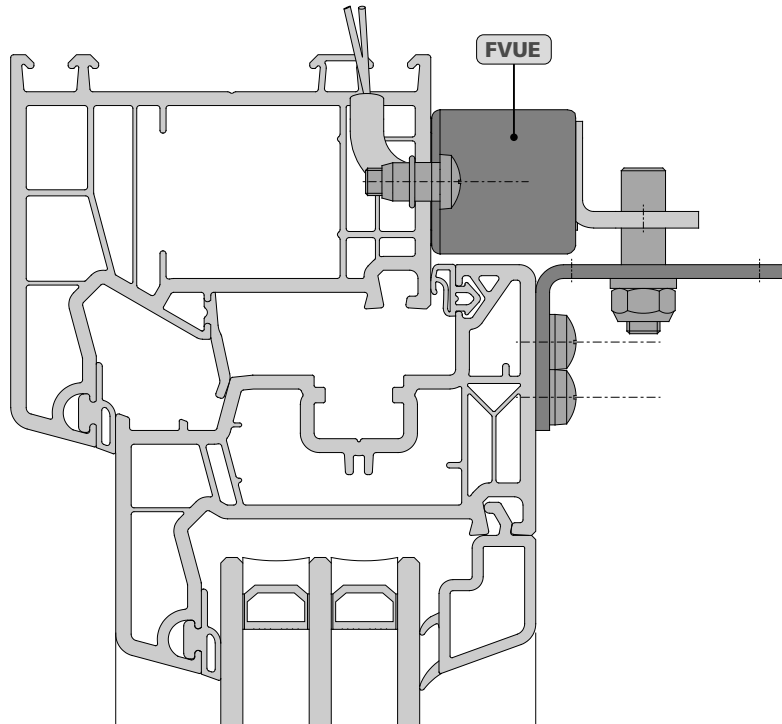
### SPECIAL FEATURES FVUE

- For natural ventilation, smoke and heat exhausting and ferralux® NRWG (EN12101-2)
- with M-COM suitable internal load dependent cut-off switch and sequence control for drives S3 / S12 (star wiring, drive current does not run over FVUx - sequence control via communication wire)
- Mounting on the window frame profiles of inward opening windows
- The Coupling adapter engages in the locking bolt attached to the sash
- Robust corrosion-resistant design in a aluminium housing (415 x 26 x 26 mm) or optionally in RAL colors
- Concealed cable terminals and internal push button for setting the running direction
- Coupling adapter customizable for project-/profile-specific demands

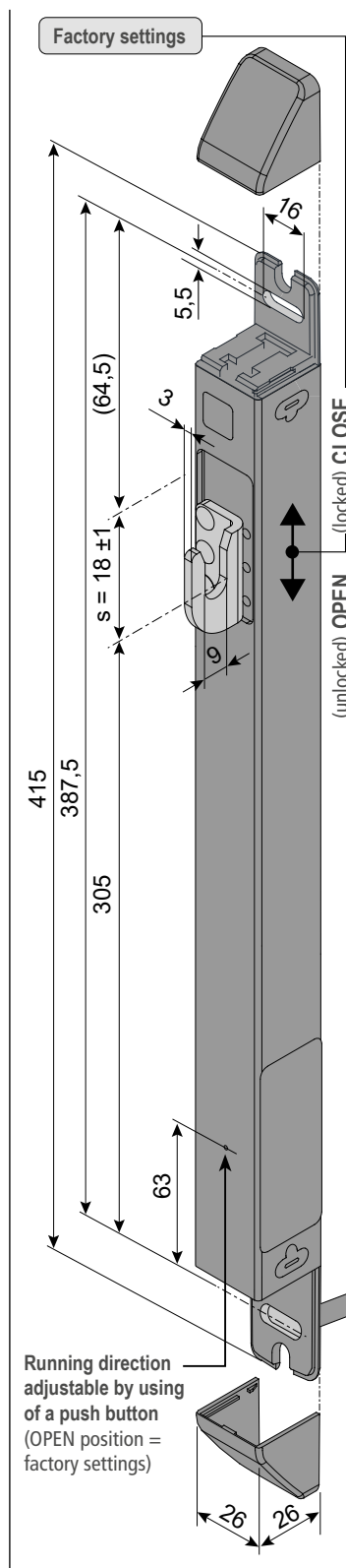
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

## TYPICAL APPLICATIONS

## 1 RM, inward opening window



View on PVC window



- Application: natural ventilation, RWA, ferralux®-NRWG
- Surface mounting on the on the main / side closing edge (HSK / NSK) of the window frame profiles (RM) of inward opening windows
- Required mounting space 28 mm
- Locking drives for applications without locking bar
- Running direction adjustable

### Options

- Coupling adapter customizable for project-/profile-specific demands

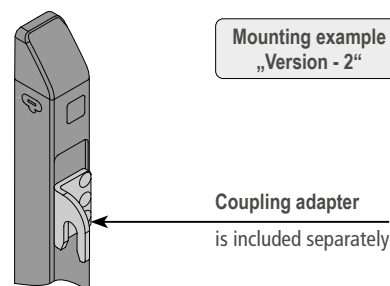
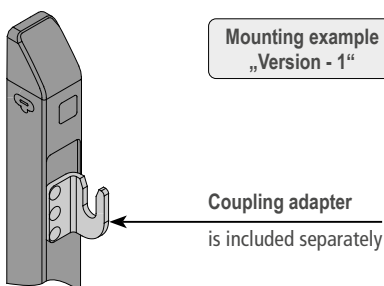
- M-COM suitable internal Control Electronics and sequence control for drives S3 / S12
- Star wiring
- Current of the drives does not run over FVUE
- Sequence control via communication wire

### TECHNICAL DATA

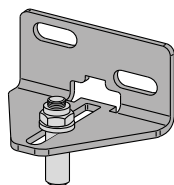
$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,6 A
$I_A$	Cut-off current	~ 1,0 A
$P_N$	Rated power	15 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +60 °C
$F_A$	Pushing force max.	~ 600 N
$t$	Running time	~ 5,0 s
$s$	Stroke	~ 18 mm (± 1)
	Connecting cable	non-halogen, grey $\varnothing$ 6,2 mm, 3 x 0,5 mm <sup>2</sup> , ~ 3 m
	Coupling adapter	stainless steel
	Housing	aluminium (E6/C-O)
$L, (W \times H)$	Dimensions	L = 415 mm, 26 x 26 mm (B x H)
	Sound pressure level	≤ 70 dB (A)

### MOUNTED POSSIBILITIES OF THE COUPLING ADAPTER

Coupling adapter is included separately (optional installation possible)



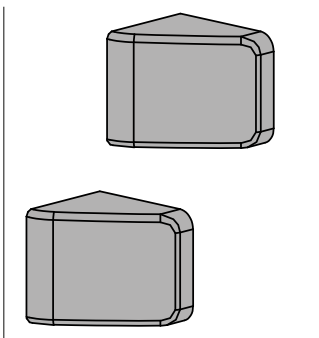
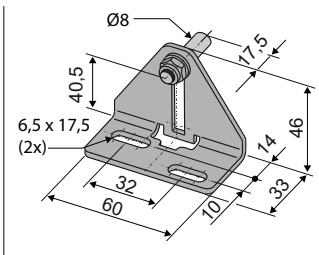
### Locking angle B18 (included)



ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
18	415	FVUE	E6/C-0	1	515915	

OPTIONEN			
Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>			
5m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501034</b>	
10 m – non-halogen, grey – 3 x 0,5 mm <sup>2</sup>		<b>501036</b>	
<b>Microprocessor programming S12</b>			
Programming drives 24V / 230V S12		<b>524180</b>	
Optional accessories	PU/pcs.	Part.-No.	
M-COM Configuration module for synchronised multi-drive systems	1	<b>524177</b>	

ACCESSORIES

Cover cap			
	<p><b>Application</b></p> <p>Cover cap for FVUB and FVUR and FVUE (replacement part).</p>	<p><b>Part.-No. 515921</b></p> <p><b>Material/Finish</b> plastic, RAL 7035 (light gray)</p> <p><b>Feature/Equipment</b> 2 pieces</p>	
		<p><b>Part.-No. 515923</b></p> <p><b>Material/Finish</b> plastic, RAL 9004 (black)</p> <p><b>Feature/Equipment</b> 2 pieces</p>	
Locking angle			
<p><b>B18</b></p> 	<p><b>Application</b></p> <p><b>ANGLE WITH ADJUSTABLE LOCKING BOLT</b> at surface mounting for compensation of the <b>profile overlap FÜ &lt;10 mm</b>. Required mounting space <b>35 mm</b>.</p>	<p><b>Part.-No. 301595</b></p> <p><b>Material/Finish</b> stainless steel</p> <p><b>Feature/Equipment</b> 1x locking pin Ø 8x30, 1x nut M6, 1x washer A6,4</p>	



### SPECIAL FEATURES FV1 / FV3 / FV4

- For natural ventilation, smoke and heat exhausting and ferralux® NRWG (EN12101-2)
- Versions:
  - FV1 – without internal cut-off switch and sequence control, for use in RWA hardware systems with USKM module
  - FV3 – with internal load dependent cut-off switch and sequence control for drives PL6 S1 / PL10 S1
  - FV4 – Version with M-COM suitable internal load dependent cut-off switch and sequence control for drives S3 /S12 (star wiring, drive current does not run over FV4, sequence control via communication wire)
- Number of locking points (VP)
  - 1 VP – Housing 420 mm as right or left handed version
  - 2 VP – Housing 1200 mm or 2000 mm
  - 3 VP – Housing 2000 mm
- Small locking bracket for 18 mm mounting space on window frame profile
- Robust corrosion-resistant design in a slim aluminium housing (Lx35x35 mm) or optionally in RAL colors
- Easy installation due to concealed holes below the oblique end caps
- Cable connection terminals below the end cap (in FV3 and FV4)

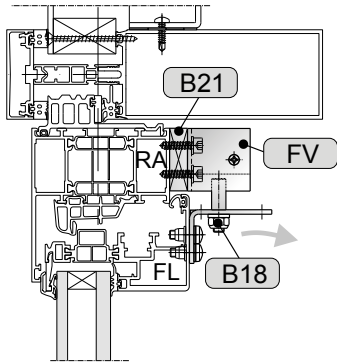
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804.

The LCA results of the different product types are listed at the end of this product catalogue.

The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

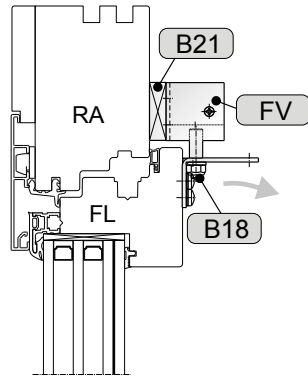
TYPICAL APPLICATIONS

1 RM, inward opening window



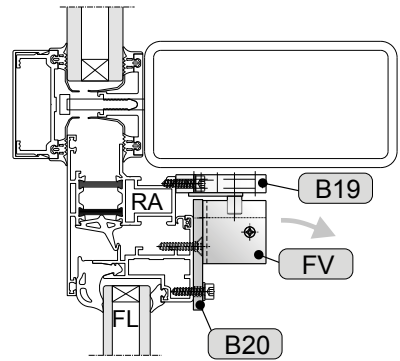
View on aluminium window

2 RM, inward opening window



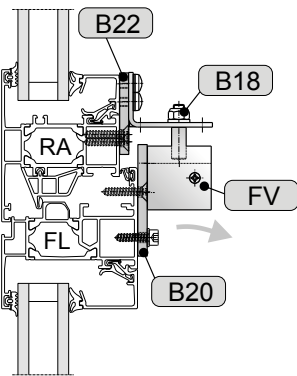
View on wooden window

3 FM, inward opening window



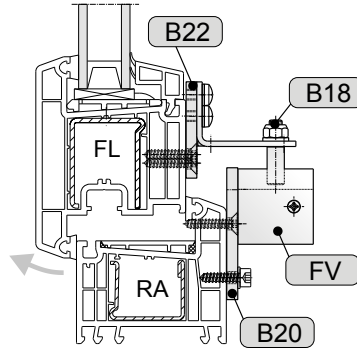
View on aluminium window

4 FM, inward opening window



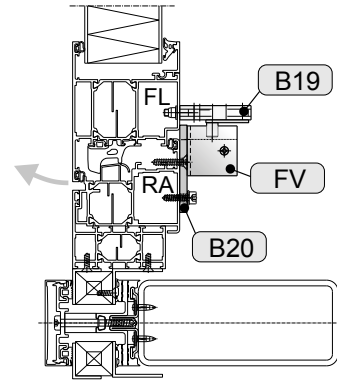
View on aluminium window

5 RM, outward opening window



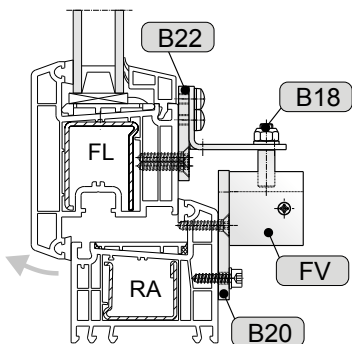
View on PVC-window

6 RM, outward opening window



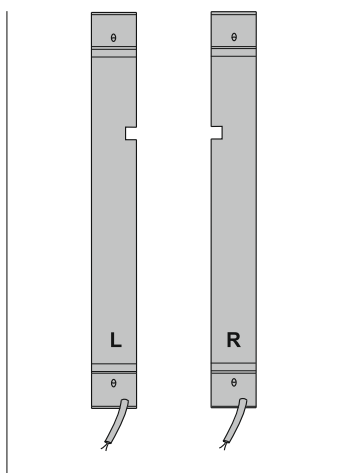
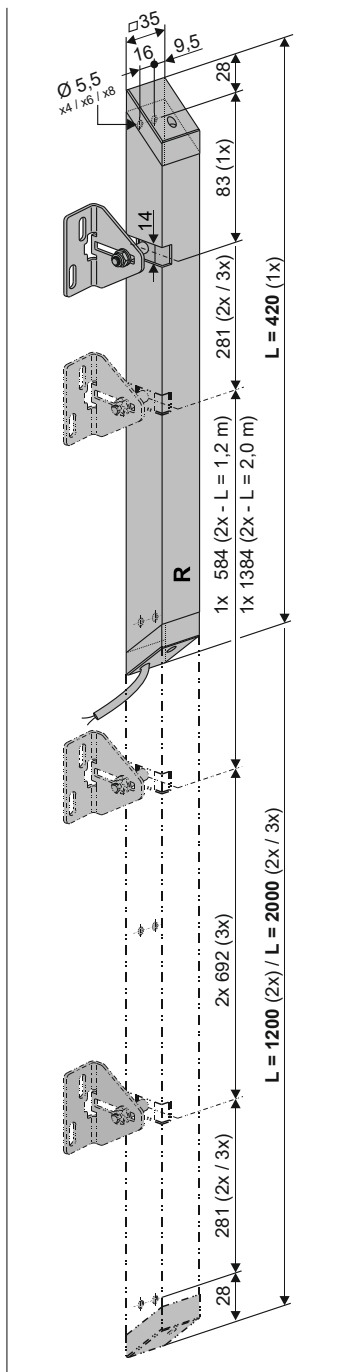
View on aluminium window

7 RM, outward opening window



View on aluminium window





- Application: natural ventilation, RWA, ferralux®-NRWG
- Surface mounting on the window frame/casement profiles of the main/side closing edge (HSK/NSK) of in-/outward opening windows. Locking bracket mounted on the casement
- Required mounting space 35 mm
- Can be installed without locking bar

### Options

- Mounting plate for installation on the window frame profile (RM) of outward opening windows or on the casement profile (FM) of inward opening windows
- Slim locking bracket 18 mm for small mounting space on the window frame profiles

### FV1

- Without internal cut-off switch and sequence control, for use in RWA hardware systems with USKM module

### FV3

- With internal load dependent cut-off switch and sequence control for drives PL6 S1 / PL10 S1 (I = 0.8A)

### FV4

- M-COM suitable internal load dependent cut-off switch and sequence control for drives S3 / S12
- Star wiring
- Current of the drives does not run over FV4
- Sequence control via communication wire

## TECHNICAL DATA

$U_N$	Rated voltage	24 V DC (19 V ... 28 V)
$I_N$	Rated current	0,6 A
$I_0$	Quiescent current	~ 300 mA
$P_N$	Rated power	20 W
$I_D$	Current of connected drives	FV1: USKM FV3: 0,8 A (PL 6/10 S1) FV4: S3 / S12 non relevant
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... + 60 °C
<b>F</b>	Pushing / Pulling force max.	~ 600 N
<b>t</b>	Runtime	~ 5,0 s
	Connecting cable	FV1: non-halogen, grey 2 x 0,75 mm <sup>2</sup> , ~ 3 m FV3: non-halogen, grey 2 x 0,75 mm <sup>2</sup> , ~ 3 m FV4: non-halogen, grey 3 x 0,50 mm <sup>2</sup> , ~ 3 m
	Housing	aluminium 35 x 35 mm
<b>L</b>	Length	see order data
	Versions	FV1: 1x R/L, 2x R, 3x R FV3: 1x R/L, 2x R, 3x R FV4: 1x R/L, 2x R, 3x R
	Version name	1x = 1 locking point 2x = 2 locking point 3x = 3 locking point R = right hand version L = left hand version
	Sound pressure level	≤ 70 dB (A)

ORDER DATA						
Type	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
Single right hand	420	FV1 R (1x)	E6/C-0	1	<b>515103</b>	
		FV3 R (1x)		1	<b>515102</b>	
		FV4 R (1x)		1	<b>515129</b>	
Single left hand	420	FV1 L (1x)	E6/C-0	1	<b>515106</b>	
		FV3 L (1x)		1	<b>515105</b>	
		FV4 L (1x)		1	<b>515130</b>	
Double right hand	1200	FV1 R (2x)	E6/C-0	1	<b>515111</b>	
		FV3 R (2x)		1	<b>515110</b>	
		FV4 R (2x)		1	<b>515131</b>	
Double right hand	2000	FV1 R (2x)	E6/C-0	1	<b>515113</b>	
		FV3 R (2x)		1	<b>515112</b>	
		FV4 R (2x)		1	<b>515132</b>	
Triple right hand	2000	FV1 R (3x)	E6/C-0	1	<b>515116</b>	
		FV3 R (3x)		1	<b>515114</b>	
		FV4 R (3x)		1	<b>515136</b>	
Triple left hand	2000	FV1 L (3x)	E6/C-0	1	<b>515118</b>	

Special model	PU/pcs.	Part.-No.	
<b>Drive housing painted/powder coated in other RAL colours</b>			
<b>Lump sum for coating</b>		<b>516030</b>	
Specify at order stage:	1 – 20	<b>516004</b>	
	21 – 50	<b>516004</b>	
	51 – 100	<b>516004</b>	
	from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>			
5 m –non-halogen grey – 2 x 0,75 mm <sup>2</sup>		<b>501021</b>	
10 m –non-halogen, grey – 2 x 0,75 mm <sup>2</sup>		<b>501027</b>	
5 m –non-halogen, grey – 3 x 0,50 mm <sup>2</sup>		<b>501034</b>	
10 m –non-halogen, grey – 3 x 0,50 mm <sup>2</sup>		<b>501036</b>	
<b>Microprocessor programming S12</b>			
Programming drives 24V / 230V S12		<b>524180</b>	
<b>Optional accessories</b>			
M-COM Configuration module for synchronised multi-drive systems (for FV4)	1	<b>524177</b>	

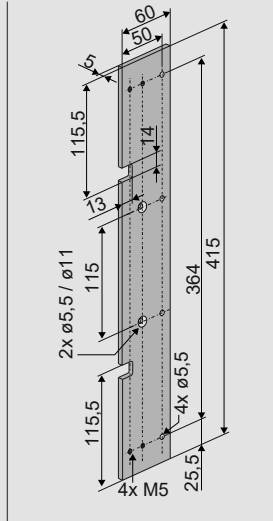
ACCESSORIES

Locking angle			
B18		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main/side closing edge</b> of window frame profiles/casement profiles of <b>in-/outward opening</b> windows. Adjustable locking bolt for compensation of the profile overlap <b>FÜ&lt;10 mm</b>.                      Required mounting space <b>35 mm</b></p>	<p><b>Part.-No. 301595</b>  <b>Material/Finish</b>                      stainless steel (1.4301)  <b>Feature/Equipment</b>                      1x locking pin Ø 8x30,                      1x nut M6,                      1x washer A6,4</p>
<b>Accessories</b>			
	<p><b>B21-1</b> base plate for FÜ&gt;10 mm FV L = 420</p>	<p><b>Part.-No. 515181</b></p>	
	<p><b>B21-2</b> base plate for for FÜ&gt;10 mm FV L = 1200</p>	<p><b>Part.-No. 515183</b></p>	
	<p><b>B21-3</b> base plate for for FÜ&gt;10 mm FV L = 2000</p>	<p><b>Part.-No. 515185</b></p>	
	<p><b>B22</b> base plate for glazing bead</p>	<p><b>Part.-No. 301599</b></p>	
B19		<p><b>Application</b>  <b>Surface mounting</b> on the <b>main/side closing edge</b> of window frame profiles/casement profiles of <b>in-/outward opening</b> windows. Adjustable locking bolt for compensation of the profile overlap <b>FÜ&lt;10 mm</b>.                      Required mounting space <b>15 mm</b></p>	<p><b>Part.-No. 301597</b>  <b>Material/Finish</b>                      aluminium  <b>Feature/Equipment</b>                      1x locking pin Ø 8x10,                      1x hex head screw M6x10,                      1x washer A6,4</p>

## ACCESSORIES

## Mounting plate

B20-1



## Application

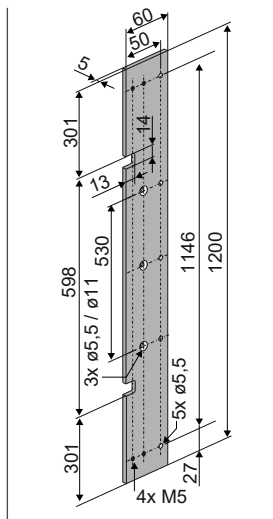
## Mounting of FV1/FV3/FV4

L = 420 mm as right or left hand version on the window frame profiles of outward opening windows or on the casement profile of inward opening casements, e.g. **RWA1100** hardware systems

Part.-No. 515191

Material/Finish  
aluminiumFeature/Equipment  
415 x 60 x 5 mm

B20-2



## Application

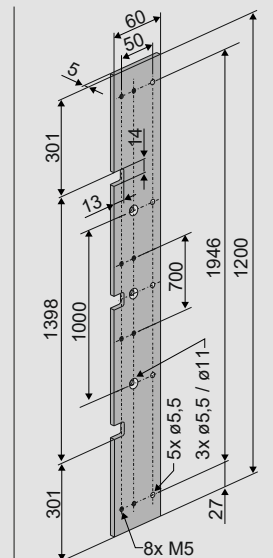
## Mounting of FV1/FV3/FV4

L = 1200 mm on the window frame profiles of outward opening windows or on the casement profiles of inward opening casements, e.g. **RWA1100** hardware system

Part.-No. 515193

Material/Finish  
aluminiumFeature/Equipment  
1200 x 60 x 5 mm

B20-3



## Application

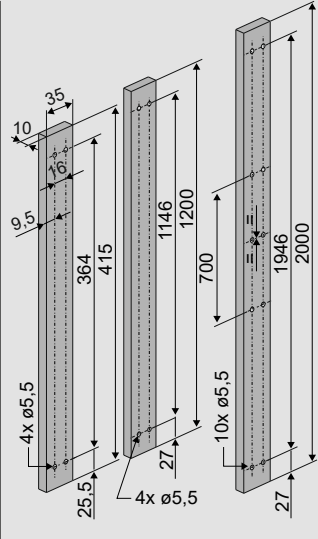
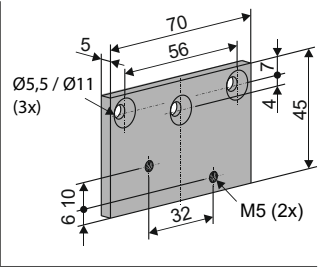
## Mounting of FV1/FV3/FV4

L = 2000 mm on the window frame profiles of outward opening windows or on the casement profiles of inward opening casements, e.g. **RWA1100** hardware system

Part.-No. 515197

Material/Finish  
aluminiumFeature/Equipment  
2000 x 360 x 5 mm

### OPTIONAL ACCESSORIES

Base plate				
<b>B21</b> 	<b>B21-1</b> FV L = 420	<b>Part.-No.</b> 515181		
	<b>B21-2</b> FV L = 1200	<b>Part.-No.</b> 515183		
	<b>B21-3</b> FV L = 2000	<b>Part.-No.</b> 515185		
	<b>Application</b> Compensation of the <b>profile overlap FÜ &gt; 10 mm</b> for FV1/FV3/FV4 mounted on the window frame profiles (RM) of <b>inward opening</b> windows 1x for FÜ > 10 mm 2x for FÜ > 20 mm	<b>Material/Finish</b> aluminium <b>Feature/Equipment</b> L x 35 x 10 mm (L = 415, 1200, 2000) mm		
<b>B22</b> 	<b>Application</b> Adapter plate for relocation of the mounting holes of the locking bracket <b>B18</b> outside the glazing bead of <b>outward opening</b> windows	<b>Part.-No.</b> 301599	<b>Material/Finish</b> aluminium (E6/C-0)	<b>Feature/Equipment</b> for locking angle B18 2x screw M5x8, 2x washer A5,3

## CASEMENT BRACKETS AND FRAME BRACKETS

<b>Special accessories</b>					
Special model	PU/pcs.	Part.-No.			
<b>Casement brackets painted / powder coated in other RAL colours</b>					
<b>Lump sum for coating</b>		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516032</b>			
	21 – 50	<b>516032</b>			
	51 – 100	<b>516032</b>			
	from 101	<b>516032</b>			
<b>Frame brackets painted / powder coated in other RAL colours</b>					
<b>Lump sum for coating</b>		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516031</b>			
	21 – 50	<b>516031</b>			
	51 – 100	<b>516031</b>			
	from 101	<b>516031</b>			

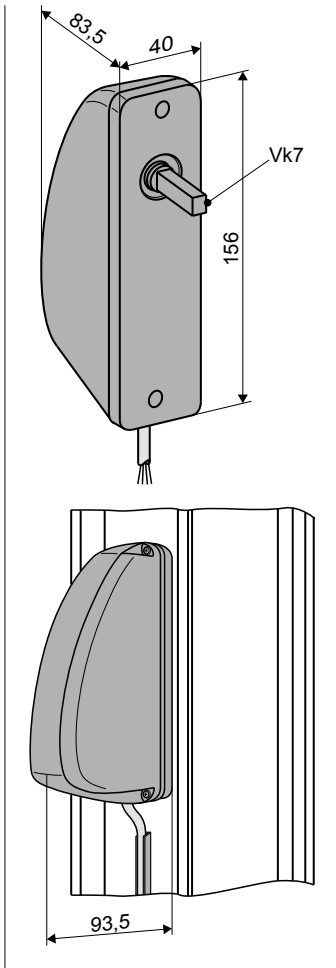


### SPECIAL FEATURES OFV1 / OFV1 M-COM

- For natural ventilation, smoke and heat exhausting and ferralux® NRWG (EN12101-2)
- Distinguishing marks:
  - Internal load dependent cut-off switch and sequence control for drives PL6 S1 / PL10 S1 as well as for drives type S2 / S3 / S12
  - Version **OFV1 M-COM** with M-COM suitable internal load dependent cut-off switch and sequence control for drives S3 /S12 (star wiring, drive current does not run over OFV1 (SW-V2 M-COM), sequence control via communication wire)
  - Rotating angle adjustable to 90° / 180°
  - Opening direction sectable to right / left turning
- Mounting on the gear of window handl of inward opening casements instead of the manual handl
- Square shaft activates the window multi-point locking systems via gear of the window handl
- Robust corrosion-resistant design in a plastic housing
- Easy installation due to concealed holes
- Concealed cable connection terminals and DIP-switches for settings

For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).

- With Internal Intelligent Control Electronics and sequence control for drives PL6 S1 / PL10 S1 as well as for drives type S2 / S3 / S12 (I max. 3 A, drive current runs over OVF1 – undercurrent detection)
- Two adjustable rotation angles: 90° / 180°
- Opening direction selectable: right / left turning
- Square shaft adapter 7x55 mm

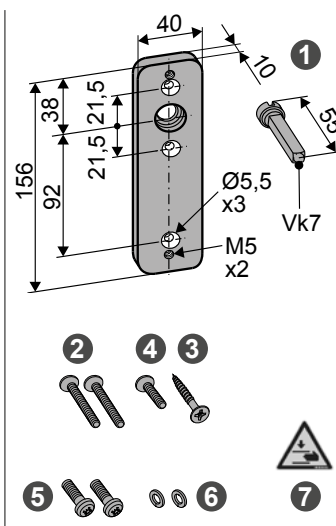


**TECHNICAL DATA**

<b>U<sub>N</sub></b>	Rated voltage	24V DC (19V ... 28V)
<b>I<sub>N</sub></b>	Rated current	0,8 A
<b>I<sub>A</sub></b>	Cut-off current	1,1 A
<b>I<sub>0</sub></b>	Quiescent current	< 28 mA (10 Nm)
<b>I<sub>D</sub></b>	Current of connected drives	S1: max. 0,9 A
<b>P<sub>N</sub></b>	Rated power	19 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... + 60 °C
<b>M</b>	Torque max.	10 Nm
<b>F<sub>H</sub></b>	Initial torque	22 Nm
	Rotating angle direction	yes (self-learning)
	Rotating angle	90 ° / 180° (right / left)
<b>t</b>	Runtime	90° - 4,5 s; 180° - 9,0 s
<b>s</b>	Connecting cable	non-halogen, grey 4 x 0,75 mm <sup>2</sup> , ~ 3 m
	Housing	ABS, greywhite
<b>L</b>	Dimensions (B x H x T)	40 x 156 x 83,5 mm
	Sound pressure level	≤ 70 dB (A)

**In delivery**

1	1x Mounting plate with Vk7x55
2	2x Countersunk screw M5x40
3	1x Spax-Countersunk screw 4,5x30
4	1x Countersunk screw M5x16
5	2x Head screw M 5 x 16
6	2x Spring rings
7	1x Warning label



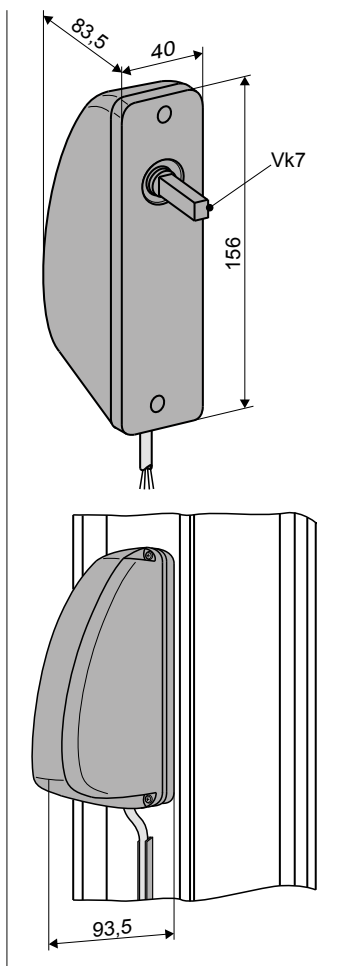
**ORDER DATA**

Version	PU/pcs.	Part.-No.			
OVF1	1	513850			



- With Internal Intelligent Control Electronics and sequence control for drives type S3 / S12
- Two adjustable rotation angles: 90° / 180°
- Opening direction selectable: right / left turning
- Square shaft adapter 7x55 mm

- M-COM suitable internal Control Electronics and sequence control for drives S3 / S12
- Star wiring
- Current of the drives does not run over OFV1 (SW-V2 M-COM)
- Sequence control via communication wire

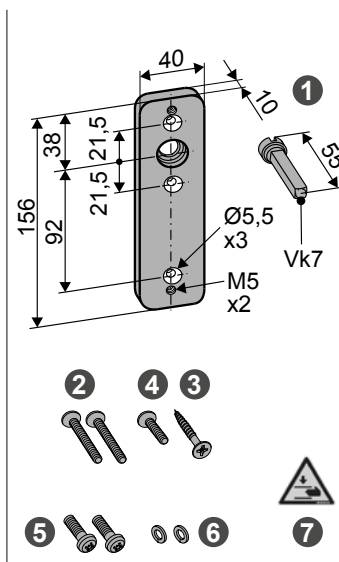


### TECHNICAL DATA

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	0,8 A
<b>I<sub>A</sub></b>	Cut-off current	1,1 A
<b>I<sub>0</sub></b>	Quiescent current	< 28 mA (10 Nm)
	Connected drives (Opener drive)	with S3 / S12
<b>P<sub>N</sub></b>	Rated power	19 W
<b>DC</b>	Duty cycle	5 cycles (ED 30 % - ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... + 60 °C
<b>M</b>	Torque max.	10 Nm
<b>F<sub>H</sub></b>	Initial torque	22 Nm
	Rotating angle direction	yes (self-learning)
	Rotating angle	90 ° / 180° (right / left)
<b>t</b>	Runtime	90° - 4,5 s; 180° - 9,0 s
<b>s</b>	Connecting cable	non-halogen, grey 3 x 0,5 mm <sup>2</sup> , ~ 3 m
	Housing	ABS, greywhite
<b>L</b>	Dimensions (B x H x T)	40 x 156 x 83,5 mm
	Sound pressure level	≤ 70 dB (A)

### In delivery


- 1x Mounting plate with Vk7x55
- 2x Countersunk screw M5x40
- 1x Spax-Countersunk screw 4,5x30
- 1x Countersunk screw M5x16
- 2x Head screw M 5 x 16
- 2x Spring rings
- 1x Warning label

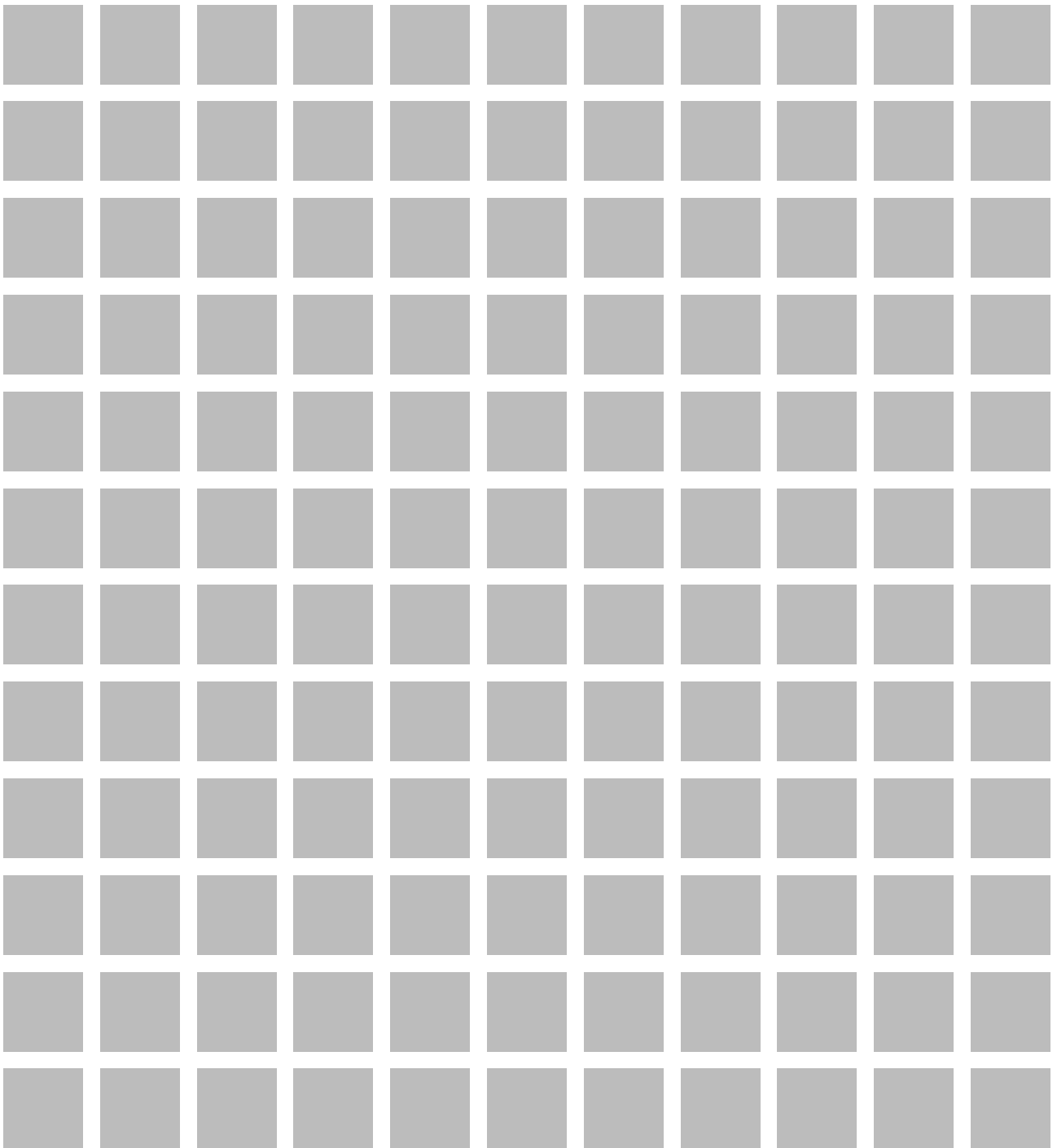


### ORDER DATA

Version	PU/pcs.	Part.-No.			
OFV1 M-COM	1	513860			

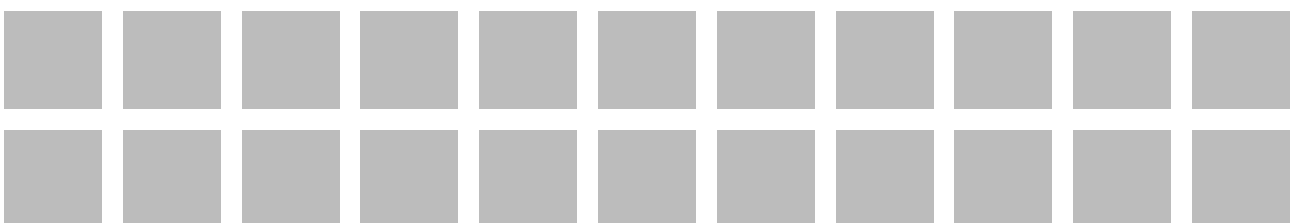
## OPTIONAL ACCESSORIES

Main control unit			
M-COM		<p><b>Application</b></p> <p><b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12 / S3 in synchronised multi-drive systems</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt;12 mA</p> <p><b>Drive type:</b> S12</p>	<p><b>Part.-No. 524177</b></p> <p><b>Protection rating</b> IP30 rubber coated</p> <p><b>Ambient temperature range</b> 0 °C ... + 70 °C</p> <p><b>Dimensions</b> 45 x 17 x 6 mm</p> <p><b>Connecting wires</b> 3 wires 0,5 mm<sup>2</sup> x 50 mm</p> <p><b>Feature/Equipment</b> Printed circuit board with components and connection wires to be installed in connection box to be supplied on site</p>



# 7

## Hardware sets





**RWA 1000**

### RWA 1000

- Model 24V DC
- Application Bottom-hung / Top-hung / Side-hung inward opening windows
- Opening drives PL6 S1 (600 N) / PL10 S1 (1000 N) on the side closing edeg (NSK)
- Locking drives FV3 / OFV / (FV1 with USKM) on the main closing edge (HSK)
- Frame brackets K15 (H = 150 mm), B20 für FV3 (FM)
- Casement brackets F11
- Version Opening drives Solo / TE = Tandem (with USKM)
- Protection rating IP32

**RWA  
1000**



**RWA 1100**

### RWA 1100

- Model 24V DC
- Application Bottom-hung / Top-hung / Side-hung ourward opening windows
- Opening drives PL6 S1 (600 N) / PL10 S1 (1000 N) on the side closing edeg (NSK)
- Locking drives FV3 / (FV1 with USKM) on the main closing edge (HSK)
- Frame brackets K15 (H = 150 mm) / K37 (H = 250 mm) / B20
- Casement brackets F11
- Version Opening drives Solo / TE = Tandem (with USKM)
- Protection rating IP32

**RWA  
1100**



**RWA 1050**

### RWA 1050

- Model 24V DC
- Application Side-hung inward opening windows
- Opening drives PL6 S1 (600 N) / PL10 S1 (1000 N) on the side closing edeg (NSK)
- Locking drives FV3 / OFV / (FV1 with USKM) on the main closing edge (HSK)
- Frame brackets K97 right hand / left hand
- Casement brackets F11
- Version Opening drives Solo / TE = Tandem (with USKM)
- Protection rating IP32

**RWA  
1050**

RWA HARDWARE SYSTEMS																												
RWA hardware system	Rated voltage	Locking drive			Opening drives	Accessories			Casement dimensions						Required mounting space	Use			Location									
		Type	Number of VP	Length		Control modules Accessories	Frame bracket	Casement bracket	Bottom-/top-hung			Side-hung				Natural ventilation	RWA	NRWG	Facade		Roof							
									FAB	FAH	max. weight	FAB	FAH	max. weight					inward	outward								
									[mm]	[mm]	[Kg]	[mm]	[mm]	[Kg]								[mm]						
1000	24	FV3	1 (*1)	450	PL6	K15	F11	500	600	50	600	500	90	40	●	●	●	●	■	■								
					PL10					(B20-1)	90		- 1500		150	●	●	●	●	■	■							
		OFV	(*2)	PL6	K15					F11	- 1200		- 1500		50	500	- 2400	90	●	●	●	●	■	■				
				PL10											90	- 1500	150	●	●	●	●	■	■					
1000-TE	24	FV1	2; 3	1200	2x PL6	USKM	2x K15	2x F11	1250	600	90	600	1250	40	●	●	●	●	■	■								
					2x PL10						- 2400		160		- 2400	200	●	●	●	●	■	■						
			3	2000	2x PL6						USKM		2x K15		2x F11	2050	- 2000	90	- 1500	2050	130	●	●	●	●	■	■	
					2x PL10													- 2400	160	- 2400	200	●	●	●	●	■	■	
		OFV	(*2)	2x PL6	USKM	2x K15	2x F11	500	600	50	500	500	90	●	●	●	●	■	■									
				2x PL10						- 1200	- 1500	90	- 1500	- 2400	150	●	●	●	●	■	■							
1100	24	FV3 (*2)	1 (*1)	450	PL6	B21-1	K15 (K37)	F11	500	800	70	600	500	40	●	●	●	■	●	■								
					PL10						- 1200		- 1600		120	- 1500	- 2400	150	●	●	●	■	●	■				
1100-TE	24	FV1 (*2)	2; 3	1200	2x PL6	USKM (B20-2)	2x K15 (2x K37)	2x F11	1250	800	130	600	1250	40	●	●	●	■	●	■								
					2x PL10						- 2400		200		- 2400	200	●	●	●	■	●	■						
			3	2000	2x PL6						USKM (B20-3)		2x K15 (2x K37)		2x F11	2050	- 2000	130	- 1500	2050	130	●	●	●	■	●	■	
					2x PL10													- 2400	200	- 2400	200	●	●	●	■	●	■	
1050	24	FV3 (*2)	(*2)	450	PL6	K97 (re/li)	F11	500	500	550	- 1250	- 1500	90	22	●	●	●	●	■	■								
					PL10								130		●	●	●	●	■	■								
		OFV			PL6								90		●	●	●	●	■	■								
					PL10								130		●	●	●	●	■	■								
1050-TE	24	FV1	(*1)	450	2x PL6	USKM	K97 R+L	2x F11	500	- 1500	500	- 2400	130	22	●	●	●	●	■	■								
					2x PL10								150		●	●	●	●	■	■								
		OFV			(*2)								2x PL6		USKM	K97 R+L	2x F11	500	- 1500	500	- 2400	130	●	●	●	●	■	■
													2x PL10									150	●	●	●	●	■	■

LEGEND

● suitable ■ not recommended

(\*1) On the main closing edge of side -hung windows use of FV with 2 or 3 locking points (VP) is possible  
 (\*2) Window specific multi-locking system

OVERVIEW OF SPINDLE DRIVES																	
Opening drives	Version		Stroke	Force		Speed		Stroke in	Cut-off current	Use			Location		Function		
	Cut-off switch	Rated voltage	up – to	Pulling force	Pushing force	OPEN	ZU	60 s	Max.	Natural ventilation	RWA	NRWG	Facade	Roof	Run monitoring	Synchronised run	Sequence control
		[VDC]	[mm]	[N]	[N]			[mm]	[A]								
PL6	S1	24	100–300	600	600	5,8	5,8	350	0,8	●	●	●	●		○		○
PL10	S1	24	100–300	1000	1000	2,6	2,6	150	0,8	●	●	●	●		○		○

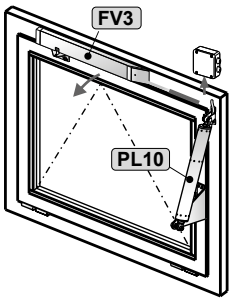
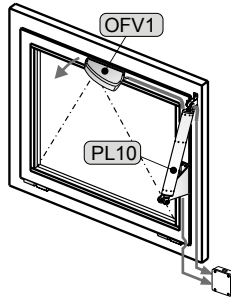
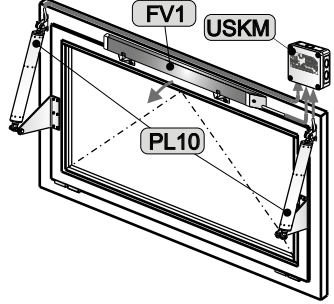
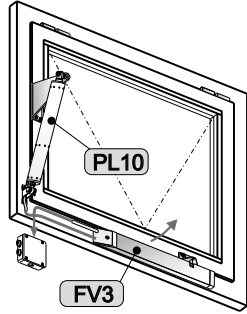
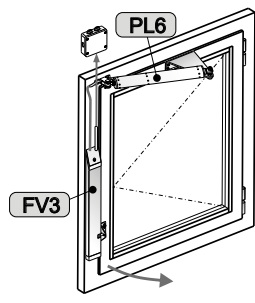
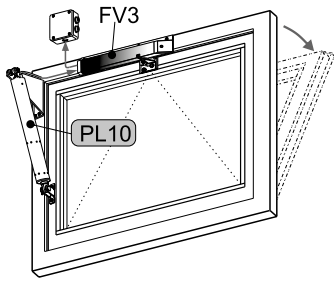
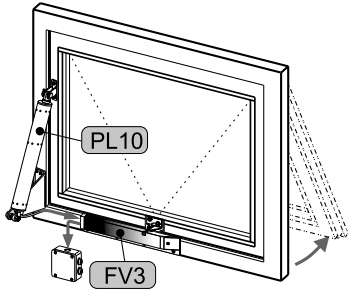
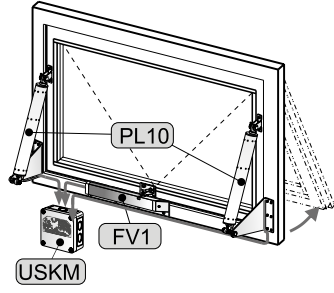
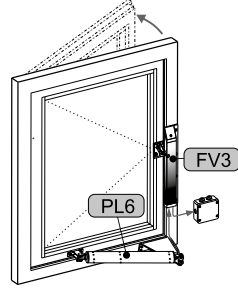
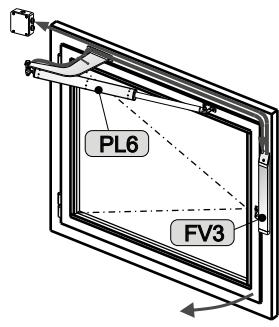
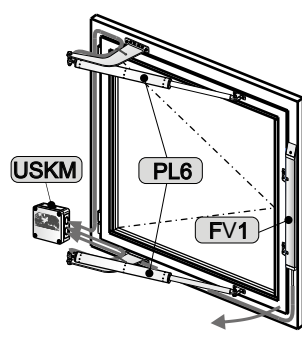
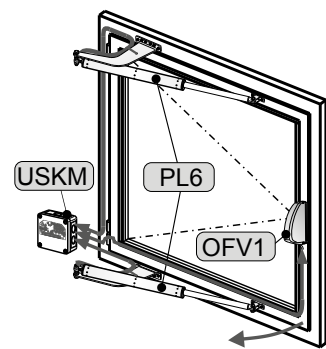
OVERVIEW OF LOCKING DRIVES																		
Locking drives	Locking stroke (Rotating angle)	Rated voltage	Force (Torque)		Runtime	Close circuit current	Opening drives		Use			Location		Functions				
			Pulling/Pushing force	Initial force (torque)			Model	Cut-off current	Natural ventilation	RWA	NRWG	Facade	Roof	Run monitoring	Synchronised run	Sequence control		
	[mm]	[VDC]	[N]	[Nm]	[s]	[A]		[A]										
FV1		24	600	1000	5,0	0,3		○	○	●	●	●	●					○
FV3		24	600	1000	5,0	0,3	S1	0,8	●	●	●	●						●
OFV	90° – 180°	24	10 Nm	22 Nm	4,5/9,0	0,3	S1	0,9–3,0	●	●	●	●						●

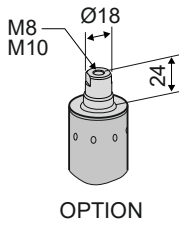
### LEGEND

● suitable    ■ not recommended

S1 without internal cut-off switch for operation with RWA1000-, RWA1100-, RWA1050-systems

○ only with external cut-off switch or control module USKM

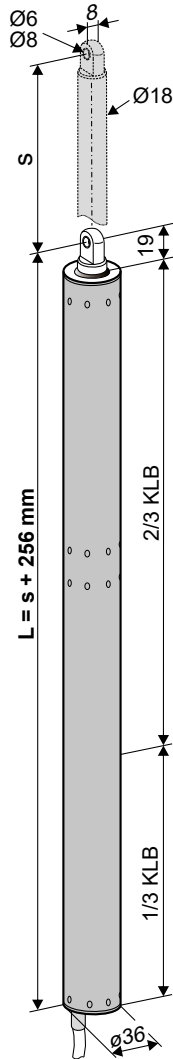
TYPICAL APPLICATION		
<p>RWA1000 – inward opening</p>  <p>View on bottom-hung window</p>	<p>RWA1000 – inward opening</p>  <p>View on bottom-hung window</p>	<p>RWA1000 TE – inward opening</p>  <p>View on bottom-hung window</p>
<p>RWA1000 – inward opening</p>  <p>View on top-hung window</p>	<p>RWA1000 – inward opening</p>  <p>View on side-hung window</p>	<p>RWA1100 – outward opening</p>  <p>View on bottom-hung window</p>
<p>RWA1100 – outward opening</p>  <p>View on top-hung window</p>	<p>RWA1100 TE – outward opening</p>  <p>View on top-hung window</p>	<p>RWA1100 – outward opening</p>  <p>View on side-hung window</p>
<p>RWA1050 – inward opening</p>  <p>View on side-hung window</p>	<p>RWA1050 TE – inward opening</p>  <p>View on side-hung window</p>	<p>RWA1050 TE – inward opening</p>  <p>View on side-hung window</p>



- Application: natural ventilation, RWA, ferralux®-NRWG
- Force: PL6 = 600 N / PL10 = 1000 N
- Without internal cut-off switch – external cut-off switch required! (control module USKM or locking drive FV3 / OFV1)

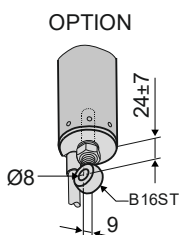
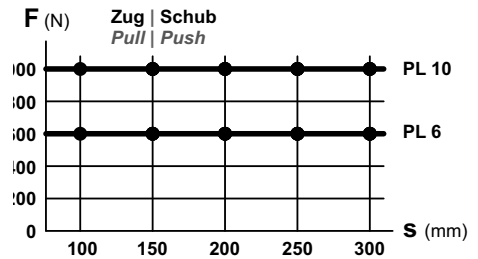
**Options**

- Rear eye bolt, spindle tube with interior thread for clevis



**TECHNICAL DATA**

<b>U<sub>N</sub></b>	Rated voltage	24 V DC (19 V ... 28 V)
<b>I<sub>N</sub></b>	Rated current	0,6 A
<b>I<sub>A</sub></b>	Cut-off current	0,8 A
<b>P<sub>N</sub></b>	Rated power	15 W
<b>DC</b>	Duty cycle	5 cycles (ED 20% - ON: 2 min. / OFF: 8 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +60 °C
<b>F<sub>Z</sub></b>	Pulling force max.	PL6 = 600 N PL10 = 1000 N
<b>F<sub>A</sub></b>	Pushing force max.	
<b>F<sub>H</sub></b>	Pullout force	5000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 2 x 0,75 mm <sup>2</sup> , ~ 3 m
<b>v</b>	Speed	PL6  5,8 mm/s  5,8 mm/s PL10  2,6 mm/s  2,6 mm/s
<b>s</b>	Stroke	100 – 300 mm
<b>L</b>	Length	s + 256 mm see order data
	Sound pressure level	≤ 70 dB (A)





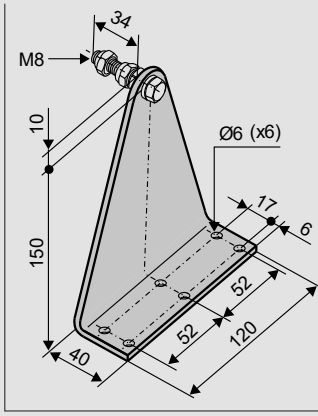
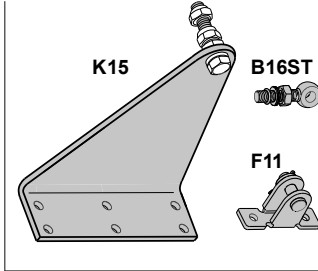
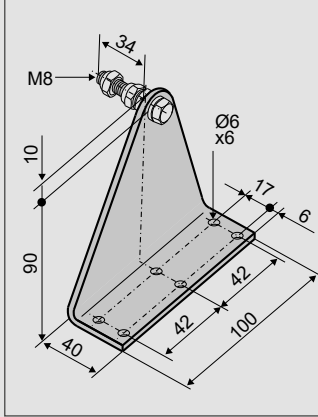
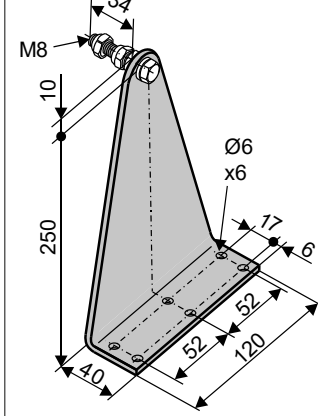
ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	356	PL6 100 S1	E6/C-0	1	<b>562010</b>	
		PL10 100 S1		1	<b>565010</b>	
150	406	PL6 150 S1	E6/C-0	1	<b>562015</b>	
		PL10 150 S1		1	<b>565015</b>	
200	456	PL6 200 S1	E6/C-0	1	<b>562020</b>	
		PL10 200 S1		1	<b>565020</b>	
250	506	PL6 250 S1	E6/C-0	1	<b>562025</b>	
		PL10 250 S1		1	<b>565025</b>	
300	556	PL6 300 S1	E6/C-0	1	<b>562030</b>	
		PL10 300 S1		1	<b>565030</b>	

OPTIONS						
Special model				PU/pcs.	Part.-No.	
<b>Front suspension</b>						
Pushing rod end with interior thread M8				1	<b>515061</b>	
Pushing rod end with interior thread M10				1	<b>515060</b>	
<b>Drive housing painted/powder coated in other RAL colours</b>						
Lump sum for coating					<b>516030</b>	
Specify at order stage:				1 – 20	<b>516004</b>	
				21 – 50	<b>516004</b>	
				51 – 100	<b>516004</b>	
				from 101	<b>516004</b>	
<b>Extra length connecting cable:</b>						
5 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					<b>501024</b>	
10 m – non-halogen, grey – 2 x 0,75 mm <sup>2</sup>					<b>501026</b>	
<b>Accessories for fron / rear suspension</b>						
				PU/pcs.	Part.-No.	
<b>Rear Suspension</b>						
B16ST Eyebolt Ø8 mm, galvanized				1	<b>100044</b>	
B16VA Eyebolt Ø8 mm, stainless steel				1	<b>100144</b>	
B27ST clevis M8x16 mm, galvanized, Grubscrew M8x45 mm				1	<b>105510</b>	
<b>External cutt-off switch</b>						
Control module USKM (up to max. s 300 mm)				1	<b>512140</b>	

FRAME BRACKETS

<p><b>F11ST</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of case-ment/window frame profiles of in-/outward opening windows or on skylights, for drives with <b>front or rear suspension</b> with bore <b>Ø8 mm</b>, mounting holes aligned with central axis of drive</p>	<p><b>Part.-No. 151400</b>  <b>Material/Finish</b>          steel galvanized  <b>Feature/Equipment</b>          1x bolt Ø8 mm, washer, cotter pin  <b>Load</b>          max. 3000 N</p>			
<p><b>F11VA</b></p>			<p><b>Part.-No. 151401</b>  <b>Material/Finish</b>          stainless steel</p>			
<p><b>F13</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of case-ment/window frame profiles of in-/outward opening windows or on skylights, for drives with <b>front or rear suspension</b> with bore <b>Ø8 mm</b>, mounting holes not alignet with the central axis of drive</p>	<p><b>Part.-No. 151405</b>  <b>Material/Finish</b>          steel galvanized  <b>Feature/Equipment</b>          1x bolt Ø8 mm, washer, cotter pin  <b>Load</b>          max. 1600 N</p>			

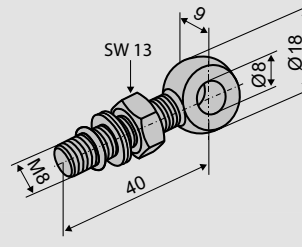
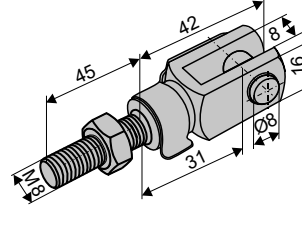
## CASEMENT BRACKETS

<p><b>K15</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of window frame profiles of in-/outward opening windows, by obliquely arranged drives with <b>rear suspension</b> with bore <b>Ø8 mm</b>.  <b>Required space</b> on the frame <b>40 mm</b></p>	<p><b>Part.-No. 307000</b>  <b>Material/Finish</b>  steel galvanized  <b>Feature/Equipment</b>  H=150 mm, t=4 mm</p>	
<p><b>K15-Set</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> like RWA-1000/1100 hardware sets.  <b>Required space</b> on the frame <b>40 mm</b></p>	<p><b>Part.-No. 517590</b>  <b>Material/Finish</b>  steel galvanized  <b>Feature/Equipment</b>  Set:  1x K15  1x F11ST  1x B16ST</p>	
<p><b>K16</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of window frame profiles of in-/outward opening windows, by obliquely arranged drives with <b>rear suspension</b> with bore <b>Ø8 mm</b>.  <b>Required space</b> on the frame <b>40 mm</b></p>	<p><b>Part.-No. 307200</b>  <b>Material/Finish</b>  steel galvanized  <b>Feature/Equipment</b>  H=90 mm, t=4 mm</p>	
<p><b>K37</b></p> 	<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of window frame profiles of in-/outward opening windows, by obliquely arranged drives with rear suspension with bore <b>D = 8 mm</b>.  <b>Required space</b> on the frame <b>40 mm</b></p>	<p><b>Part.-No. 307500</b>  <b>Material/Finish</b>  steel galvanized  <b>Feature/Equipment</b>  H=250 mm, t=5 mm</p>	
<b>Optional accessories</b>			
<p><b>B16ST</b> Eyebolt (Ø8 x 40 mm ST)</p>		<p><b>Part.-No. 100044</b></p>	
<p><b>B16VA</b> Eyebolt (Ø8 x 40 mm VA)</p>		<p><b>Part.-No. 100144</b></p>	

CASEMENT BRACKETS

<p><b>K97L</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of window frame profiles of inward opening side hung windows, by obliquely arranged drives with <b>rear suspension</b> with bore <b>Ø8 mm</b>. <b>Required space on the frame 22 mm</b></p>	<p><b>Part.-No. 160938</b>  <b>Material/Finish</b>                  stainless steel,                  vibratory grinding  <b>Feature/Equipment</b>                  left hand</p>	
<p><b>Optional accessories</b></p>		<p><b>B16ST</b> Eyebolt                  (Ø8 x 40 mm ST)</p>	<p><b>Part.-No. 100044</b></p>	
		<p><b>B16VA</b> Eye bolt                  (Ø8 x 40 mm VA)</p>	<p><b>Part.-No. 100144</b></p>	
<p><b>K97R</b></p>		<p><b>Application</b>  <b>Surface mounting</b> on the <b>side closing edge</b> of window frame profiles of inward opening side hung windows, by obliquely arranged drives with <b>rear suspension</b> with bore <b>Ø8 mm</b>. <b>Required space on the frame 22 mm</b></p>	<p><b>Part.-No. 160939</b>  <b>Material/Finish</b>                  stainless steel,                  vibratory grinding  <b>Feature/Equipment</b>                  right hand</p>	
<p><b>Accessories</b></p>		<p><b>B16ST</b> Eyebolt                  (Ø 8 x 40 mm ST)</p>	<p><b>Part.-No. 100044</b></p>	
		<p><b>B16VA</b> Eyebolt                  (Ø 8 x 40 mm VA)</p>	<p><b>Part.-No. 100144</b></p>	
<p><b>K1050-L</b></p>		<p><b>Application</b>  <b>Surface mounting</b> of drives on the <b>side closing edge</b> like RWA-1050 hardware system. <b>Required space on the frame 22 mm</b></p>	<p><b>Part.-No. 307050</b>  <b>Feature/Equipment</b>                  Set:                  1x K97L                  1x F11                  1x B16ST</p>	
<p><b>K1050-R</b></p>		<p><b>Application</b>  <b>Surface mounting</b> of drives on the <b>side closing edge</b> like RWA-1050 hardware system. <b>Required space on the frame 22 mm</b></p>	<p><b>Part.-No. 307051</b>  <b>Feature/Equipment</b>                  Set:                  1x K97R                  1x F11                  1x B16ST</p>	

## ACCESSORIES

<b>B16ST</b>		<b>Application</b> Rear or front suspension of spindle drives with <b>M8 thread</b> in the rear base piece or in the spindle tube	<b>Part.-No. 100044</b> <b>Material/Finish</b> steel, galvanized <b>Feature/Equipment</b> M8x40 (Eye Ø8 mm), 1x nut M8 + Nordlock-safety-washer + o-ring max. screw-in depth in the drive 25 mm			
<b>B16VA</b>			<b>Part.-No. 100144</b> <b>Material/Finish</b> stainless steel (V2A)			
<b>B27ST</b>		<b>Application</b> Rear or front suspension of spindle drives with <b>M8 thread</b> in the rear base cap or in the spindle tube	<b>Part.-No. 105510</b> <b>Material/Finish</b> steel, galvanized <b>Feature/Equipment</b> Clevis M10 x 40 mm with spring bolt Ø8 mm and thread M8 x 45 mm 1x nut M10 + Nordlock-safety-washer + O-ring, max. screw-in depth in the drive 25 mm			

Special model	PU/pcs.	Part.-No.			
<b>Casement brackets painted / powder coated in other RAL colours</b>					
Lump sum for coating		516030			
Specify at order stage:	1 – 20	516032			
	21 – 50	516032			
	51 – 100	516032			
	from 101	516032			
<b>Frame brackets painted / powder coated in other RAL colours</b>					
Lump sum for coating		516030			
Specify at order stage:	1 – 20	516031			
	21 – 50	516031			
	51 – 100	516031			
	from 101	516031			



### SPECIAL FEATURES RWA1000

- For natural ventilation, smoke and heat exhausting and ferralux® NRWG (EN12101-2)
- Suitable for inwards opening bottom/top/side-hung windows
- Large opening angles realized with short strokes and opening times due to the mounting of the spindle drives at an acute angle to the side closing edge
- Maximum opening angles and balanced force-stroke ratio with K15 mounted on the side closing edge of the casement profile at app. 1/3 of the casement length related to the hinge side
- Other combinations of various spindle drives in SOLO or TANDEM arrangements with locking actuators for actuating of window profile-specific hardware systems on request

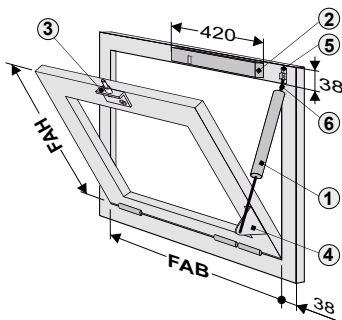
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MOUNTING DIMENSIONS OF RWA1000 FOR BOTTOM-/TOP-HUNG INWARD OPENING WINDOWS																	
Hardware set	Frame bracket	Stroke of the opening drive	CASEMENT CLOSED				Mounting dimension „X“ (*1 *2)	FAH (NSK) (side closing edge)	Opening angle	Opening width	CASEMENT OPEN				Required space on the window frame		FAB (HSK)
			Angle of the drive force application	Applied force at the drive fixing point		Angle of the drive force application					Applied force at the drive fixing point		Weight of the casement (max.)				
				PL6	PL10						PL6	PL10	PL6	PL10	NSK	HSK	
[DEG]	[N]	[N]	[mm]	[mm]	[DEG]	[mm]	[DEG]	[N]	[N]	[Kg]	[Kg]	[mm]	[mm]				
RWA 1000 (*3)	K15	100	19	195	326	200	560	25	242	48	447	745	32	53	40	40	
						250	610	22	233	47	442	736	36	60			
						300	660	20	229	47	437	729	40	66			
						400	760	17	225	46	430	717	45	75			
						500	860	15	225	47	442	736	51	86			
						600	960	13	217	45	422	703	53	88			
		150	16	165	276	225	645	34	377	57	503	838	35	58	40	40	
						275	695	30	360	55	490	817	39	65			
						325	745	28	360	54	487	811	42	71			
						450	870	23	347	52	474	790	49	82			
						550	970	20	337	51	467	778	53	88			
						650	1070	18	335	50	462	769	56	93			
	200	15	155	259	250	720	42	516	64	541	902	38	63	40	40		
					300	770	38	501	62	531	885	41	69				
					350	820	35	493	61	523	872	45	74				
					400	870	32	480	59	516	861	47	79				
					500	970	27	453	57	503	839	52	86				
					600	1070	24	445	56	497	829	56	93				
					700	1170	22	446	55	491	818	59	98				
					800	1270	20	441	54	486	810	61	102				
	250	13	135	225	275	795	50	672	71	567	945	39	65	40	40		
					325	845	45	647	68	557	928	43	71				
					375	895	41	627	66	549	915	46	77				
					425	945	38	615	65	544	906	49	81				
					550	1070	31	572	62	528	880	54	90				
					650	1170	28	566	60	519	865	58	96				
					750	1270	25	550	59	513	854	61	101				
					850	1370	23	546	58	507	844	63	105				
	300	12	125	208	300	870	56	817	77	584	973	40	67	40	40		
					350	920	51	792	74	576	959	44	73				
					400	970	46	758	71	569	948	47	78				
					450	1020	43	748	69	561	935	50	83				
					500	1070	40	732	68	555	925	52	86				
					600	1170	35	704	65	544	907	56	93				
					700	1270	31	679	63	536	893	59	98				
					800	1370	28	663	62	529	882	62	103				
900					1470	26	661	61	523	872	64	107					
1000					1570	24	653	60	519	864	66	110					

Depends of the used locking drive (\*4)

(\*1 Mounting measure „X“ = distance **K15** to **hinge side** (≥ 1/3 FAH)  
 (\*2 Other mounting measure and wing heights on request

(\*3 For RWA1000TE (tandem) the drive forces and the max. window weights are doubled!  
 (\*4 FV1 – 1x = 450 mm  
 FV1 – 2x = 1200 or 2000 mm  
 FV1 – 3x = 2000 mm



① 1x **PL10 S1**  
(100 / 150 / 200 / 300 mm)



② 1x **FV3-R (1x) L = 420 mm**

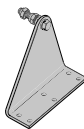


③ incl. **B18**



1 x **K15-Set:**

④ 1x **K15**



⑤ 1x **F11**



⑥ 1x **B16ST (8x40)**



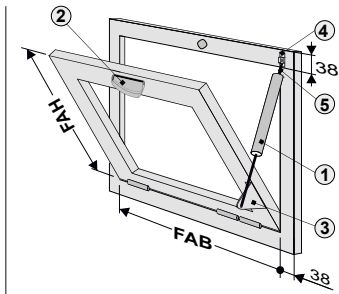
## ORDER DATA

	Part.-No.		
<b>Components</b>			
<b>1x PL10 S1</b>			
PL10-100 (FAH min. 550 mm)	<b>565010</b>		
PL10-150 (FAH min. 600 mm)	<b>565015</b>		
PL10-200 (FAH min. 700 mm)	<b>565020</b>		
PL10-300 (FAH min. 1000 mm)	<b>565030</b>		
<b>1x FV3-R L= 420 mm</b>			
FV3-R (1x) FAB min. 450 mm	<b>515102</b>		
<b>1x Frame bracket set</b>			
K15 Set	<b>517590</b>		
<b>Optional accessories</b>			
B21-1 base plate FV L = 420; FÜ > 10 mm	<b>515181</b>		
B22 base plate for B18 glazing bead	<b>301599</b>		

## Installation requirements

Opening direction	inward
Drive length (eye bolt – eye bolt)	280 ± 7 mm + Stroke
Required mounting space FV (on the window frame profile)	min. 38 mm
Required mounting space PL (on the window frame profile)	min. 38 mm
Weight of the casement	max. 30 kg/m <sup>2</sup>
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24 V DC (19 V ... 28 V)
Cut-off current	0,8 A
Rated power	15 W

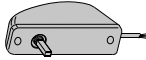




① 1x **PL10 S1**  
(100 / 150 / 200 / 300 mm)

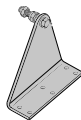


② 1x **OFV1**



1 x **K15-Set**

③ 1x **K15**



④ 1x **F11**



⑤ 1x **B16ST (8x40)**

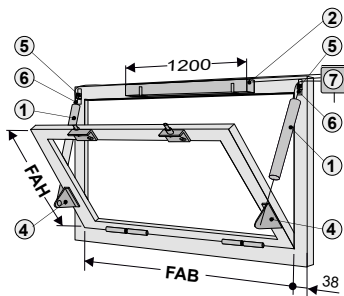


### ORDER DATA

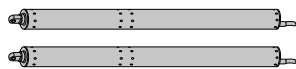
	Part.-No.		
<b>Components</b>			
<b>1x PL10 S1</b>			
PL10-100 (FAH min. 550 mm)	<b>565010</b>		
PL10-150 (FAH min. 600 mm)	<b>565015</b>		
PL10-200 (FAH min. 700 mm)	<b>565020</b>		
PL10-300 (FAH min. 1000 mm)	<b>565030</b>		
<b>1x OFV1</b>			
OFV1 (FAB min. 450 mm)	<b>513850</b>		
<b>1x Frame bracket set</b>			
K15 Set	<b>517590</b>		

### Installation requirements

Opening direction	inward
Drive length (eye bolt – eye bolt)	280 ± 7 mm + Stroke
Required mounting space OFV (on the casemnet profile)	min. 40 mm
Required mounting space PL (on the window frame profile)	min. 38 mm
Weight of the casement	max. 30 kg/m <sup>2</sup>
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24 V DC (19 V ... 28 V)
Cut-off current	1,1 A
Rated power	26 W



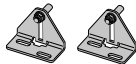
① 2x **PL 10 S1**  
(100 / 150 / 200 / 300 mm)



② 1x **FV1** (2x) L= 1200 mm

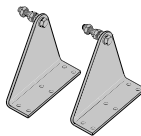


③ incl. 2x **B18**

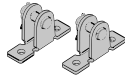


2x **K15-Set**

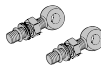
④ 2x **K15**



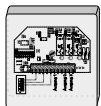
⑤ 2x **F11**



⑥ 2x **B16ST** (8x40)



⑦ 1x **USKM**

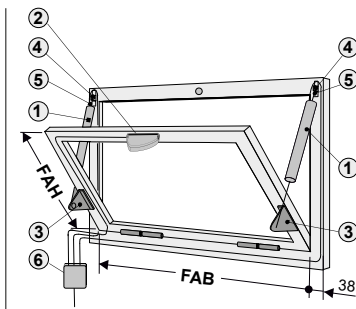


## ORDER DATA

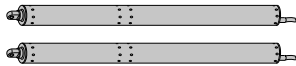
	Part.-No.		
<b>Components</b>			
<b>2x PL10 S1 (price per drive)</b>			
PL10-100 (FAH min. 550 mm)	<b>565010</b>		
PL10-150 (FAH min. 600 mm)	<b>565015</b>		
PL10-200 (FAH min. 700 mm)	<b>565020</b>		
PL10-300 (FAH min. 1000 mm)	<b>565030</b>		
<b>1x FV1-R L= 1200 mm</b>			
FV1-R (2x) ( FAB min. 1200 mm)	<b>515111</b>		
<b>2x Frame bracket set (price per frame bracket set)</b>			
K15 Set	<b>517590</b>		
<b>1x Control module</b>			
USKM	<b>512140</b>		
<b>Optional accessories</b>			
B21-2 base plate FV L = 1200; FÜ>10 mm	<b>515183</b>		
B22 base plate for B18 glazing bead	<b>301599</b>		

## Installation requirements

Opening direction	inward
Drive length (eye bolt – eye bolt)	280 ± 7 mm + Stroke
Required mounting space FV (on the window frame profile)	min. 38 mm
Required mounting space PL (on the window frame profile)	min. 38 mm
Weight of the casement	max. 30 kg/m <sup>2</sup>
Width of the casement (FAB)	1200 – 2500 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24 V DC (19 V ... 28 V)
Cut-off current	1,6 A
Rated power	30 W



① 2x **PL10 S1**  
(100 / 150 / 200 / 300 mm)

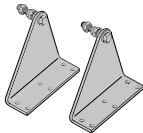


② 1x **OFV1**

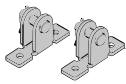


2 x **K15-Set**

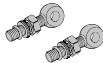
③ 2x **K15**



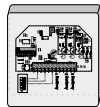
④ 2x **F11**



⑤ 2x **B16ST (8x40)**



⑥ 1x **USKM**



### ORDER DATA

	Part.-No.		
<b>Components</b>			
<b>2x PL10 S1 (price per drive)</b>			
PL10-100 (FAH min. 550 mm)	565010		
PL10-150 (FAH min. 600 mm)	565015		
PL10-200 (FAH min. 700 mm)	565020		
PL10-300 (FAH min. 1000 mm)	565030		
<b>1x OFV1</b>			
OFV1 (FAB min. 450 mm)	513850		
<b>2x Frame bracket set (price per frame bracket set)</b>			
K15 Set	517590		
<b>1x Control module</b>			
USKM	512140		

### Installation requirements

Opening direction	inward
Drive length (eye bolt – eye bolt)	280 ± 7 mm + Stroke
Required mounting space OFV (on the casemnet profile)	min. 40 mm
Required mounting space PL (On the window frame profile)	min. 38 mm
Weight of the casement	max. 30 kg/m <sup>2</sup>
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24 V DC (19 V ... 28 V)
Cut-off current	1,6 A
Rated power	30 W



### SPECIAL FEATURES RWA1100

- For natural ventilation, smoke and heat exhausting and ferralux® NRWG (EN12101-2)
- Suitable for outward opening bottom/top/side-hung windows
- Large opening angles realized with short strokes and opening times due to the mounting of the spindle drives at an acute angle to the side closing edge
- Maximum opening angle and balanced force-stroke ratio with casement bracket F11 mounted on the side closing edge of the casement profile at
  - app. 1/2 of the casement length if using K15
  - app. 1/3 of the casement length related to the hinge side if using K37
- Other combinations of various spindle drives in SOLO or TANDEM arrangements with locking actuators for actuating of window profile-specific hardware systems on request
- Use for skylights on request

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**MOUNTING DIMENSION OF RWA1100 FOR BOTTOM-/TOP-HUNG OUTWARD OPENING WINDOWS**

Hardware set	Frame bracket	Stroke of the opening drive	CASEMENT CLOSED				Mounting dimension „X“ (*1 (*2)	FAH (NSK) (side closing edge)	Opening angle	Opening width	CASEMENT OPEN			Weight of the casement (max.)		Required space on the window frame		FAB (HSK)
			Angle of the drive force application	Applied force at the drive fixing point		Angle of the drive force application					Applied force at the drive fixing point		PL6	PL10	NSK	HSK		
				[DEG]	PL6						PL10	[N]					[N]	
RWA 1100 (*3)	K15	100	19	194	324	400	800	26	365	67	554	923	55	92	40	40		
						500	900	23	360	64	537	896	60	100				
						600	1000	18	320	60	519	865	62	104				
		150	17	171	286	450	900	33	516	75	580	966	58	97	40			
						550	1000	28	479	69	559	932	61	103				
						650	1100	24	450	66	549	914	65	108				
						750	1200	21	429	63	536	894	67	112				
		200	15	153	255	500	1000	38	648	79	590	983	59	98	40	40		
						600	1100	32	608	74	577	962	63	105				
						700	1200	28	577	71	566	943	66	110				
						800	1300	25	554	88	600	999	74	123				
						900	1400	22	534	66	546	910	70	117				
	250	13	139	232	550	1100	41	778	82	595	991	60	99	40	40			
					650	1200	36	736	78	586	976	63	106					
					750	1300	31	704	74	576	961	66	111					
					850	1400	28	684	72	571	952	69	116					
					950	1500	25	657	69	559	932	71	118					
	250	12	127	211	600	1200	44	907	85	598	996	60	100	40	40			
					700	1300	39	861	80	591	985	64	106					
					800	1400	34	828	77	584	973	67	111					
					900	1500	31	799	74	576	960	69	115					
					1000	1600	28	777	72	569	948	71	119					
					1100	1700	26	756	70	563	938	73	121					
	K37	100	36	352	586	200	600	42	425	94	599	998	40	67	40	40		
300						700	28	342	80	591	985	51	84					
400						800	21	296	73	573	955	57	96					
150		31	312	520	250	650	42	527	97	595	992	46	76	40	40			
					350	750	35	452	85	598	996	56	93					
					450	850	28	407	78	586	976	62	103					
					550	950	23	376	73	573	955	66	111					
200		28	279	465	300	750	52	659	99	593	988	47	79	40	40			
					400	850	40	583	88	600	999	56	94					
					500	950	24	390	81	593	988	62	104					
					600	1050	28	499	76	583	972	67	111					
					800	1150	24	474	73	573	956	70	116					
250	25	253	421	350	850	55	786	100	591	984	49	81	40	40				
				450	950	44	712	90	600	1000	57	95						
				550	1050	37	661	84	596	994	62	104						
				650	1150	31	622	79	589	982	67	111						
				750	1250	28	594	76	581	969	70	116						
				850	1350	25	573	73	573	956	72	120						
300	23	231	384	400	1000	58	962	101	589	982	47	79	40	40				
				500	1100	47	879	92	600	999	55	91						
				600	1200	40	821	86	598	997	60	100						
				700	1300	35	775	81	593	988	64	106						
				800	1400	31	741	78	587	978	67	112						
				900	1500	28	713	75	580	967	70	116						
				1000	1600	25	693	73	574	957	72	120						

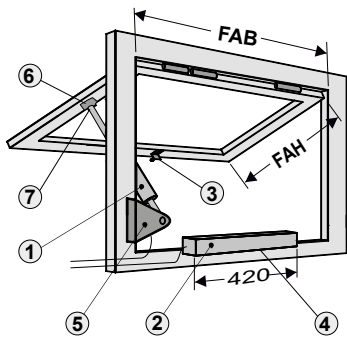
Depends of the used locking drive (\*4)

(\*1 Mounting measure „X“ = distance **F11** to **hinge side** (≥ 1/3 FAH)

(\*2 Other mounting measure and wing heights on request.

(\*3 For the tandem sets RWA1100TE the drive forces and the max. window weights will be correspondingly higher. At outward opening windows the opening drives force axis needs to pass the hinge axis on its outward side with min. 25 mm. The above indicated mounting dimensions are valid for profile depths <75 mm.

(\*4 FV1 – 1x = 450 mm  
FV1 – 2x = 1200 or 2000 mm  
FV1 – 3x = 2000 mm



① 1x **PL10 S1**  
(100 / 150 / 200 / 300 mm)



② 1x **FV3-R (1x) L = 420 mm**



③ incl. **B18**

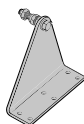


④ 1x **B20-1 (420 mm)**



1 x **K15-Set**

⑤ 1x **K15**



⑥ 1x **F11**



⑦ 1x **B16ST (8x40)**

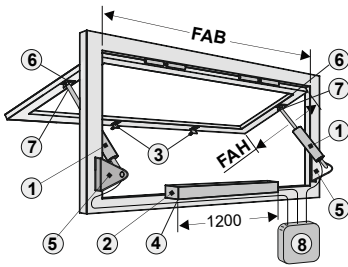


## ORDER DATA

	Part.-No.		
<b>Components</b>			
<b>1x PL10 S1</b>			
PL10-100 (FAH min. 550 mm)	<b>565010</b>		
PL10-150 (FAH min. 600 mm)	<b>565015</b>		
PL10-200 (FAH min. 700 mm)	<b>565020</b>		
PL10-300 (FAH min. 1000 mm)	<b>565030</b>		
<b>1x FV3-R L= 420 mm</b>			
FV3-R (1x) ( FAB min. 450 mm)	<b>515102</b>		
<b>1x Mounting plate</b>			
B20-1 L = 420 mm	<b>515191</b>		
<b>1x Frame bracket set</b>			
K15 Set	<b>517590</b>		
<b>Optional 1x</b>			
1x K37	<b>307500</b>		
1x F11	<b>151400</b>		
1x B16ST	<b>100044</b>		
<b>Optional accessories</b>			
B22 base plate for B18 glazing bead	<b>301599</b>		

## Installation requirements

Opening direction	outward
Drive length (eye bolt – eye bolt)	280 ± 7 mm + Stroke
Required mounting space FV (on the window frame profile)	min. 38 mm
Required mounting space PL (on the window frame profile)	min. 38 mm
Weight of the casement	max. 30 kg/m <sup>2</sup>
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24 V DC (19 V ... 28 V)
Cut-off current	0,8 A
Rated power	15 W



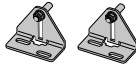
① 2x **PL 10 S1**  
(100 / 150 / 200 / 300 mm)



② 1x **FV1** (2x) L= 1200 mm



③ incl. 2x **B18**

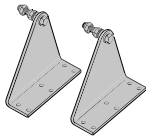


④ 1x **B20-2** (L= 1200 mm)

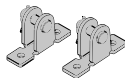


**2x K15-Set**

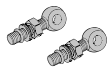
⑤ 2x **K15**



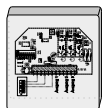
⑥ 2x **F11**



⑦ 2x **B16ST** (8x40)



⑧ 1x **USKM**



### ORDER DATA

	Part.-No.		
<b>Components</b>			
<b>2x PL10 S1 (price per drive)</b>			
PL10-100 (FAH min. 550 mm)	<b>565010</b>		
PL10-150 (FAH min. 600 mm)	<b>565015</b>		
PL10-200 (FAH min. 700 mm)	<b>565020</b>		
PL10-300 (FAH min. 1000 mm)	<b>565030</b>		
<b>1x FV1-R L = 1200 mm</b>			
FV1-R (2x) (FAB min. 1200 mm)	<b>515111</b>		
<b>1x Mounting plate</b>			
B20-2 L = 1200 mm	<b>515193</b>		
<b>2x Frame bracket set (price per frame bracket set)</b>			
K15 Set	<b>517590</b>		
<b>Optional 2x</b>			
K37	<b>307500</b>		
F11	<b>151400</b>		
B16ST	<b>100044</b>		
<b>1x Control module</b>			
USKM	<b>512140</b>		
<b>Optional accessories</b>			
B22 base plate for B18 glazing bead	<b>301599</b>		

### Installation requirements

Opening direction	outward
Drive length (eye bolt – eye bolt)	280 ± 7 mm + Stroke
Required mounting space FV (on the window frame profile)	min. 40 mm
Required mounting space PL (on the window frame profile)	min. 38 mm
Weight of the casement	max. 30 kg/m <sup>2</sup>
Width of the casement (FAB)	1200 – 2500 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24 V DC (19 V ... 28 V)
Cut-off current	1,6 A
Rated power	30 W



### SPECIAL FEATURES RWA1050

- For natural ventilation, smoke and heat exhausting and ferralux® NRWG (EN12101-2)
- Suitable for inward opening side-hung windows
- Opening angles of 90° realized with short strokes and opening times due to the mounting of the spindle drives at an acute angle to the side closing edge and due to the displacement of the pivoted point of the frame bracket behind the mullion/transom construction
- Required space of only 22 mm for the mounting of the frame bracket on the side closing edge of the window frame profile
- Other combinations of various spindle drives in SOLO or TANDEM arrangements with locking actuators for actuating of window profile-specific hardware systems on request

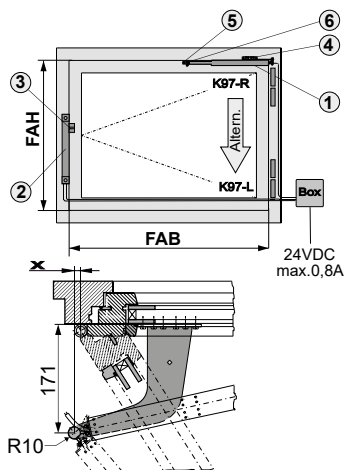
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage [www.aumueller-gmbh.de](http://www.aumueller-gmbh.de).



MOUNTING DIMENSION OF RWA1050 FOR SIDE-HUNG INWARD OPENING WINDOWS																			
hardware set	Frame bracket	Stroke of the opening drive	CASEMENT CLOSED				Mounting dimension „X“	min. FAB (NSK) (side closing edge)	Opening angle	Opening width	CASEMENT OPEN				Weight of the casement (max.)		Required space on the frame		FAH (HSK)
			Angle of the drive force application	Applied force at the drive fixing point		Angle of the drive force application					Applied force at the drive fixing point								
				PL6	PL10						PL6	PL10	PL6	PL10					
			[DEG]	[N]	[N]	[mm]					[mm]	[DEG]	[mm]	[DEG]	[N]	[N]	[Kg]	[Kg]	
RWA 1050 (*1)	K97	100	19	167	279	0	510	35	(*2)	16	163	272	90	130	10	22	500 – 1500		
		150	13	139	232	20	600	55		11	112	187	90	130	30	22			
		200	11	119	198	40	680	75		6	60	100	90	130	50	22			
		250	10	103	172	80	740	85		6	60	100	90	130	90	22			

(\*1 For the tandem sets RWA1100TE the drive forces and the max. window weights will be correspondingly higher.

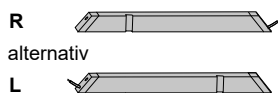
(\*2 Depends on FAB



① 1x PL6 S1  
(100 / 150 / 200 / 250 mm)



② 1x FV3 (1x) L = 420 mm

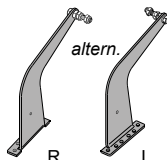


③ inkl. B18



1x K1050-R altern. K1050-L

④ 1x K97



⑤ 1x F11



⑥ 1x B16ST (8x40)

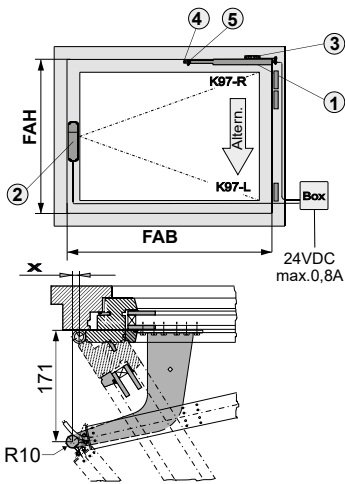


## ORDER DATA

	Part.-No.		
<b>Components</b>			
<b>1x PL6 S1</b>			
PL6-100 (FAB min. 510 mm)	<b>562010</b>		
PL6-150 (FAB min. 600 mm)	<b>562015</b>		
PL6-200 (FAB min. 680 mm)	<b>562020</b>		
PL6-250 (FAB min. 740 mm)	<b>562025</b>		
<b>1x FV3-R L= 420 mm</b>			
FV3-R (1x) ( FAB min. 450 mm)	<b>515102</b>		
<b>1x Frame bracket set</b>			
K1050-R Set	<b>307051</b>		
<b>Alternativ 1x</b>			
K1050-L Set	<b>307050</b>		
<b>Optional accessories</b>			
B22 base plate for B18 glazing bead	<b>301599</b>		

## Installation requirements

Opening direction	inward
Drive length (eye bolt – eye bolt)	280 ± 7 mm + Stroke
Required mounting space FV (on the window frame profile)	min. 38 mm
Required mounting space PL (on the window frame profile)	min. 20 mm
Weight of the casement	max. 30 kg/m <sup>2</sup>
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24 V DC (19 V ... 28 V)
Cut-off current	0,8 A
Rated power	15 W



① 1x PL6 S1  
(100 / 150 / 200 / 250 mm)

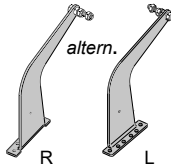


② 1x OFV1



1x K1050-R altern. K1050-L

③ 1x K97



④ 1x F11



⑤ 1x B16ST (8x40)

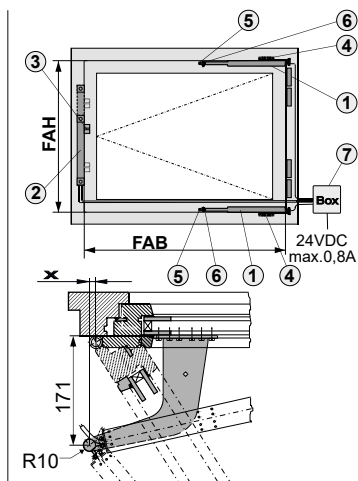


### ORDER DATA

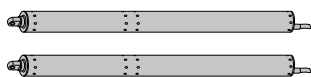
	Part.-No.		
<b>Components</b>			
<b>1x PL6 S1</b>			
PL6-100 (FAB min. 510 mm)	562010		
PL6-150 (FAB min. 600 mm)	562015		
PL6-200 (FAB min. 680 mm)	562020		
PL6-250 (FAB min. 740 mm)	562025		
<b>1x OFV1</b>			
OFV1 (FAH min. 450 mm)	513850		
<b>1x Frame bracket set</b>			
K1050-R Set	307051		
<b>Alternativ 1x</b>			
K1050-L Set	307050		
<b>Optional accessories</b>			
B22 base plate for B18 glazing bead	301599		

### Installation requirements

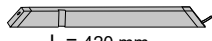
Opening direction	inward
Drive lenght (eye bolt – eye bolt)	280 ± 7 mm + Stroke
Required mounting space OFV (on the casemnet profile)	min. 40 mm
Required mounting space PL (on the window frame profile)	min. 20 mm
Weight of the casement	max. 30 kg/m <sup>2</sup>
Width of the casement (FAB)	1200 – 2500 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24 V DC (19 V ... 28 V)
Cut-off current	1,6 A
Rated power	30 W



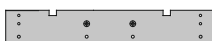
① 2x **PL6 S1**  
(100 / 150 / 200 / 250 mm)



② 1x **FV1-R (1x)** altern. **FV1-L (1x)**  
L = 420 mm



③ 1x **B20-1 (L= 420 mm)**

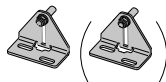


altern.

1x **FV1-R (2x)**

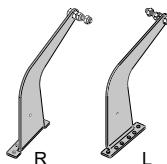
L = 1200 mm

④ incl. **B18**

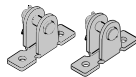


2x **K1050 (1x R + 1x L)**

⑤ 2x **K97**



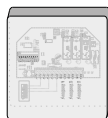
⑥ 2x **F11**



⑦ 2x **B16ST (8x40)**



⑧ 1x **USKM**

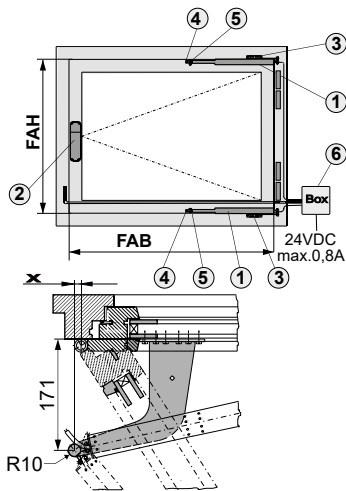


### ORDER DATA

	Part.-No.		
<b>Components</b>			
<b>2x PL6 S1 (price per drive)</b>			
PL6-100 (FAB min. 510 mm)	<b>562010</b>		
PL6-150 (FAB min. 600 mm)	<b>562015</b>		
PL6-200 (FAB min. 680 mm)	<b>562020</b>		
PL6-250 (FAB min. 740 mm)	<b>562025</b>		
<b>1x FV1-R L= 420 mm</b>			
FV1-R (1x) ( FAB min. 450 mm)	<b>515103</b>		
<b>1x Mounting plate</b>			
B21-1 base plate FV L = 420; FÜ>10 mm	<b>515181</b>		
B21-2 base plate FV L = 1200; FÜ>10 mm	<b>515183</b>		
<b>2x Frame bracket set</b>			
K1050-R Set	<b>307051</b>		
K1050-L Set	<b>307050</b>		
<b>1x Control module</b>			
USKM	<b>512140</b>		
<b>Optional accessories</b>			
B22 base plate for B18 glazing bead	<b>301599</b>		

### Installation requirements

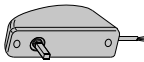
Opening direction	inward
Drive length (eye bolt – eye bolt)	280 ± 7 mm + Stroke
Required mounting space FV (on the window frame profile)	min. 38 mm
Required mounting space PL (on the window frame profile)	min. 20 mm
Weight of the casement	max. 30 kg/m <sup>2</sup>
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24 V DC (19 V ... 28 V)
Cut-off current	0,8 A
Rated power	15 W



① 2x **PL6 S1**  
(100 / 150 / 200 / 250 mm)

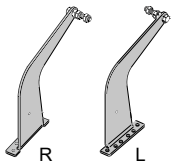


② 1x **OFV1**

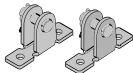


2 **K1050 (1x R + 1x L)**

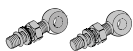
③ 2x **K97**



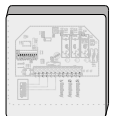
④ 2x **F11**



⑤ 2x **B16ST (8x40)**



⑥ 1x **USKM**

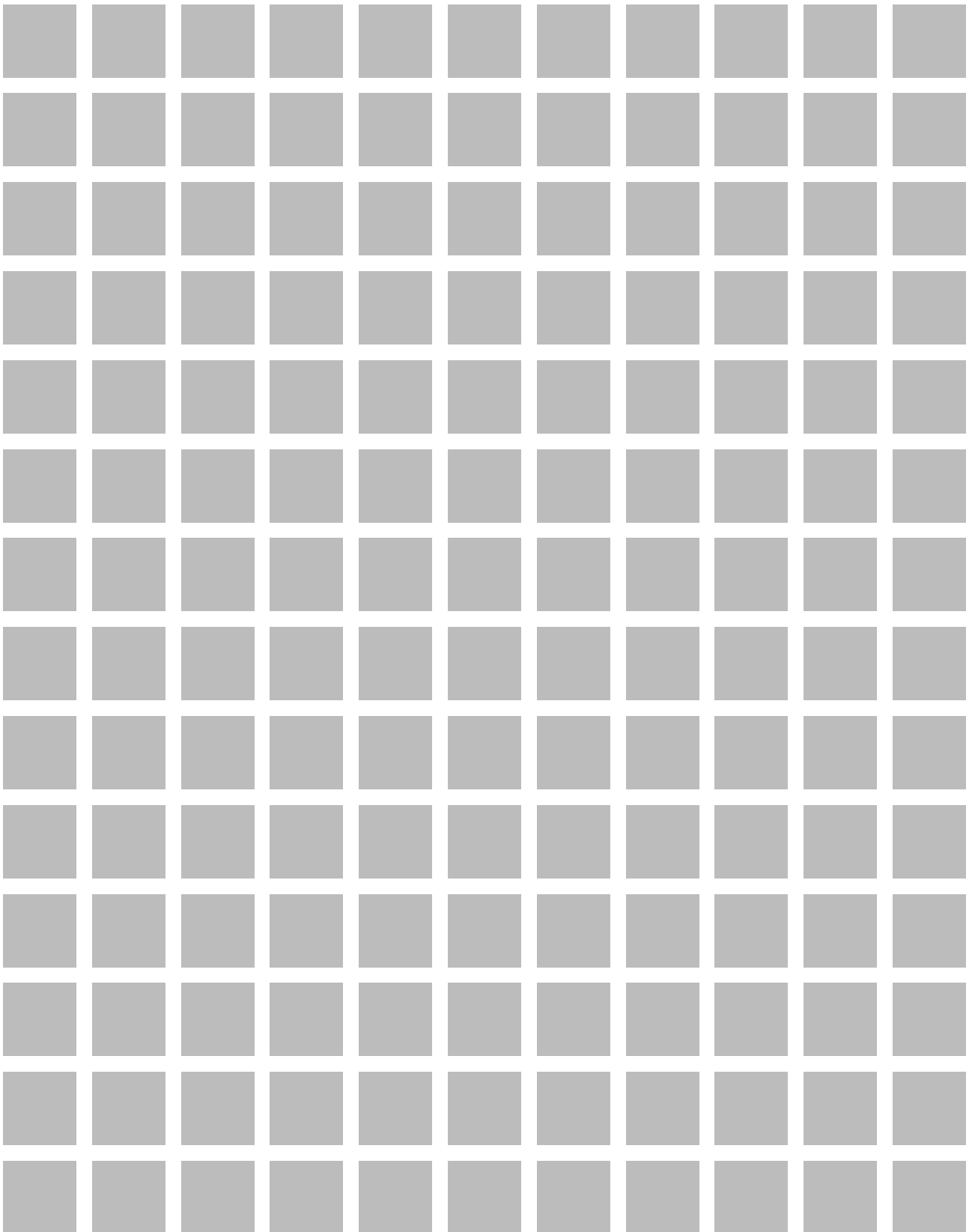


### ORDER DATA

	Part.-No.		
<b>Components</b>			
<b>2x PL6 S1 (price per drive)</b>			
PL6-100 (FAB min. 510 mm)	<b>562010</b>		
PL6-150 (FAB min. 600 mm)	<b>562015</b>		
PL6-200 (FAB min. 680 mm)	<b>562020</b>		
PL6-250 (FAB min. 740 mm)	<b>562025</b>		
<b>1x OFV1</b>			
OFV1 (FAH min. 450 mm)	<b>513850</b>		
<b>2x Frame bracket set</b>			
K1050-R Set	<b>307051</b>		
K1050-L Set	<b>307050</b>		
<b>1x Control module</b>			
USKM	<b>512140</b>		
<b>Optional accessories</b>			
B22 base plate for B18 glazing bead	<b>301599</b>		

### Installation requirements

Opening direction	inward
Drive length (eye bolt – eye bolt)	280 ± 7 mm + Stroke
Required mounting space OFV (on the casemnet profile)	min. 40 mm
Required mounting space PL (on the window frame profile)	min. 20 mm
Weight of the casement	max. 30 kg/m <sup>2</sup>
Width of the casement (FAB)	1200 – 2500 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24 V DC (19 V ... 28 V)
Cut-off current	1,6 A
Rated power	30 W




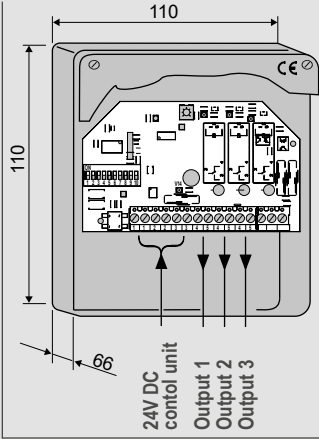
# 8

## Accessories drives

### ACCESSORIES



Main control unit																			
<p><b>M-COM</b></p> 	<p><b>Application</b>  <b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12/ S3 in synchronised multi-drive systems</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt;12 mA</p> <p><b>Drive type:</b> S12</p>	<p><b>Part.-No. 524177</b></p> <p><b>Protection rating</b> IP30 rubber envelope</p> <p><b>Ambient temperature range</b> 0 °C ... + 70 °C</p> <p><b>Dimensions</b> 45 x 17 x 6 mm</p> <p><b>Connecting wires</b> 3 wires 0,5 mm<sup>2</sup> x 50 mm</p> <p><b>Feature/Equipment</b> Printed circuit board with components and connection wires to be installed in connection box to be supplied on site</p>																	
<p><b>M-COM® Click</b></p> 	<p><b>Application</b>  <b>Configuration module</b> for automatic configuration and surveillance of max. 4 opening drives / 2 locking drives version S12/ S3 in synchronised multi-drive systems</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt;12 mA</p> <p><b>Drive type:</b> S12</p>	<p><b>Part.-No. 524167</b></p> <p><b>Protection rating</b> IP30</p> <p><b>Ambient temperature range:</b> -5 °C ... +70 °C</p> <p><b>Dimensions:</b> 40 x 26 x 15 mm</p> <p><b>Connection:</b> for <b>AUMÜLLER</b> chain drives with <b>Wire Click</b></p> <p><b>Equipment</b> Tongs for removing the M-COM® Click</p>																	
Plug solution																			
<p><b>Wire Click</b></p>  <p>View: 24V</p>	<p><b>Wire Click:</b> Unified plug solution for <b>AUMÜLLER</b> chain drives and <b>AUMÜLLER</b> folding arm drives.</p> <p><b>Rated voltage:</b> 24 V DC (19 V ... 28 V) 230 V AC (± 20 %), max. 2 Vpp</p> <p><b>Connecting cable:</b> non-halogen, grey 5 x 0,5 mm<sup>2</sup> (24V) 6 x 0,75 mm<sup>2</sup> (230V)</p> <p><b>Terminal:</b> to 1,5 mm<sup>2</sup></p>	<p><b>Feature/Equipment</b></p> <ul style="list-style-type: none"> <li>• Flexible cable length</li> <li>• Connect multiple drives in series connection</li> <li>• Torsion-plug</li> <li>• Locking hooks prevent withdrawal of the plug under tensile load</li> <li>• Strain relief according DIN EN 60335-1 by screwing the housing halves</li> </ul>	<table border="1"> <thead> <tr> <th colspan="2">VARIANTS: 24V</th> </tr> </thead> <tbody> <tr> <td>3 m cable length - 24V DC</td> <td>Part.-No. 501251</td> </tr> <tr> <td>5 m cable length - 24V DC</td> <td>Part.-No. 501252</td> </tr> <tr> <td>10 m cable length - 24V DC</td> <td>Part.-No. 501253</td> </tr> <tr> <th colspan="2">VARIANTS: 230V</th> </tr> <tr> <td>3 m cable length - 230V AC</td> <td>Part.-No. 501273</td> </tr> <tr> <td>5 m cable length - 230V AC</td> <td>Part.-No. 501275</td> </tr> <tr> <td>10 m cable length - 230V AC</td> <td>Part.-No. 501280</td> </tr> </tbody> </table>	VARIANTS: 24V		3 m cable length - 24V DC	Part.-No. 501251	5 m cable length - 24V DC	Part.-No. 501252	10 m cable length - 24V DC	Part.-No. 501253	VARIANTS: 230V		3 m cable length - 230V AC	Part.-No. 501273	5 m cable length - 230V AC	Part.-No. 501275	10 m cable length - 230V AC	Part.-No. 501280
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ACCESSORIES

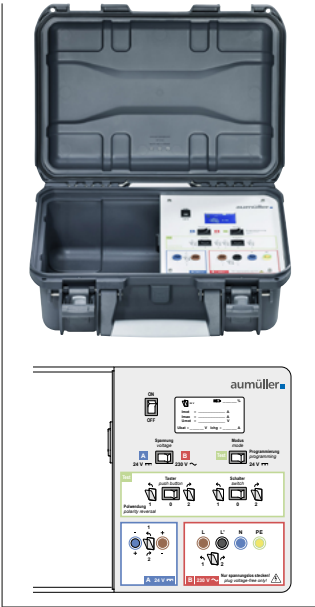
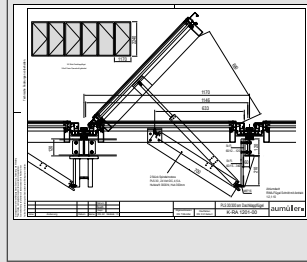
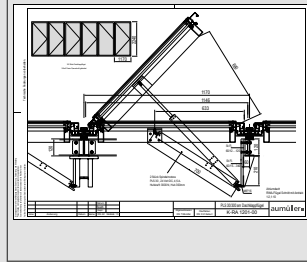
Feedback module					
RM-E		<p><b>Application</b>  <b>Control module</b> for feedback signal of end positions OPEN/ CLOSE from one ore more drives type S3/S12 via a potential-free changeover contact.                      Connection and power supply into/by the drive line</p> <p><b>Rated voltage:</b>                      24V DC (19 V ... 28 V)</p> <p><b>Current consumption:</b> &lt; 5 mA</p> <p><b>Drive type:</b> S3, S12</p>	<p><b>Part.-No. 500158</b></p> <p><b>Protection rating</b>                      IP 54</p> <p><b>Ambient temperature range</b>                      0 °C ... + 70 °C</p> <p><b>Surf. mount. plastic housing</b>                      94 x 94 x 42 mm</p> <p><b>Feature/Equipment</b>                      Evaluation of end positions due to the communication wire of drives type S3/S12</p>		
Control module					
USKM		<p><b>Application</b>  <b>Control module</b> with 3 outputs and individual settuble cut-off current, monitored motion run, delayed sequence control.</p> <p><b>Functions:</b> Motion-monitoring up to 3 drives, 2 sequential controls</p> <p><b>Rated voltage:</b>                      24V DC (19 V ... 28 V)</p> <p><b>Close circiut current :</b> &lt; 50 mA</p> <p><b>Connections:</b>                      max. 3 drives; s &lt; 300 mm</p>	<p><b>Part.-No. 512140</b></p> <p><b>Rated current per drive</b>                      max. 2,5 A</p> <p><b>Drive type</b>                      S1, S2, S3, S12, FV1, OFV1</p> <p><b>Protection rating</b>                      IP 54</p> <p><b>Ambient temperature range</b>                      0 °C ... + 70 °C</p> <p><b>Surf. mount. plastic housing</b>                      110 x 110 x 66 mm</p> <p><b>Feature/Equipment</b>                      DIP-Switches for settings, connection terminals: 2,5 mm<sup>2</sup></p>		

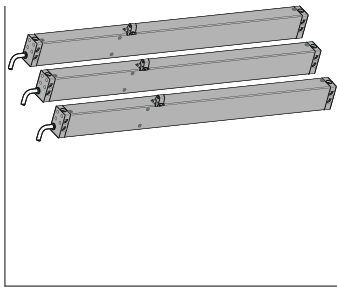


### ACCESSORIES

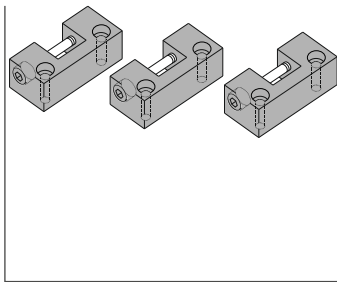
Relay Interface					
TRM		<p><b>Application</b>  <b>Realy interface</b> for connection of 230V AC drives to a 24V DC motor line. Control by changing the polarity of the 24V DC power supply</p> <p><b>Rated voltage:</b>            24V DC (19 V ... 28 V)</p> <p><b>Close circuit current:</b> &lt; 100 mA</p> <p><b>Connections:</b>            1 drive group</p>	<p><b>Part.-No. 670071</b></p> <p><b>Current per drive group</b>            230V AC max. 3,0 A</p> <p><b>Drive type</b>            S2, S3, S12, MP</p> <p><b>Protection rating</b>            IP 54</p> <p><b>Ambient temperature range</b>            0 °C ... + 70 °C</p> <p><b>Surf. mount. plastic housing</b>            98 x 98 x 58 mm</p> <p><b>Feature/Equipment</b>            Connection terminals            4 mm<sup>2</sup></p>		
UniPC		<p><b>Application</b>  <b>Hard- and software</b> for the configuration of drives produced by <b>AUMÜLLER AUMATIC GmbH</b></p> <p><b>Rated voltage:</b>            24V DC (19 V ... 28 V)</p> <p><b>Configurable drives:</b>            24V DC: S3, S12, S12 V.2            230V AC: S12, S12 V.2</p> <p><b>Package contents:</b>            Software UniPC (Download link)            Interface "ParInt"            USB cable            Connection cable</p> <p><b>Connections:</b>            3x Pluggable screw terminals            1,0 mm<sup>2</sup>            USB Port</p>	<p><b>Part.-No. 524178</b></p> <p><b>System requiremnts</b>            CPU 1 GHz or faster            OS Microsoft®            Windows 7            Windows 10            RAM min. 512 MB            HDD min. 100 MB empty</p> <p><b>Feature/Equipment</b>            Power supply 24V DC not included!            Software licence for extended settings required!</p>		

ACCESSORIES

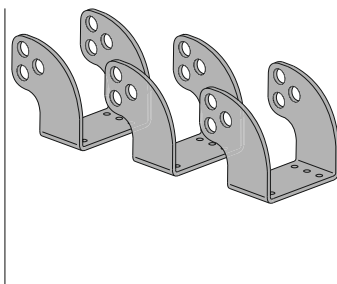
Test kiit for drives			
IK		<p><b>Application</b>  <b>Test kit</b> to test the running behavior and to support the commissioning of 24 V DC or 230 V AC window drives.</p> <p><b>Supply voltage:</b> 230 V AC</p> <p><b>Drive types:</b> 24 V DC / 230 V AC</p> <p><b>Drive current:</b> max. 5,0 A</p>	<p><b>Part.-No. 533984</b></p> <p><b>TFT display, colored</b> drive current, battery charging</p> <p><b>Ambient temperature range</b> -15 °C ... + 40 °C</p> <p><b>Plastic housing</b> 400 x 300 x 168 mm</p> <p><b>Weight</b> ca. 5,3 kg</p> <p><b>Control elements</b> 3x switches 2x push buttons</p> <p><b>Scope of delivery</b> 1x test kit 1x mains plug 4x safety banana plugs 1x operating manual (German, English)</p>
Wiring diagramm			
DL240		<p><b>Application</b>  <b>Providing</b> of customized installation and wiring diagrams. Price per ventilation/RWA line</p>	<p><b>Part.-No. 240</b></p>
DL241		<p><b>Application</b>  <b>Providing</b> of customized installation drawings for drives – Draw in of drives in customers' drawings</p>	<p><b>Part.-No. 241</b></p>



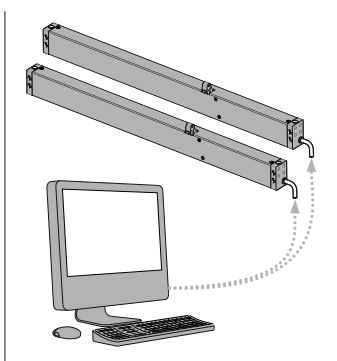
Special model	PU/pcs.	Part.-No.			
<b>Drive housing painted / powder coated in RAL colours</b>					
<b>Lump sum for coating</b>		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516004</b>			
	21 – 50	<b>516004</b>			
	51 – 100	<b>516004</b>			
	from 101	<b>516004</b>			



Special model	PU/pcs.	Part.-No.			
<b>Casement brackets painted/powder coated in RAL colours</b>					
<b>Lump sum for coating</b>		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516032</b>			
	21 – 50	<b>516032</b>			
	51 – 100	<b>516032</b>			
	from 101	<b>516032</b>			



Special model	PU/pcs.	Part.-No.			
<b>Frame brackets painted/powder coated in RAL colours</b>					
<b>Lump sum for coating</b>		<b>516030</b>			
Specify at order stage:	1 – 20	<b>516031</b>			
	21 – 50	<b>516031</b>			
	51 – 100	<b>516031</b>			
	from 101	<b>516031</b>			



Special model	PU/pcs.	Part.-No.			
<b>Microprocessor programming S12</b>					
Programming synchronised multi-drive systems 24V S3 / S12 (each drive)	1	<b>524182</b>			
Programming synchronised multi-drive systems 230V S12 (each drive)	1	<b>495588</b>			
Electronic stroke reduction 24V S12	1	<b>524190</b>			
Electronic stroke reduction 230V S12	1	<b>495590</b>			
Programming drives 24V / 230V S12	1	<b>524180</b>			

Special model	PU/pcs.	Part.-No.			
<b>Mechanic stroke reduction PLA S3</b>					
Stroke reduction without construction length - mechanically	1	<b>516000</b>			

NRWG							
Product	System	Profiles	Opening	Scope	ITT	CoCoP	Valid
Ferralux NRWG 011	Schüco AWS	AWS 50	inw/outw	Facade	11-002647-PR01 (PP-04)	0757-CPR-288-6032781-2-4	2023-07-13
		AWS 60	inw/outw				
		AWS 65	inw/outw				
		AWS 70	inw/outw				
		AWS 75	inw/outw				
		AWS 57RO	outw	Roof	11-002647-PR01 (PP-04)	0757-CPR-288-6032781-8-2	2023-07-13
Ferralux NRWG 050	Forster	Unico	inw/outw	Facade	12-001670-PR01 (PB-03)	0757-CPR-288-0632781-3-4	2023-12-10
Ferralux NRWG 070	Raico	Frame+ 65W	inw/outw	Facade	15-001142-PR02 (PP-02)	0757-CPR-288-6032781-4-4	2023-12-10
		Frame+ 75WE	inw/outw				
		Frame+ 75WA	inw/outw				
		Wing 105D	outw				
		Wing 105D	outw	Roof	15-001142-PR02 (PP-02)	0757-CPR-288-6032781-7-2	2023-12-10
Ferralux NRWG 080	Hueck	Lambda WS 075	inw	Facade	16-002717-PR10 (PP-01)	0757-CPR-288-6032781-9-1	2024-01-29
		Lambda WS 075 IS	inw				
		Lambda WS 075 CD/RD	inw				
		Lambda WS 075 OU	outw				
		Lambda duo90	inw				
		Lambda duo90 IF	inw				
Ferralux NRWG 100	Aliplast	Imperial IP 75	inw/outw	Facade	16-004337-PR12 (PP-02)	0757-CPR-288-6032781-10-1	
		Superial SP 85	inw/outw				
		Ecofutural EF75	inw/outw				
		Star GT 90	inw/outw				

**LEGEND:**

ITT: Product / system pass

CoCoP: Certificate of constancy of performances

Since the publication of the harmonized EN 12101-2:2003 „Smoke and heat control systems“ – Part 2: „Specification for Natural Smoke and Heat Exhaust Ventilators“ the NRWGs belongs to those construction products which may be labeled with a „CE“ mark in accordance with the Construction Products Regulation (CPR) if their performance matches the Declaration of Performance (DoP) issued by the manufacturer. On this basis they may be used to the purpose designated by the manufacturer in the DoP if they are required by the construction law as part of smoke and heat exhaust systems.

NRWGs are multi-part complex construction products which are assembled from parts of various contractors of handcraft or industrial services. They basically are manufactured from a casement and a window frame for façade, wall or roof mounting and an electric opening drive, which will ensure the window opening for smoke and heat exhaust in case of fire.

The windows itself are also regulated construction products. Their design and manufacturing have to fulfil the provisions for weathertightness, environmental protection or energy saving measures. The provisions of EN 14351 (windows and doors), EN 13830 (curtain wall facades) and EN 14963 (rooflights) shall be noted.

Window only may be declared as NRWG if opening and locking drives with frame and casement brackets are installed. They must then in addition meet the technical demands and performance classes of EN 12101-2, which only regulates the status of a NRWG as component of a smoke and heat exhaust system not as a part of the facade or roof.

As a result, NRWG must meet all relevant standards for the building envelope, for smoke and heat exhaust systems and possibly the Machinery Directive for power operated windows and doors if the dual purpose for ventilation is used. Deviations from national standard should be noted in the design stage.

**AUMÜLLER** has tested various representative samples, has established a factory production control system and has got the Declarations of Conformity in accordance with annex ZA to EN 12101-2:2003 from the notified product certification body ift-Rosenheim. Therefore **AUMÜLLER** is a system provider as well as a certified manufacturer of NRWGs.

Prices for licenses, manufacturing and project-specific design of NRWGs on request.

Drives	GWP (green-house potential) (GWP 100)	Ozone depletion potential (ODP)	Acidification potential (AP)	Eutrophication potential (EP)	Photo-chemical oxidation potential (POCP)	Abiotic depletion - elements (ADP <sub>el</sub> )	Abiotic depletion - fossil (ADP <sub>fos</sub> )	Primary energy not renewable (PE <sub>n,reg</sub> )	Primary energy renewable (PE <sub>reg</sub> )	Freshwater consumption (H <sub>2</sub> O)
	kg CO <sub>2</sub> -equivalent	kg R11-equivalent	kg SO <sub>2</sub> -equivalent	kg PO <sub>4</sub> <sup>3-</sup>	kg C <sub>2</sub> H <sub>4</sub> -equivalent	kg Sb-equivalent	MJ	MJ	MJ	m <sup>3</sup>
KS2 S2 24	9,20E+00	4,27E-08	3,28E-02	2,50E-03	-2,68E-03	1,23E-03	5,40E+03	1,09E+02	4,03E+01	4,74E+01
KS2 S12 24	1,30E+01	6,05E-08	4,65E-02	3,53E-03	-3,80E-03	1,74E-03	7,65E+03	1,54E+02	5,71E+01	6,72E+01
KS2 TWIN	2,61E+01	1,21E-07	9,29E-02	7,07E-03	-7,59E-03	3,47E-03	1,53E+04	3,09E+02	1,14E+02	1,34E+02
KS2 Set	2,68E+01	1,25E-07	9,57E-02	7,28E-03	-7,82E-03	3,58E-03	1,57E+04	3,18E+02	1,18E+02	1,38E+02
KS2 230	2,30E+01	1,07E-07	8,20E-02	6,24E-03	-6,70E-03	3,06E-03	1,35E+04	2,73E+02	1,01E+02	1,19E+02
KSA 24	1,69E+01	7,83E-08	6,01E-02	4,57E-03	-4,91E-03	2,25E-03	9,90E+03	2,00E+02	7,39E+01	8,69E+01
KSA 230	3,53E+01	1,64E-07	1,26E-01	9,56E-03	-1,03E-02	4,70E-03	2,07E+04	4,18E+02	1,55E+02	1,82E+02
KSA TWIN/D	3,30E+01	1,53E-07	1,18E-01	8,94E-03	-9,60E-03	4,39E-03	1,93E+04	3,91E+02	1,44E+02	1,70E+02
KS15	6,90E+01	3,20E-07	2,46E-01	1,87E-02	-2,01E-02	9,19E-03	4,05E+04	8,18E+02	3,02E+02	3,56E+02
PLA6	1,15E+01	5,34E-08	4,10E-02	3,12E-03	-3,35E-03	1,53E-03	6,75E+03	1,36E+02	5,04E+01	5,93E+01
PLA8	1,84E+01	8,54E-08	6,56E-02	4,99E-03	-5,36E-03	2,45E-03	1,08E+04	2,18E+02	8,06E+01	9,48E+01
PLA101	1,46E+01	6,76E-08	5,19E-02	3,95E-03	-4,24E-03	1,94E-03	8,55E+03	1,73E+02	6,38E+01	7,51E+01
PLA116	1,84E+01	8,54E-08	6,56E-02	4,99E-03	-5,36E-03	2,45E-03	1,08E+04	2,18E+02	8,06E+01	9,48E+01
PLA10	3,45E+01	1,60E-07	1,23E-01	9,36E-03	-1,01E-02	4,60E-03	2,02E+04	4,09E+02	1,51E+02	1,78E+02
PLA16	3,45E+01	1,60E-07	1,23E-01	9,36E-03	-1,01E-02	4,60E-03	2,02E+04	4,09E+02	1,51E+02	1,78E+02
PLS15	5,52E+01	2,56E-07	1,97E-01	1,50E-02	-1,61E-02	7,35E-03	3,24E+04	6,54E+02	2,42E+02	2,84E+02
PLS30	6,98E+01	3,24E-07	2,49E-01	1,89E-02	-2,03E-02	9,30E-03	4,09E+04	8,27E+02	3,06E+02	3,60E+02
PLS50	5,52E+01	2,56E-07	1,97E-01	1,50E-02	-1,61E-02	7,35E-03	3,24E+04	6,54E+02	2,42E+02	2,84E+02
SP8 24	1,53E+01	7,12E-08	5,47E-02	4,16E-03	-4,47E-03	2,04E-03	9,00E+03	1,82E+02	6,72E+01	7,90E+01
SP8 230	3,83E+00	1,78E-08	1,37E-02	1,04E-03	-1,12E-03	5,11E-04	2,25E+03	4,54E+01	1,68E+01	1,98E+01
LKS (-T)	1,15E+01	5,34E-08	4,10E-02	3,12E-03	-3,35E-03	1,53E-03	6,75E+03	1,36E+02	5,04E+01	5,93E+01
LKS-TV	2,30E+01	1,07E-07	8,20E-02	6,24E-03	-6,70E-03	3,06E-03	1,35E+04	2,73E+02	1,01E+02	1,19E+02
FTA R	1,84E+01	8,54E-08	6,56E-02	4,99E-03	-5,36E-03	2,45E-03	1,08E+04	2,18E+02	8,06E+01	9,48E+01
LLA10	1,15E+01	5,34E-08	4,10E-02	3,12E-03	-3,35E-03	1,53E-03	6,75E+03	1,36E+02	5,04E+01	5,93E+01
LLA16	1,69E+01	7,83E-08	6,01E-02	4,57E-03	-4,91E-03	2,25E-03	9,90E+03	2,00E+02	7,39E+01	8,69E+01
FVUx	1,15E+01	5,34E-08	4,10E-02	3,12E-03	-3,35E-03	1,53E-03	6,75E+03	1,36E+02	5,04E+01	5,93E+01
OFV	1,46E+01	6,76E-08	5,19E-02	3,95E-03	-4,24E-03	1,94E-03	8,55E+03	1,73E+02	6,38E+01	7,51E+01
FV	1,53E+01	7,12E-08	5,47E-02	4,16E-03	-4,47E-03	2,04E-03	9,00E+03	1,82E+02	6,72E+01	7,90E+01
PL6 / PL10	1,15E+01	1,89E-06	1,18E+02	1,07E+01	7,52E+00	1,64E-02	1,43E+02	1,36E+02	3,56E+01	5,93E+01

Declaration code: **M-EPD-AZR-101**  
 Programme operator: **ift Rosenheim GmbH**  
 Theodor-Gietl-Str. 7-9,  
 83026 Rosenheim, Germany  
 LCA prepared by: **Life Cycle Engineering Experts**  
 Berliner Allee 58,  
 64295 Darmstadt, Germany  
 Declaration holder: **AUMÜLLER AUMATIC GmbH.**

The declaration is based on the PCR (Product Category Rules) document „Building Components for Smoke and Heat Control Systems“ No. PCR-RW-1.1:2013.

LCA calculations were based on the „cradle to grave“ life cycle including all upstream processes (e.g. raw material extraction, etc.).

The reference service life has been specified to 25 years. The calculation of the life cycle scenarios is based on a service life of **50 years** per electrical device.

The life cycle was modelled using the sustainability software tool „GaBi6“ for the development of Life Cycle Assessments. For the consideration of the impact categories the characterisation factors of the ELCD (European Reference Life Cycle Database) were used.

In accordance with the REACH candidate list, no substances of very high concern are contained.

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