

aumüller

The Products



PRODUCT OVERVIEW DRIVES 12.2016

Valid from 2016-12-01

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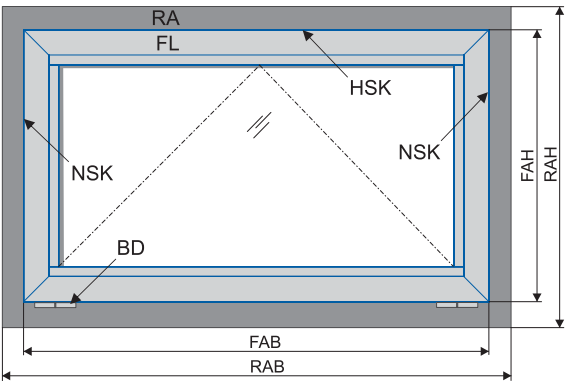
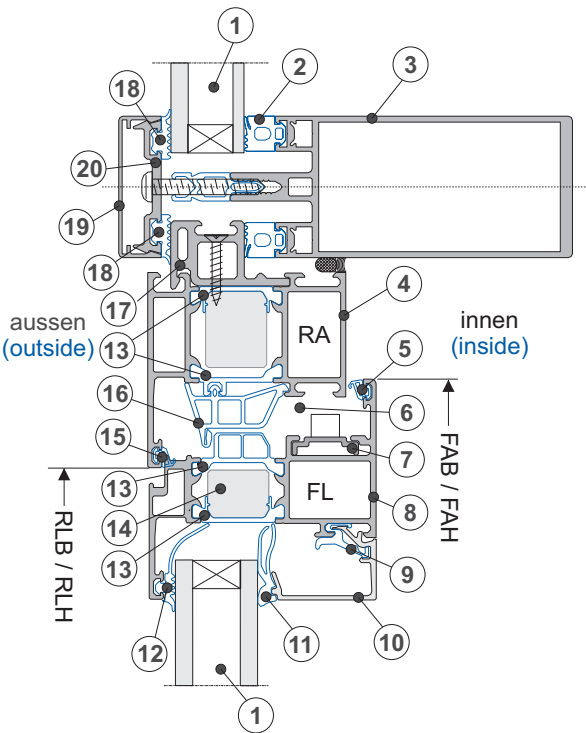
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LIST OF ABBREVIATIONS	
A2	Stainless Steel
BxHxT	Width x Height x Depth
DIN	German Institute for Standardisation
E6/C-0	Anodised finish
EN	European standard
FAB	Overall width of casement
FAH	Overall height of casement
FL	Opening casement
FM	Window assembly
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
NSK	Auxiliary 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
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
VE	Packaging units
W	Watts

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

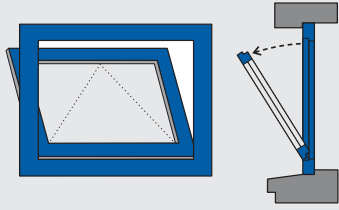


SECTION	
1	Infill (Glass structure)
2	Inner adapter seal
3	Transom profile
4	Window frame
5	Secondary seal (inside)
6	Rebate
7	Locking bar with locking bolts
8	Window frame
9	Bead clamp
10	Glazing bead
11	Inner glazing gasket
12	Outer glazing gasket
13	Thermal break
14	Insulating material
15	Primary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

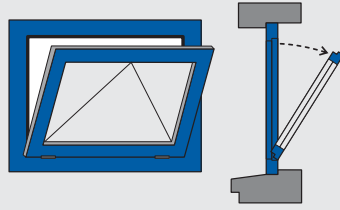
ABBREVIATIONS WINDOWS	
RA	Window frame
FL	Casement frame
HSK	Main closing edge
NSK	Side closing edge
BD	Sash hinge (Strip side)
FAB	Overall width of casement
FAH	Overall height of casement
RAB	Window frame width
RAH	Window frame height
RLB	Throat width
RLH	Throat height

TYPES OF WINDOWS

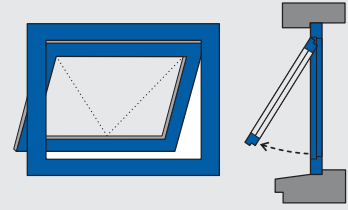
1 Bottom hung outward opening



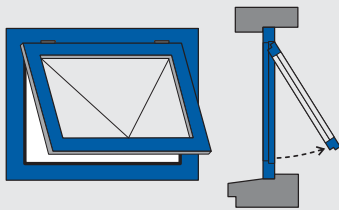
2 Bottom hung inward opening



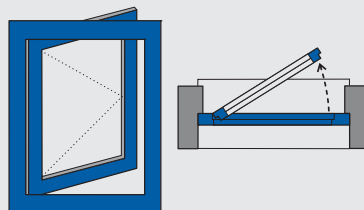
3 Top hung outward opening



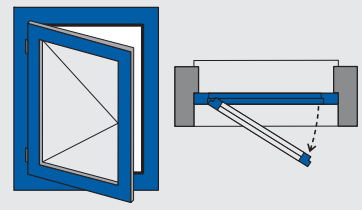
4 Top hung inward opening



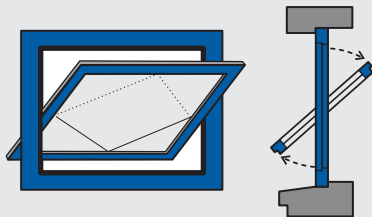
5 Side hung outward opening



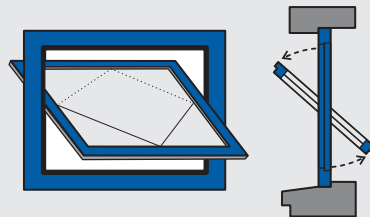
6 Side hung inward opening



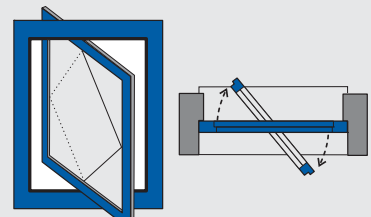
7 Horizontal pivot



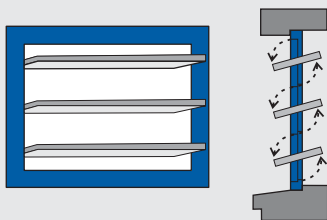
8 Horizontal pivot



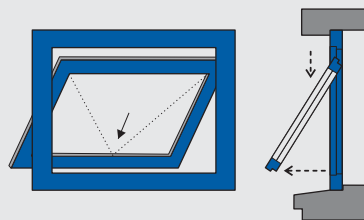
9 Vertical pivot



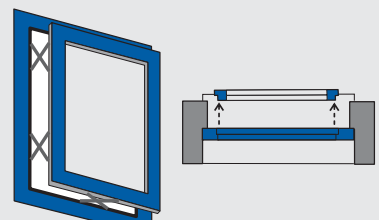
10 Louvred window



11 Friction hinged outward opening



12 Parallel slide window

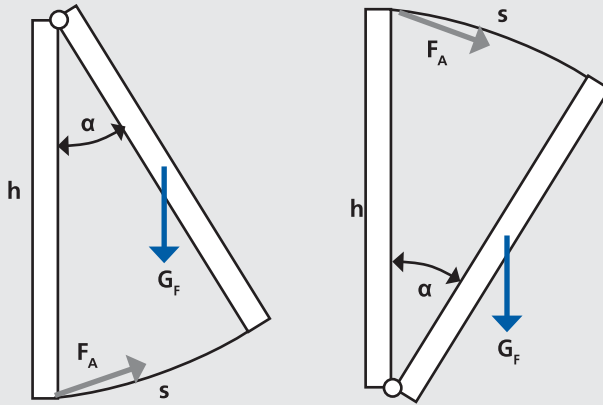


USEFUL CALCULATIONS

Casement weight: G_F [Kg] = FAB [m] * FAH [m] * **Glass thickness** [mm] * 2,5 [Kg/m²] * 1,1

Weight force: F_G [N] = G_F [Kg] * 9,81 [m/s²]

Drive force: top & bottom hung window

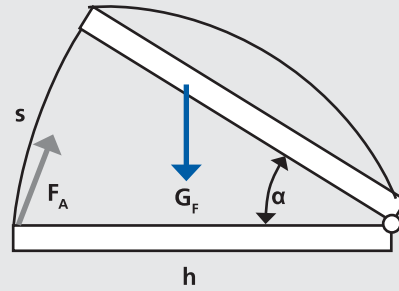


$$F_A$$
 [N] = G_F [Kg] * 9,81 [m/s²] * s [mm] * 0,54 / h [mm]

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:
 α [DEG] = $\cos^{-1} (1 - s^2$ [mm] / 2 / h^2 [mm])

Roof window / Roof light



$$F_A$$
 [N] = G_F [Kg] * 9,81 [m/s²] * 0,54

1

Chain drives

2

Spindle drives

3

Rack and pinion drives

4

Folding arm drives

5

Louvre drives

6

Locking drives

7

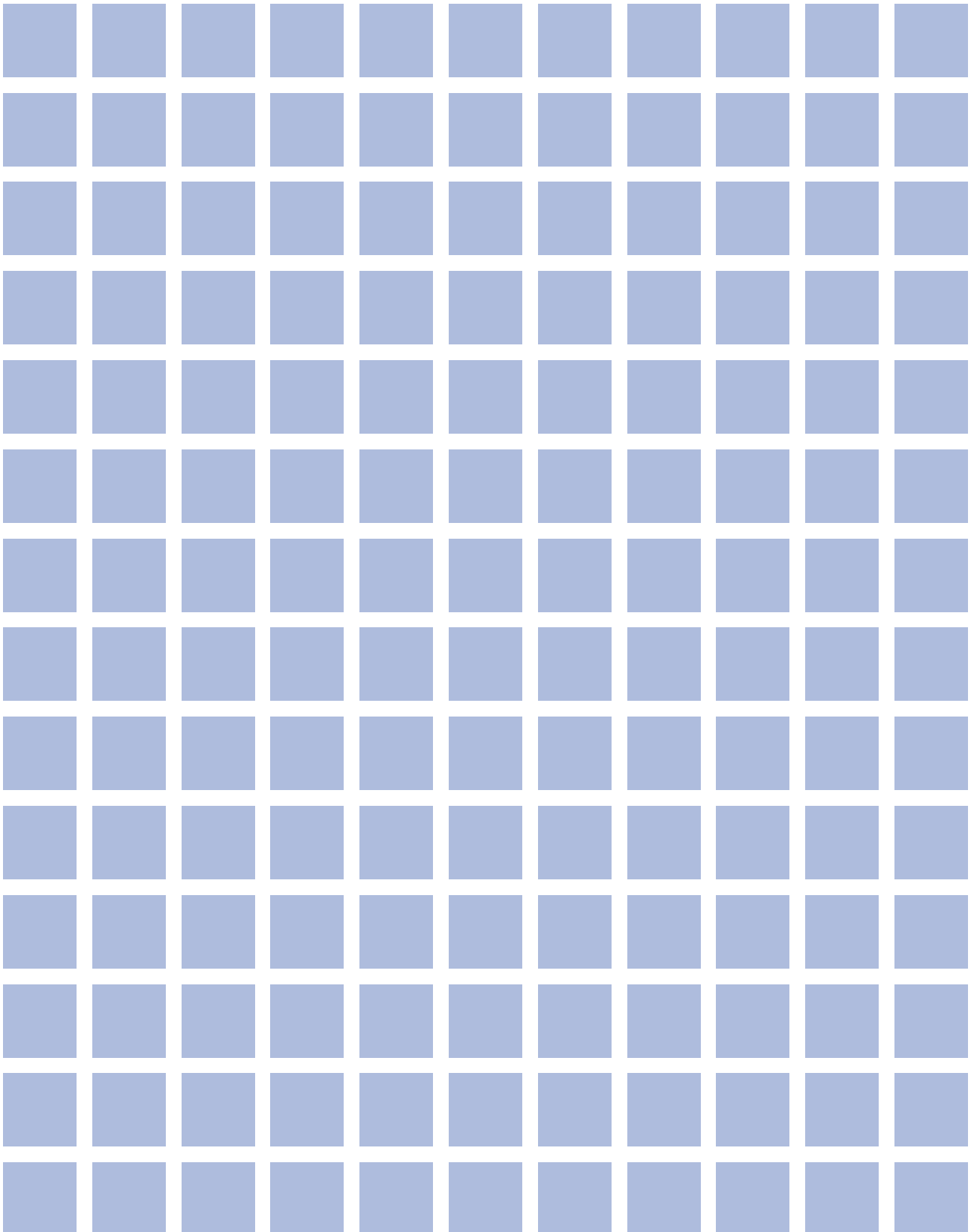
Hardware sets

8

Accessories

1

Chain drives



OVERVIEW OF 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	SHEV	NSHEV	Facade	Roof	Run monitoring	Synchronised run	Sequence control	
			[V]	[mm]	[N]	[N]	[mm/s]	[mm/s]	[mm]	[A]									
KS2	SOLO	S2	24	200 – 800	200 – 50	200	10,0	10,0	600	0,7	●	■		●					
			230	200 – 800	200 – 50	200	10,0	10,0	600	0,7	●	■		●					
		S12	24	200 – 800	250 – 50	250	8,0 – 13,5	8,0	800	1,0	●	●	●	●	■	■	●	●	
			230	200 – 800	250 – 50	250	8,0	8,0	450	0,2	●			●	■	■	●	■	
	TWIN	S12	24	200 – 600	500 – 100	500	8,0 – 13,5	8,0	600	1,4	●	●		●	■	■	●	●	
KS4	Solo	S12	24	200 – 800	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	●	●		●	■	■	●	●	

LEGEND

● suitable ■ not recommended

S2 internal load dependend cut-off switch

S12 internal Intelligent Control Electronics for synchronised run and programmable functions

force and speed depend on the stroke



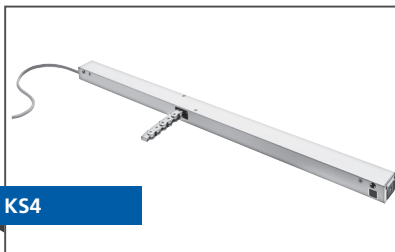
KS2



KS2 TWIN

KS2 CHAIN DRIVES

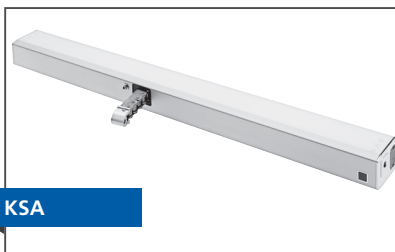
- Model 24V DC, S2/S12 and 230V AC, S12
- Pulling/Pushing force max. 250 N (TWIN 500 N)
- Stroke length 50 – 800 mm – programmable
- Speed 5 – 14 mm/s – programmable
- Housing (WxH) 42 x 26 mm, Length depending on stroke
- Opening mechanism Rigid back stainless steel sidebow roller chain
- Version R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



KS4

KS4 CHAIN DRIVES

- Model 24V DC, S12
- Pulling/Pushing force max. 400 N
- Stroke length 50 – 800 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)
- Protection rating IP 32



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 50 – 1500 mm – programmable
- 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



PRODUCT FEATURES KS2

- For natural ventilation, smoke and heat exhausting systems and ferralux® NSHEV (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

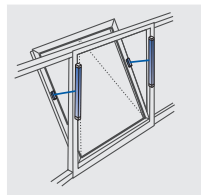
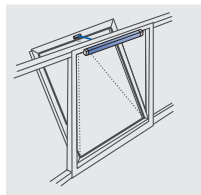
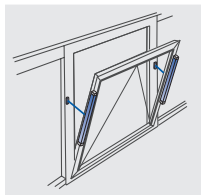
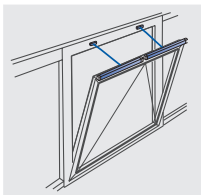
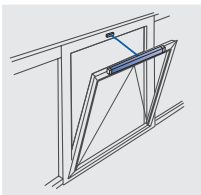
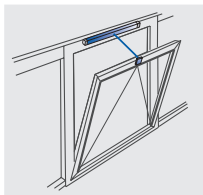
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804.

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

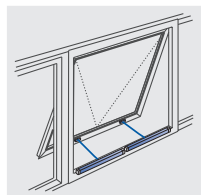
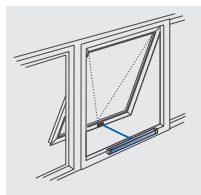
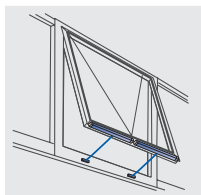
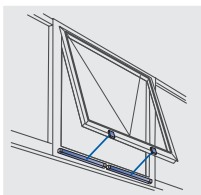
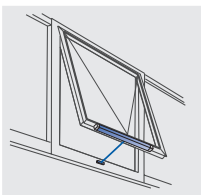
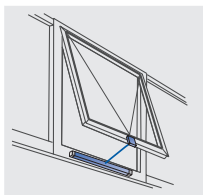
The EPD documents can be viewed or downloaded from our homepage www.aumueller-gmbh.de.

FACADE

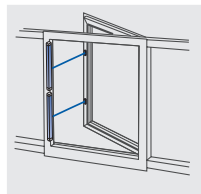
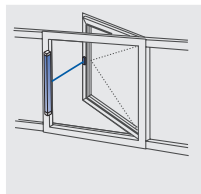
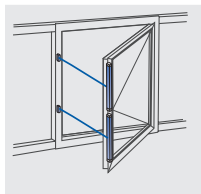
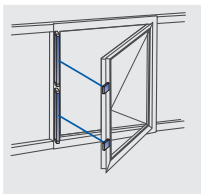
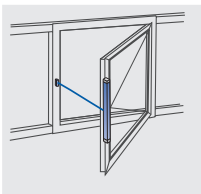
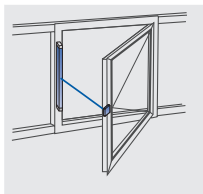
Bottom-hung



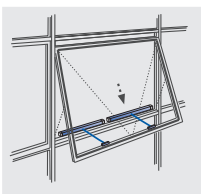
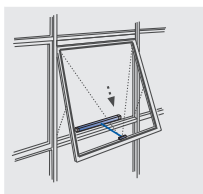
Top-hung



Side-hung



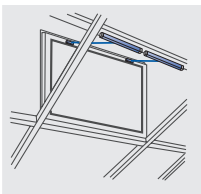
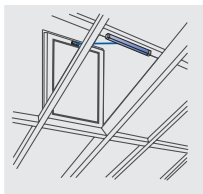
Friction hinged



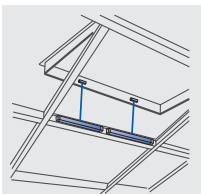
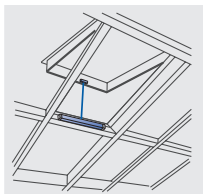
Parallel outward opening

**ROOF**

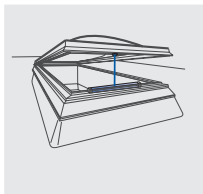
Bottom-hung

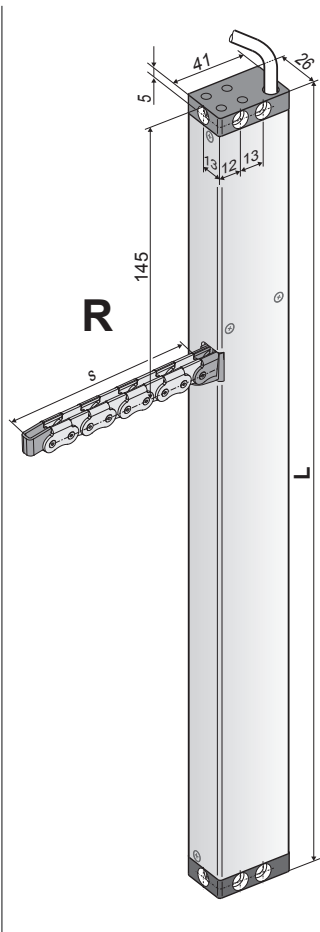


Top-hung



Sky light

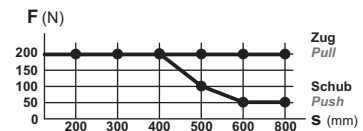




- Application: Natural ventilation as single-drive
- Internal load dependent cut-off switch S2 in OPEN / CLOSE direction

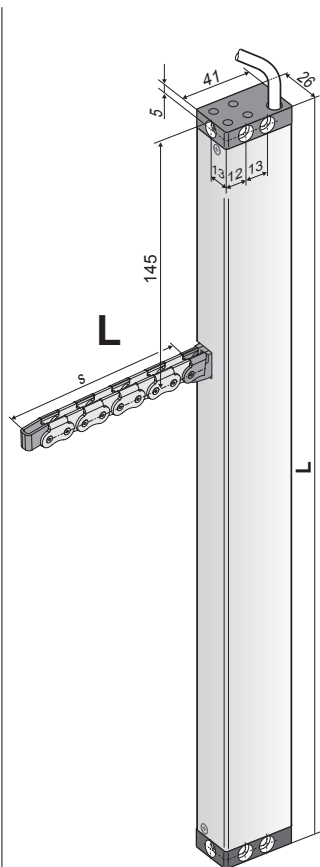
TECHNICAL DATA

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,5 A
I_A	Cut-off current	0,7 A
P_N	Rated power	12 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	200 N
F_A	Pushing force	



s > 600 mm only for pulling application

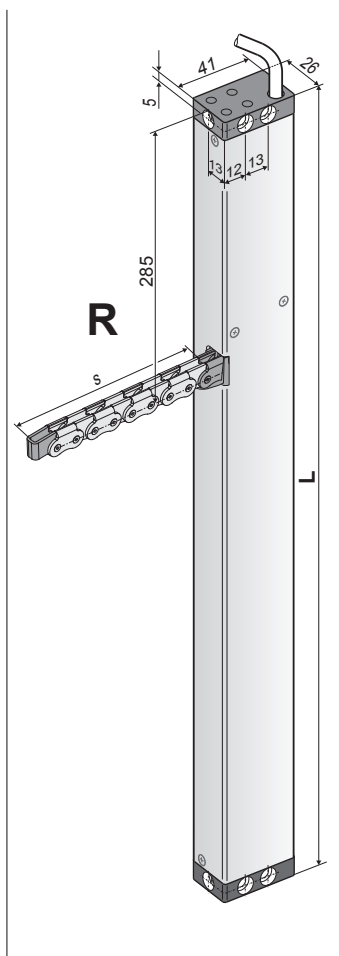
F_H	Pullout force	1.800 N (fastening depended)
	Chain	Stainless steel, without protruding rivet heads. Simple connection to casement brackets. Small bending radii allow maximum opening angles of small windows.



	Connecting cable	non-halogen, grey 3 x 0,75 mm ² , ~ 3 m
v	Speed	10,0 mm/s 10,0 mm/s
s	Stroke	50 – 800 mm ($\pm 5\%$)
L	Length	see order data
	Sound pressure level A	≤ 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	521120		
		KS2 200 S2 24V L	E6/C-0	1	521420		
300	380	KS2 300 S2 24V R	E6/C-0	1	521130		
		KS2 300 S2 24V L	E6/C-0	1	521430		
400	430	KS2 400 S2 24V R	E6/C-0	1	521140		
		KS2 400 S2 24V L	E6/C-0	1	521440		
500	545	KS2 500 S2 24V R	E6/C-0	1	521150		
		KS2 500 S2 24V L	E6/C-0	1	521450		
600	545	KS2 600 S2 24V R	E6/C-0	1	521160		
		KS2 600 S2 24V L	E6/C-0	1	521460		
800	625	KS2 800 S2 24V R	E6/C-0	1	521180		
		KS2 800 S2 24V L	E6/C-0	1	521480		

OPTIONS							
Special model				PU/pcs.	Part.-No.		
Drive housing painted/powder coated in other RAL colours							
Lump sum for coating					516030		
Specify at order stage:				1 – 20	516004		
				21 – 50	516004		
				51 – 100	516004		
				up 101	516004		
Extra length connecting cable:							
5 m – non-halogen, grey – 2 x 0,75 mm ²					501024		
10 m – non-halogen, grey – 2 x 0,75 mm ²					501026		

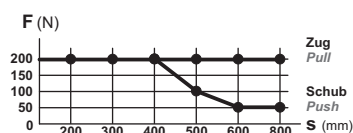


- Application: Natural ventilation as single-drive
- Internal load dependent cut-off switch S2 in OPEN / CLOSE direction
- Parallel connection up to 8 drives in one group

TECHNICAL DATA

U_N	Rated voltage	230V AC (50 Hz)
I_N	Rated current	0,13 A
I_A	Cut-off current	0,2 A
P_N	Rated power	30 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75°C

F_Z	Pulling force max.	200 N
F_A	Pushing force	



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.

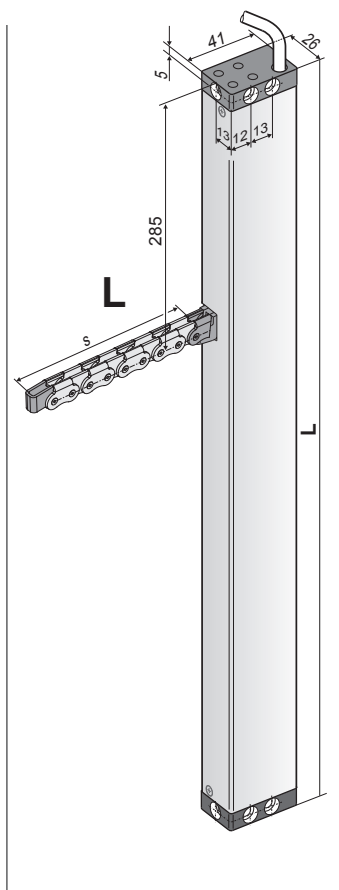
	Connecting cable	non-halogen, grey 6 x 0,75 mm ² , ~ 3 m
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v	Speed	10,0 mm/s 10,0 mm/s
---	-------	----------------------

s	Stroke	50 – 800 mm (± 5 %)
---	--------	---------------------

L	Length	see order data
---	--------	----------------

	Sound pressure level A	≤ 70 dB (A)
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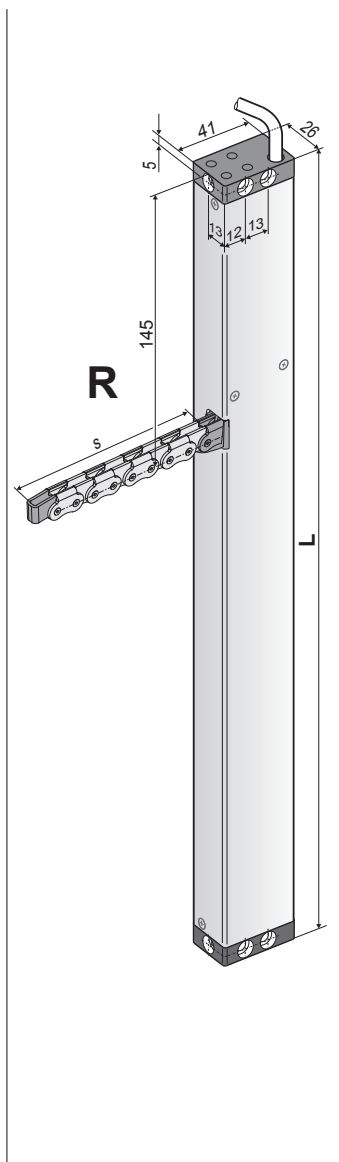
ORDER DATA							
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.		
200	475	KS2 200 S2 230V R	E6/C-0	1	494920		
		KS2 200 S2 230V L	E6/C-0	1	494720		
300	520	KS2 300 S2 230V R	E6/C-0	1	494930		
		KS2 300 S2 230V L	E6/C-0	1	494730		
400	570	KS2 400 S2 230V R	E6/C-0	1	494940		
		KS2 400 S2 230V L	E6/C-0	1	494740		
500	685	KS2 500 S2 230V R	E6/C-0	1	494950		
		KS2 500 S2 230V L	E6/C-0	1	494750		
600	685	KS2 600 S2 230V R	E6/C-0	1	494960		
		KS2 600 S2 230V L	E6/C-0	1	494760		
800	765	KS2 800 S2 230V R	E6/C-0	1	494980		
		KS2 800 S2 230V L	E6/C-0	1	494780		

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

- Application: natural ventilation, SHEV, ferralux®-NSHEV
- 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_N Rated voltage 24V DC ($\pm 20\%$), max. 2 Vpp

I_N Rated current 0,7 A

I_A Cut-off current 1,0 A

P_N Rated power 17 W

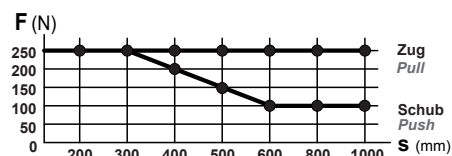
ED Duty cycle 30 % (ON: 3 min./OFF: 7 min.)

Protection rating IP 32

Ambient temperature range $-5\text{ }^{\circ}\text{C} \dots +75\text{ }^{\circ}\text{C}$

F_Z Pulling force max. 250 N

F_A Pushing force



$s > 600$ 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 $3 \times 0,5\text{ mm}^2$, ~ 3 m

Z-Version: $5 \times 0,5\text{ mm}^2$ ~ 3 m

v Speed

$s < 400$  8,0 mm/s  8,0 mm/s
 $s 500 - 600$  12,0 mm/s  8,0 mm/s
 $s > 600$  13,5 mm/s  8,0 mm/s

s Stroke 50 – 1000 mm ($\pm 5\%$)

L Length see order data

Sound pressure level A $\leq 70\text{ dB (A)}$

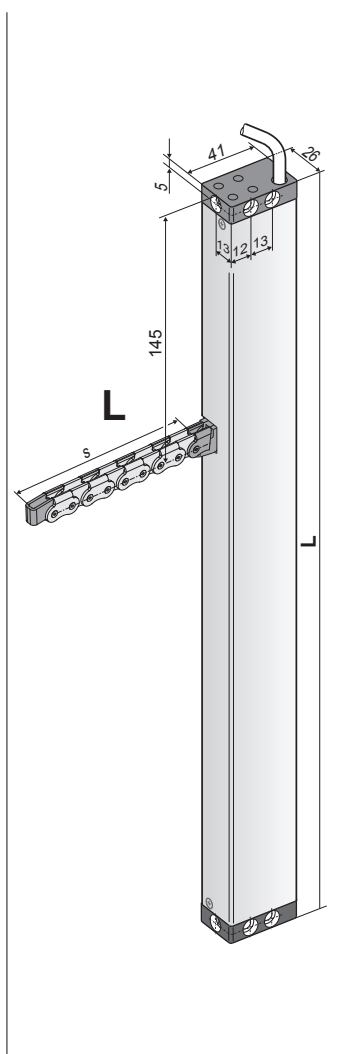
ORDER DATA							
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.		
200	335	KS2 200 S12 24V R	E6/C-0	1	521620		
		KS2 200 S12 24V R Z	E6/C-0	1	521623		
300	380	KS2 300 S12 24V R	E6/C-0	1	521630		
		KS2 300 S12 24V R Z	E6/C-0	1	521633		
400	430	KS2 400 S12 24V R	E6/C-0	1	521640		
		KS2 400 S12 24V R Z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

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

- Application: natural ventilation, SHEV, ferralux®-NSHEV
- 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_N Rated voltage 24V DC ($\pm 20\%$), max. 2 Vpp

I_N Rated current 0,7 A

I_A Cut-off current 1,0 A

P_N Rated power 17 W

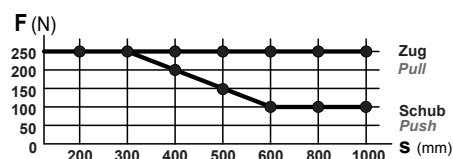
ED Duty cycle 30 % (ON: 3 min./OFF: 7 min.)

Protection rating IP 32

Ambient temperature range range -5 °C ... +75 °C

F_Z Pulling force max. 250 N

F_A Pushing force



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 3 x 0,5 mm², ~ 3 m

Z-Version: 5 x 0,5 mm² ~ 3 m

v Speed

s < 400 8,0 mm/s
s 500 – 600 12,0 mm/s
s > 600 13,5 mm/s

s Stroke 50 – 1000 mm ($\pm 5\%$)

L Length see order data

Sound pressure level A ≤ 70 dB (A)

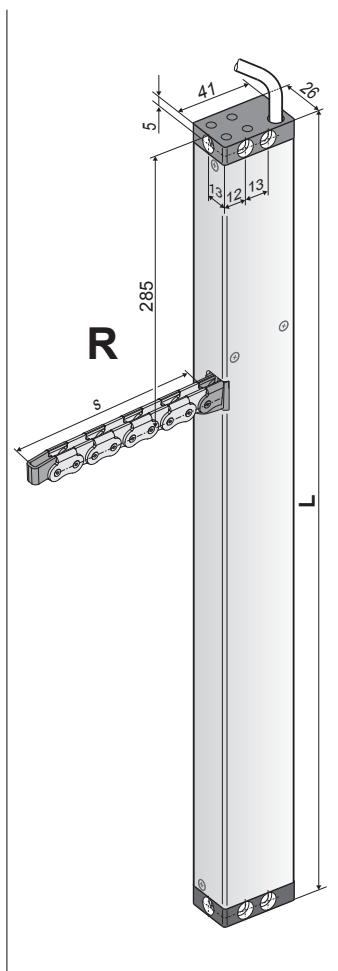
ORDER DATA							
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.		
200	335	KS2 200 S12 24V L	E6/C-0	1	521720		
		KS2 200 S12 24V L Z	E6/C-0	1	521723		
300	380	KS2 300 S12 24V L	E6/C-0	1	521730		
		KS2 300 S12 24V L Z	E6/C-0	1	521733		
400	430	KS2 400 S12 24V L	E6/C-0	1	521740		
		KS2 400 S12 24V L Z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

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

- 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)

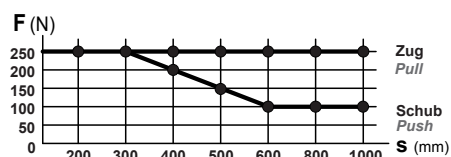
Options

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



TECHNICAL DATA

U_N	Rated voltage	230V AC (50 Hz)
I_N	Rated current	0,13 A
I_A	Cut-off current	0,2 A
P_N	Rated power	30 W
ED	Duty cycle	30 % (ON: 3 min/OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	250 N
F_A	Pushing force	



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 ² , ~ 3 m
v	Speed	\nearrow 8,0 mm/s \searrow 8,0 mm/s
s	Stroke	50 – 1000 mm (± 5 %)
L	Length	see order data
	Sound pressure level A	≤ 70 dB (A)

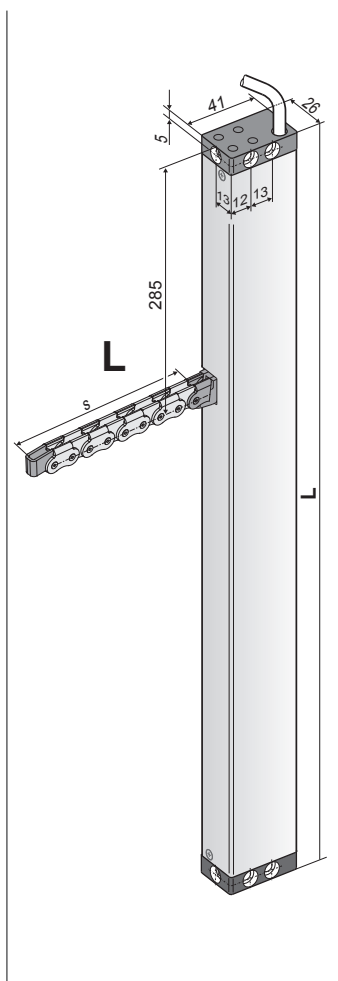
ORDER DATA							
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.		
200	475	KS2 200 S12 230V R	E6/C-0	1	494020		
		KS2 200 S12 230V R Z	E6/C-0	1	494023		
300	520	KS2 300 S12 230V R	E6/C-0	1	494030		
		KS2 300 S12 230V R Z	E6/C-0	1	494033		
400	570	KS2 400 S12 230V R	E6/C-0	1	494040		
		KS2 400 S12 230V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

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

- 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)

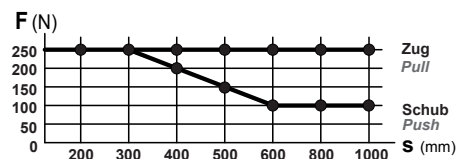
Options

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



TECHNICAL DATA

U_N	Rated voltage	230V AC (50 Hz)
I_N	Rated current	0,13 A
I_A	Cut-off current	0,2 A
P_N	Rated power	30 W
ED	Duty cycle	30 % (ON: 3 min/OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	250 N
F_A	Pushing force	



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 ² , ~ 3 m
v	Speed	$\frac{\Delta}{\Delta t} = 8,0 \text{ mm/s}$ $\frac{\Delta}{\Delta t} = 8,0 \text{ mm/s}$
s	Stroke	50 – 1000 mm (± 5 %)
L	Length	see order data
	Sound pressure level A	≤ 70 dB (A)

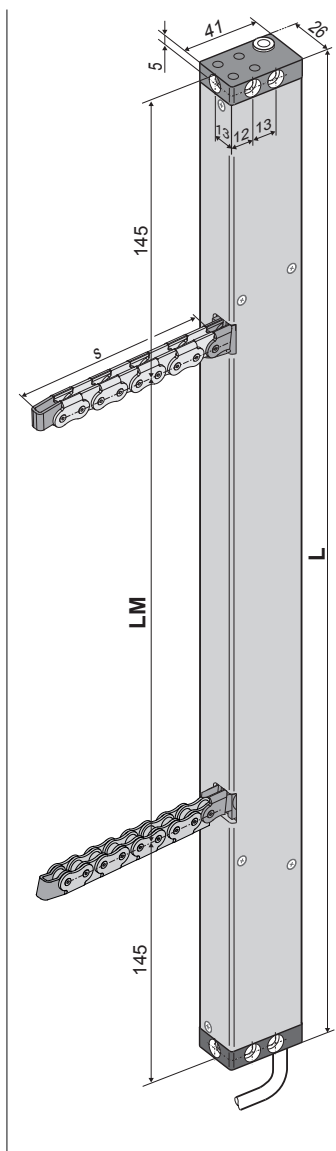
ORDER DATA							
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.		
200	475	KS2 200 S12 230V L	E6/C-0	1	494120		
		KS2 200 S12 230V L Z	E6/C-0	1	494123		
300	520	KS2 300 S12 230V L	E6/C-0	1	494130		
		KS2 300 S12 230V L Z	E6/C-0	1	494133		
400	570	KS2 400 S12 230V L	E6/C-0	1	494140		
		KS2 400 S12 230V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

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

- Application: natural ventilation, SHEV, ferralux®-NSHEV
- 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_N Rated voltage 24V DC ($\pm 20\%$), max. 2 Vpp

I_N Rated current 1,4 A

I_A Cut-off current 2,0 A

P_N Rated power 34 W

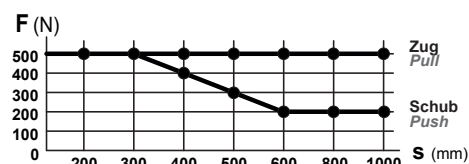
ED Duty cycle 30 % (ON: 3 min/OFF: 7 min.)

Protection rating IP 32

Ambient temperature range $-5^\circ\text{C} \dots +75^\circ\text{C}$

F_Z Pulling force max. 500 N


F_A Pushing force



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 3 x 0,5 mm², ~ 3 m
Z-Version: 5 x 0,5 mm² ~ 3 m

v Speed
 $s < 400$  8,0 mm/s  8,0 mm/s
 $s 500 - 600$  12,0 mm/s  8,0 mm/s

s Stroke 50 – 1000 mm ($\pm 5\%$)

L Length see order data

LM Distance in between chains see order data

Sound pressure level A ≤ 70 dB (A)

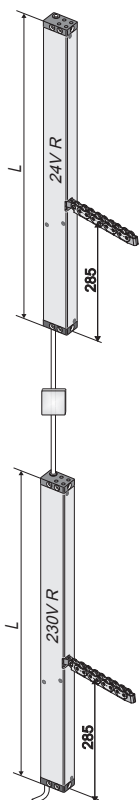
ORDER DATA									
s [mm]	L [mm]	LM [mm]	Version	Finish	PU/pcs.	Part.-No.			
200	640	350	KS2 TWIN 200 S12 24V	E6/C-0	1	521820			
			KS2 TWIN 200 S12 24V Z	E6/C-0	1	521823			
400	830	540	KS2 TWIN 400 S12 24V	E6/C-0	1	521840			
			KS2 TWIN 400 S12 24V Z	E6/C-0	1	521843			
500	1060	770	KS2 TWIN 500 S12 24V	E6/C-0	1	521850			
			KS2 TWIN 500 S12 24V Z	E6/C-0	1	521853			
600	1060	770	KS2 TWIN 600 S12 24V	E6/C-0	1	521860			
			KS2 TWIN 600 S12 24V Z	E6/C-0	1	521863			

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

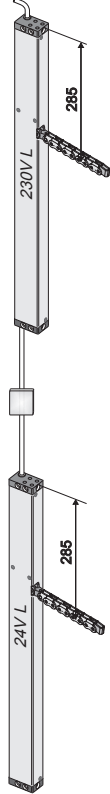


- Application: natural ventilation
- Factory-configured set includes:
 - Master: KS2 xxx S12 230 V AC R / L with voltage output 24 V DC
 - Slave: KS2 xxx S12 24 V DC R / L with connection cable on the motor side
 - KS2 xxx S12 24 V DC L-K with connection cable on the chain side
- Parallel connection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

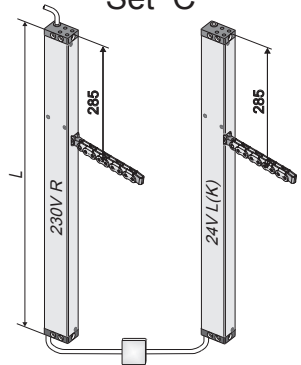
Set A



Set B

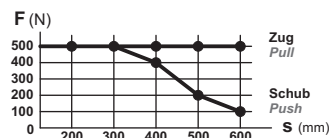


Set C



TECHNICAL DATA

U_N	Rated voltage	230V AC (50 Hz)
I_N	Rated current	0,15 A
I_A	Cut-off current	0,2 A
P_N	Rated power	35 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	2 x 250 N
F_A	Pushing force	



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 0,75mm ² , ~ 3 m 3 x 0,5 mm ² , ~ 3 m Slave: non-halogen, grey 3 x 0,5 mm ² , ~ 3 m
v	Speed	8,0 mm/s 8,0 mm/s
s	Stroke	50 – 1000 mm (± 5 %)
L	Length	see order data
	Sound pressure level A	≤ 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	494220		
		KS2 200 S12 230V Set B (L/L)	E6/C-0	1	494320		
		KS2 200 S12 230V Set C (R/L-K)	E6/C-0	1	494420		
300	520	KS2 300 S12 230V Set A (R/R)	E6/C-0	1	494230		
		KS2 300 S12 230V Set B (L/L)	E6/C-0	1	494330		
		KS2 300 S12 S 230V et C (R/L-K)	E6/C-0	1	494430		
400	570	KS2 400 S12 230V Set A (R/R)	E6/C-0	1	494240		
		KS2 400 S12 230V Set B (L/L)	E6/C-0	1	494340		
		KS2 400 S12 230V Set C (R/L-K)	E6/C-0	1	494440		
500	685	KS2 500 S12 230V Set A (R/R)	E6/C-0	1	494250		
		KS2 500 S12 230V Set B (L/L)	E6/C-0	1	494350		
		KS2 500 S12 230V Set C (R/L-K)	E6/C-0	1	494450		
600	685	KS2 600 S12 230V Set A (R/R)	E6/C-0	1	494260		
		KS2 600 S12 230V Set B (L/L)	E6/C-0	1	494360		
		KS2 600 S12 230V Set C (R/L-K)	E6/C-0	1	494460		
800	765	KS2 800 S12 230V Set A (R/R)	E6/C-0	1	494280		
		KS2 800 S12 230V Set B (L/L)	E6/C-0	1	494380		
		KS2 800 S12 230V Set C (R/L-K)	E6/C-0	1	494480		

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

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					F21, F35, F37, F17		F95, F120	F95, F120	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.

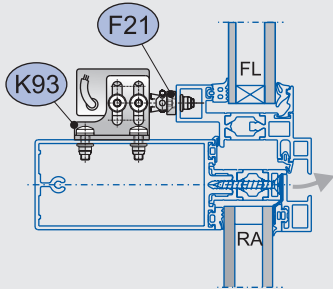
*2 Sample values of the opening angle evaluated on the basis of FAB/FAH for inward opening windows with drives mounted at the main closing edge. For any other window heights, for outward opening windows and for windows with drives mounted at the side edges the opening angle will vary.

*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.

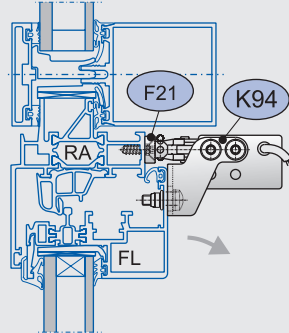
TYPICAL APPLICATIONS

- 1 PR, top hung
outward opening



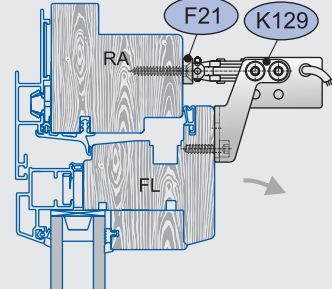
View on aluminium window

- 1 FM, bottom hung
inward opening



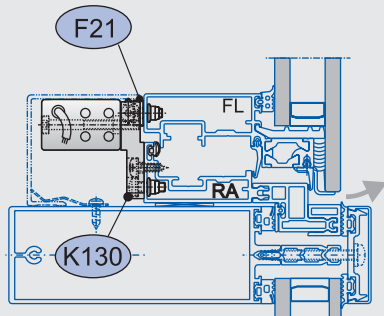
View on aluminium window

- 2 FM, bottom hung
inward opening



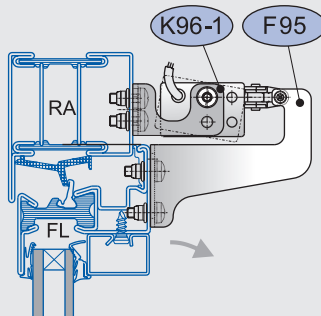
View on aluminium-wood window

- 2 RM, bottom hung
outward opening



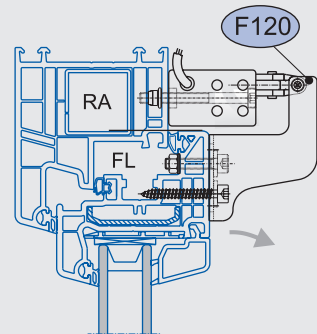
View on aluminium window

- 3 RM, bottom hung
inward opening



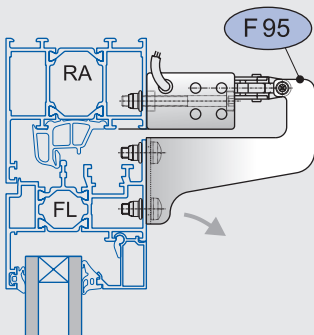
View on steel window

- 4 RM, bottom hung
inward opening



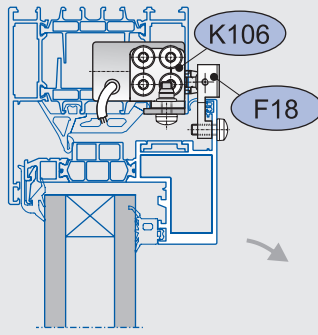
View on PVC window

- 4 RM, bottom hung
inward opening



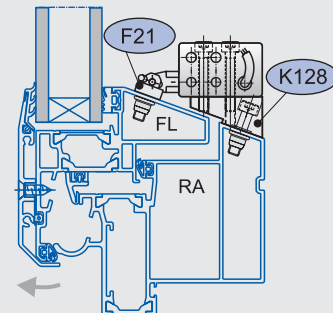
View on aluminium window

- 5 Concealed, bottom hung
inward opening



View on aluminium window

- 6 RM, top hung
outward opening



View on aluminium window (Facade)

Technical drawing of a 3D part with dimensions and labels:

- Dimensions: 30, 20, 10, 4, 8, 7, 16, 11, 12.
- Labels: M5 2x, M3x25 DIN427.

Technical drawing of a bracket with the following dimensions and features:

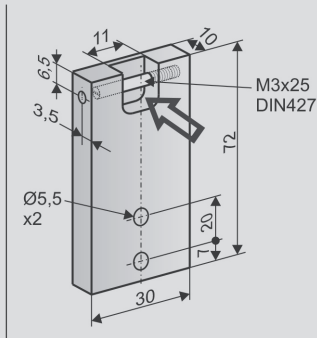
- Overall width: 30
- Overall height: 59
- Top flange width: 11
- Top flange thickness: 7
- Top flange hole diameter: Ø5.5
- Top flange hole spacing from left edge: 6.5
- Top flange hole spacing from right edge: 7
- Bracket body thickness: 3.5
- Bracket body hole diameter: Ø5.5
- Bracket body hole spacing from top flange: 20
- Bracket body hole spacing from bottom edge: 7
- Note: M3x25 DIN427

Product List

12/2016

CASEMENT BRACKETS

F20

**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

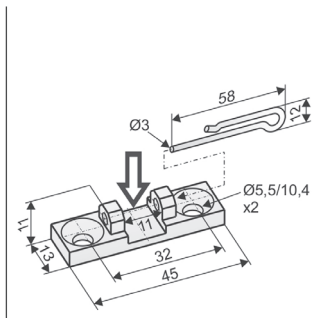
Part.-No. 151420**Material/Finish**

aluminium
(natural anodized)

Feature/Equipment

1x shaft screw M3x25,
2x rounded head screw
M5x20

F21

**Application**

Surface mounting on the casement/window frame profiles on the main/side closing edge of in-/outward opening windows, for surface mounted drives **KS2/KSL with K93, K94, K129, K130**

Chain fixing in direction of the arrow

Part.-No. 151421**Material/Finish**

aluminium
(natural anodized)

Feature/Equipment

1x spring pin Ø 3 mm

Optional accessories

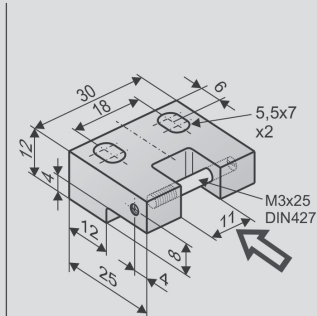
B1 for skylight Eternit

Part.-No. 151422

K128 for Schüco AWS 57RO

Part.-No. 523974

F35

**Application**

Surface mounting on the horizontal side of deep casement profiles of outward opening (friction hinged) windows, for surface mounted drives **KS2/KSL with K93, K94, K129, K130**

Chain fixing in direction of the arrow

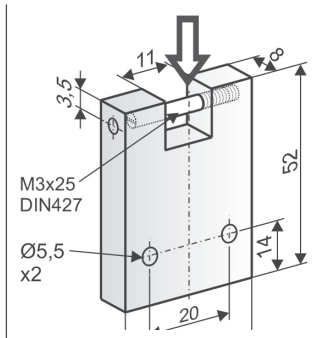
Part.-No. 151425**Material/Finish**

aluminium
(natural anodized)

Feature/Equipment

1x shaft screw M3x25

F37

**Application**

Surface mounting on the horizontal side of deep casement profiles of outward opening (friction hinged) windows, for surface mounted drives **KS2/KSL with K93, K94, K129, K130**

Chain fixing in direction of the arrow

Part.-No. 151424**Material/Finish**

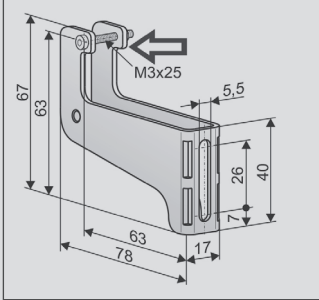
aluminium
(natural anodized)

Feature/Equipment

1x shaft screw M3x25

CASEMENT BRACKETS

F95



Application

Surface mounting on the case-
ment profiles of inward opening
windows, for surface mounted
drives **KS2/KSL** with **K96-1**

Chain fixing in direction of the
arrow

Part.-No. 523972

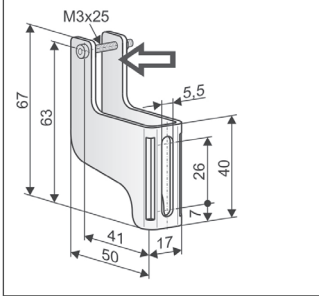
Material/Finish

Stainless steel

Feature/Equipment

1x screw M3x25,
spring pin M3,

F120



Application

Surface mounting on the case-
ment profiles of inward opening
windows, for direct fixing of sur-
face mounted drives **KS2** on
the window frame profile

Chain fixing in direction of the
arrow

Part.-No. 523973

Material/Finish

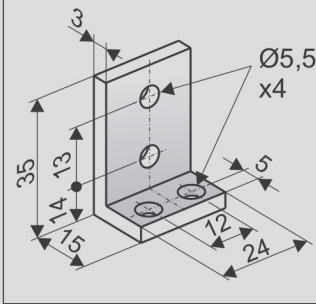
Stainless steel

Feature/Equipment

1x screw M3x25,
spring pin M3,

CASEMENT 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

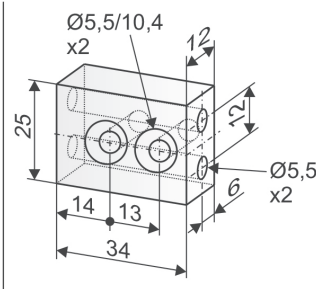
Material/Finish

aluminium
(natural anodized)

Feature/Equipment

2 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

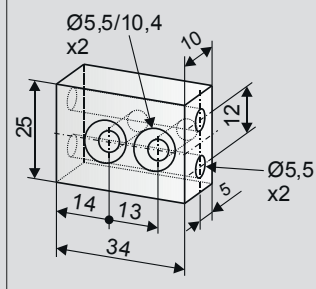
Material/Finish

aluminium
(natural anodized)

Feature/Equipment

2 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

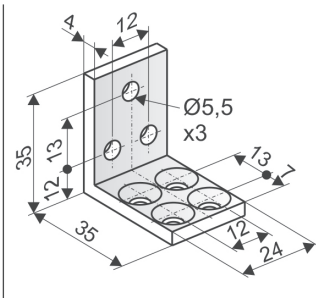
Material/Finish

aluminium
(natural anodized)

Feature/Equipment

2 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

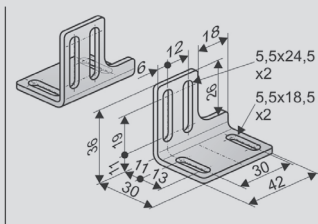
Material/Finish

aluminium
(natural anodized)

Feature/Equipment

2 angle brackets,
4x countersunk screw
M5x10

CASEMENT BRACKETS

K93**Application**

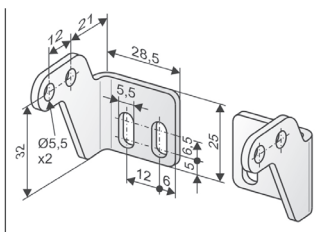
Surface mounting on the transom/mullion profiles of outward opening windows, for rigid fixing of surface mounted drives **KS2** with **F21**

Part.-No. 523916**Material/Finish**

Stainless steel

Feature/Equipment

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

K94**Application**

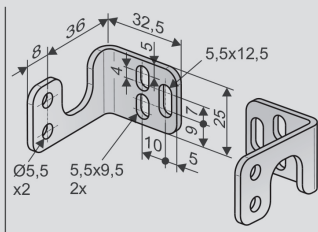
Surface mounting on the case-ment/window frame profiles of in-/outward opening windows, for rigid or swivelling fixing of drives **KS2/KSL** with **F21, F35, F37**

Part.-No. 523921**Material/Finish**

Stainless steel

Feature/Equipment

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

K96-1**Application**

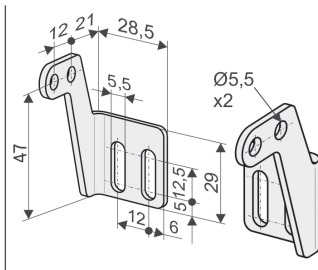
Surface mounting on the casement profiles of inward opening windows, for rigid or swivelling fixing of drives **KS2/KSL** with **F95**

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 case-ment/window frame profiles of in-/outward opening windows, for rigid or swivelling fixing of drives **KS2/KSL** with **F21, F35, F37**

Part.-No. 523969**Material/Finish**

Stainless steel

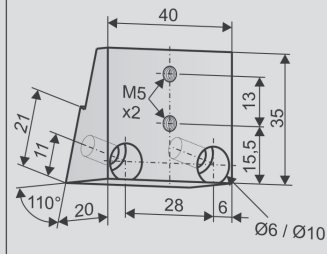
Feature/Equipment

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

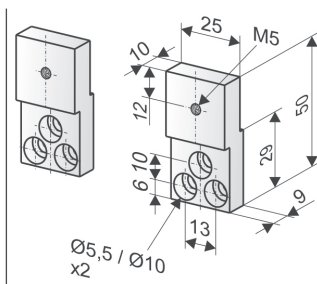
Part.-No. 523974

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 clousing edge of outward opening friction hinged windows series **Schüco AWS102**, for rigid fixing of drives **KS2** with **F21**

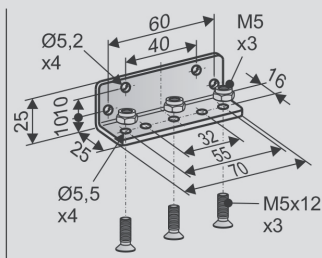
Part.-No. 523968

Material/Finish
aluminium
(natural anodized)

Feature/Equipment
2x cylinder head screw
M5x45

SKYLIGHT DOME

B1



Application

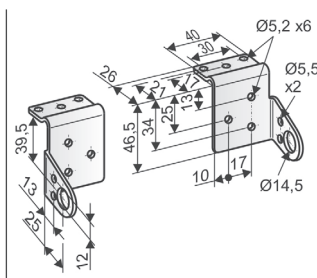
Mounting angle for mounting of drives **KS2** with **F21** and **KSA** with **F14** on skylight domes

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

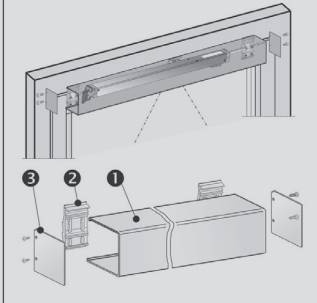
Material/Finish
Stainless steel

Feature/Equipment
4x screw M5x10

OPTIONAL ACCESSORIES

Cover profile set

AP KS2



Application

Cover profile for surface mounted drives **KS2** with brackets **K94, K129, K130**. Profile length adjustable to the length of the drives (end caps recommended) or of the casement (without end caps)

Material/Finish

see detailed description of componets

Feature/Equipment

incl. profile brackets, **without** end caps

L = 1,5 m (incl. 2x profile bracket)

Part.-No. 523952

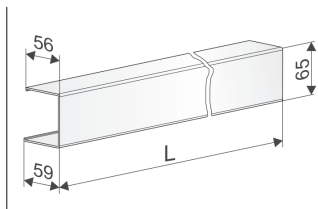
L = 2,0 m (incl. 3x profile bracket)

Part.-No. 523954

L = 2,9 m (incl. 4x profile bracket)

Part.-No. 523956

Cover profile



1

Cover profile for drives **KS2** for cutting on site

Price per metre

Part.-No. 523951

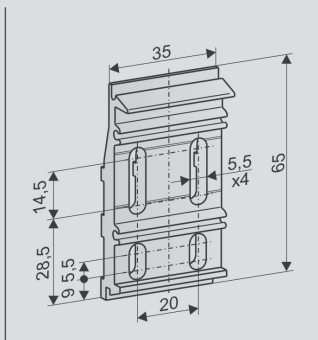
Material/Finish

aluminium (natural anodized)

Feature/Equipment

without profile brackets and end caps

Profile bracket



2

Profile bracket for **KS2** cover profile

< 2 m length: 2 pieces

> 2 m length: 3 – 4 pieces

Part.-No. 523948

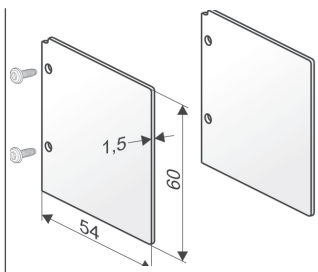
Material/Finish

aluminium (natural anodized)

Feature/Equipment

1 piece (for fixing the cover profile)

End caps



3

End caps for **KS2** cover profile

Part.-No. 523950

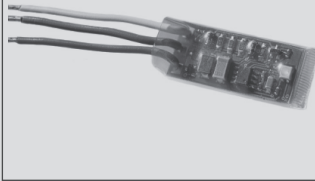
Material/Finish

aluminium (natural anodized)

Feature/Equipment

2 pieces + 4x screw M3x12 (taptite)

OPTIONAL ACCESSORIES

Main control unit				
M-COM		Application Configuration module for automatic configuration and surveillance of max. 6 opening or locking drives version S12 / S3 in synchronised multi-drive systems Rated voltage: 24 V DC +/- 20%, (max. 2 Vss) Current consumption: <12 mA Drive type: S12	Part.-No. 524177 Protection rating IP30 rubber envelope Ambient temperature range 0 °C ... + 70 °C Dimensions 45 x 17 x 6 mm Connecting wires 3 wires 0,5 mm² x 50 mm Feature/Equipment Printed circuit board with components and connection wires to be installed in connection box to be supplied on site	

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



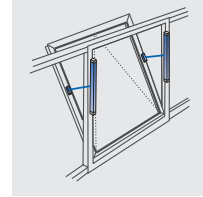
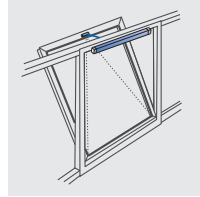
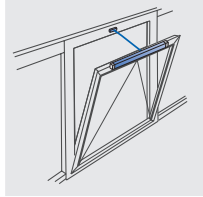
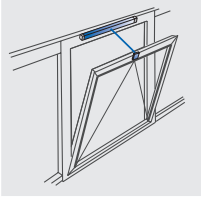
PRODUCT FEATURES KS4

- For natural ventilation, smoke and heat exhausting systems and ferralux® NSHEV (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. 24V, 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 module M-COM® Click

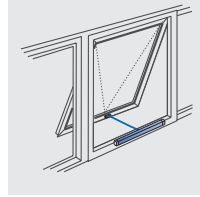
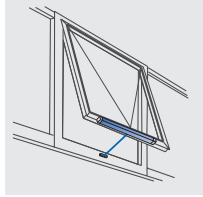
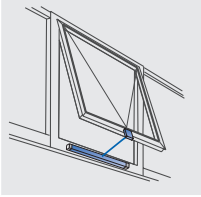
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804.
 The LCA results of the different product types are listed at the end of this product catalogue.
 The EPD documents can be viewed or downloaded from our homepage www.aumüller-gmbh.de.

FACADE

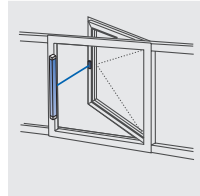
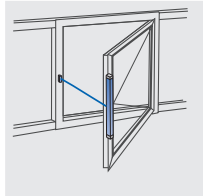
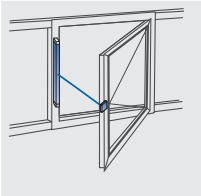
Bottom-hung



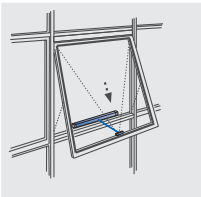
Top-hung



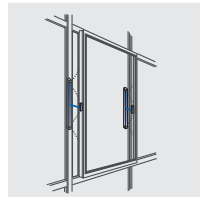
Side-hung



Friction hinged



Parallel outward opening



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

Equipment

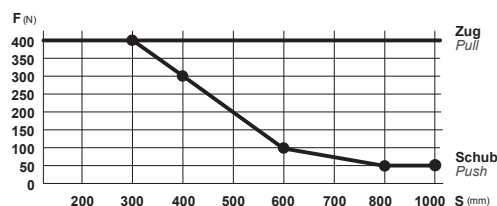
- Additional universal plug set for multi-drive operation

Options

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

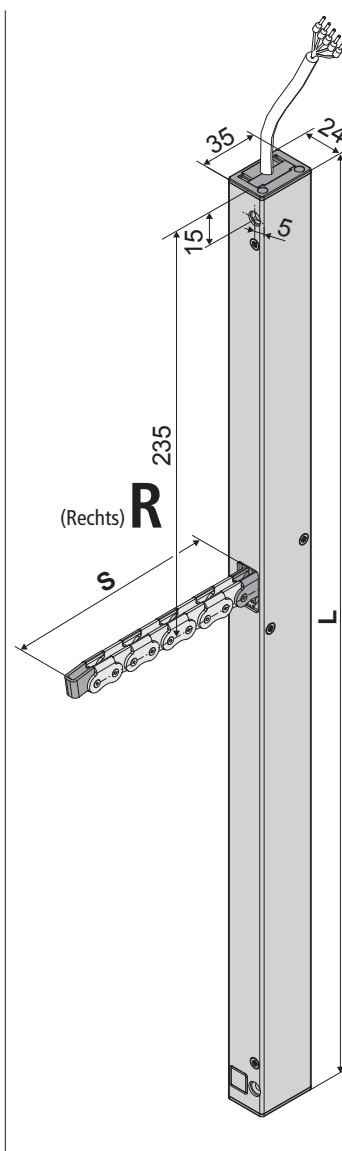
TECHNICAL DATA

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,9 A
I_A	Cut-off current	1,2 A
P_N	Rated power	22 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	400 N
F_A	Pushing force	

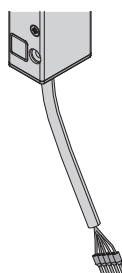


s > 600 mm only for pulling application

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 ² , ~ 2 m
v	Speed	$s < 400$ 8,0 mm/s $s 500 - 600$ 12,0 mm/s $s > 600$ 13,5 mm/s
s	Stroke	50 – 1000 mm ($\pm 5\%$)
L	Length	see order data
	Feedback contact	limit position „CLOSE“ (max. 24V, 500 mA)
	Sound pressure level A	≤ 70 dB (A)



OPTION



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

- Aumüller-Click plug solution with various cable lengths
Part-No.: 501250 - 1 m cable length / 501258 - 2 m cable length / 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.			
Drive housing painted/powder coated in other RAL colours					
Lump sum for coating		516030			
Specify at order stage:	1 – 20	516004			
	21 – 50	516004			
	51 – 100	516004			
	up 101	516004			
Microprocessor programming S12					
Electronic stroke reduction 24V S12		524190			
Programming drives 24V / 230V S12		524180			
Optional accessories	PU / pcs.	Part.-No.			
M-COM® Click Konfigurationsmodul für Antriebs-Verbundsysteme	1	524167			
M-COM Configuration module for synchronised multi-drive systems	1	524177			

OVERVIEW OF BRACKETS

Typical application					1	2	3					
Frame bracket					K134	K132	No					
Casement bracket					F41	F42	F42					
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.

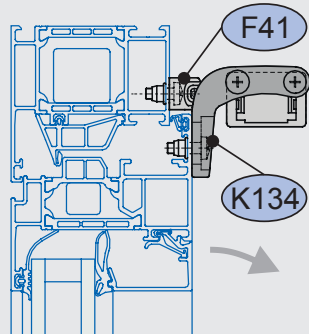
(*2) Sample values of the opening angle evaluated on the basis of FAB/FAH for inward opening windows with drives mounted at the main closing edge. For any other window heights, for outward opening windows and for windows with drives mounted at the side edges the opening angle will vary.

(*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.

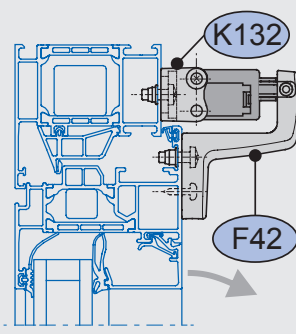
TYPICAL APPLICATIONS

- 1 FM, bottom hung
inward opening



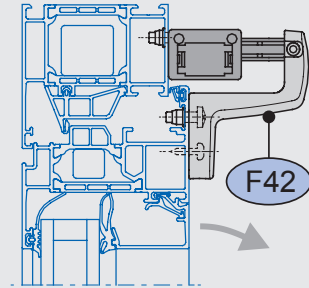
View on aluminium window

- 2 FM, bottom hung
inward opening



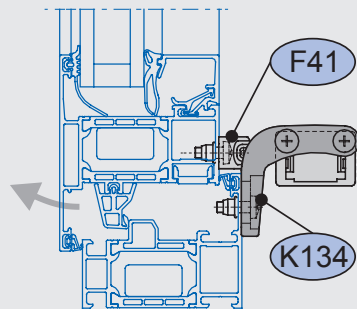
View on aluminium window

- 3 FM, bottom hung
inward opening



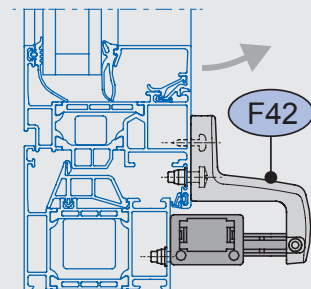
View on aluminium window

- 1 RM, top hung
outward opening



View on aluminium window

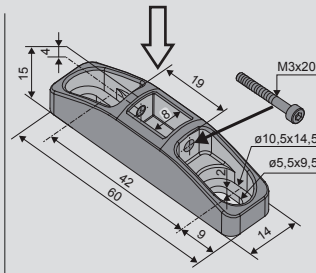
- 3 RM, top hung
inward opening



View on aluminium window

CASEMENT BRACKETS

F41



Application

Surface mounting on the casement profiles of inward opening windows, for **swivelling** fixing of drives **KS4** with **K132, K134**

Chain fixing in direction of the arrow

Part.-No. 151440

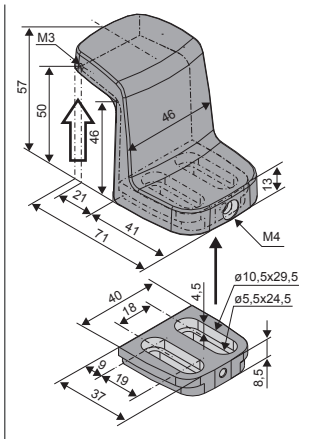
Material / Finish

Cast aluminum, bright chrome

Feature / Equipment

1x cylinder head screw M3x20
Drilling template

F42



Application

Surface mounting on the casement profiles of inward opening windows, for surface mounted drives **KS4**

Chain fixing in direction of the arrow

Part.-No. 151441

Material / Finish

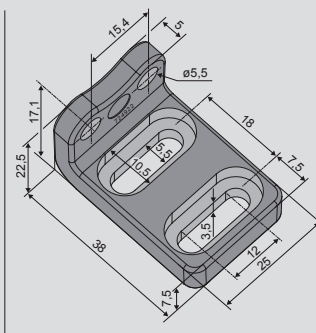
Cast aluminum, bright chrome

Feature / Equipment

1x baseplate
1x countersunk screw M4x10
1x cylinder head screw M3x25
Drilling template

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

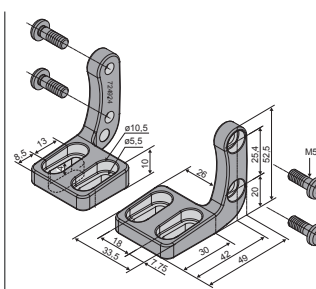
Material / Finish

Cast aluminum, bright chrome

Feature / Equipment

2x frame brackets
2x screws M5x16

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, F42**

Part.-No. 522941

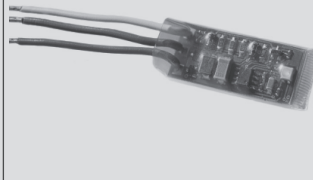
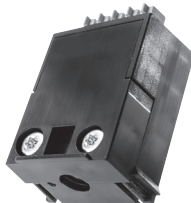

Material / Finish

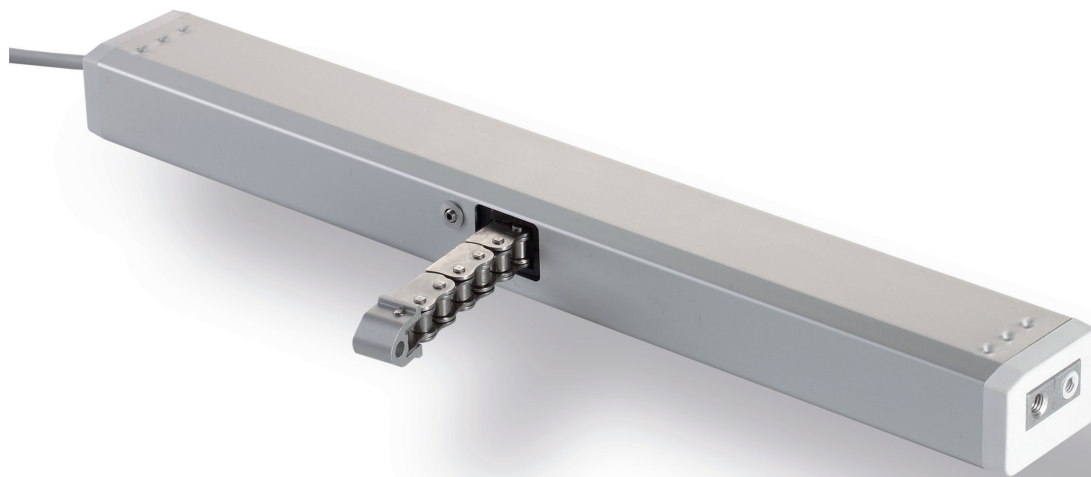
Cast aluminum, bright chrome

Feature / Equipment

4x screw M5x10

OPTIONAL ACCESSORIES

Main control unit											
M-COM		Application Configuration module for automatic configuration and surveillance of max. 6 opening or locking drives version S12 / S3 in synchronised multi-drive systems Rated voltage: 24 V DC +/- 20%, (max. 2 Vss) 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 mm² 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. 6 opening or locking drives version S12 / S3 in synchronised multi-drive systems Rated voltage: 24 V DC +/- 20%, (max. 2 Vss) Current consumption: <12 mA Drive type: S12 Protection rating IP30 rubber envelope	Part.-No. 524167 Ambient temperature range: -5 °C ... +70 °C Dimensions: 40 x 26 x 15 mm Connection: for AUMÜLLER chain drives with AUMÜLLER-Click plug solution Equipment Tongs for removing the M-COM® Click								
Plug solution											
Aumüller-Click plug solution		Application Aumüller-Click plug solution: Unified plug solution for all AUMÜLLER chain drives and AUMÜLLER folding arm drives. Rated voltage: 24 V DC +/- 20 %, (max. 2 Vss) Connecting cable: non-halogen, grey 5 x 0,5 mm² Terminal: to 1,5 mm²	Feature/Equipment <ul style="list-style-type: none">• 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: <table><tr><td>1 m cable length - 24 V DC</td><td>Part.-No. 501250</td></tr><tr><td>2 m cable length - 24 V DC</td><td>Part.-No. 501258</td></tr><tr><td>3 m cable length - 24 V DC</td><td>Part.-No. 501251</td></tr><tr><td>5 m cable length - 24 V DC</td><td>Part.-No. 501252</td></tr><tr><td>10 m cable length - 24 V DC</td><td>Part.-No. 501253</td></tr></table>		1 m cable length - 24 V DC	Part.-No. 501250	2 m cable length - 24 V DC	Part.-No. 501258	3 m cable length - 24 V DC	Part.-No. 501251	5 m cable length - 24 V DC	Part.-No. 501252
1 m cable length - 24 V DC	Part.-No. 501250										
2 m cable length - 24 V DC	Part.-No. 501258										
3 m cable length - 24 V DC	Part.-No. 501251										
5 m cable length - 24 V DC	Part.-No. 501252										
10 m cable length - 24 V DC	Part.-No. 501253										
Special model											
PU / pcs.		Part.-No.									
Casement brackets painted / powder coated in other RAL colours											
Lump sum for coating		516030									
Specify at order stage:	1 – 20	516032									
	21 – 50	516032									
	51 – 100	516032									
	up 101	516032									
Frame brackets painted / powder coated in other RAL colours											
Lump sum for coating		516030									
Specify at order stage:	1 – 20	516031									
	21 – 50	516031									
	51 – 100	516031									
	up 101	516031									



PRODUCT FEATURES KSA

- For natural ventilation, SHEV und ferralux® NRWG nach EN12101-2
- TWIN and D 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
- Suitable for operation with M-COM for the automatic configuration of synchronised run of multi drive systems and sequence control

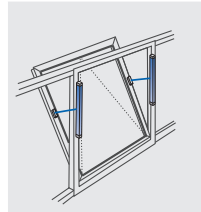
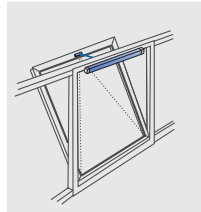
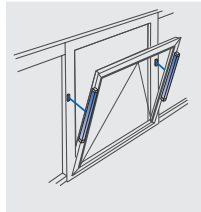
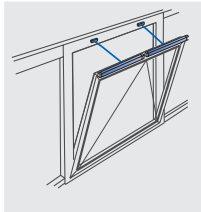
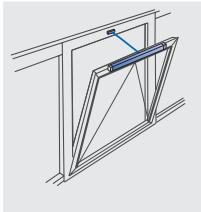
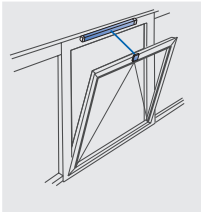
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804.

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

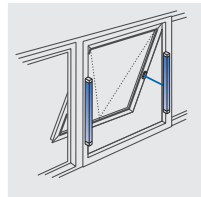
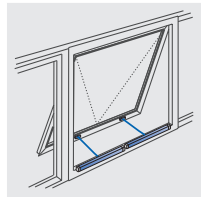
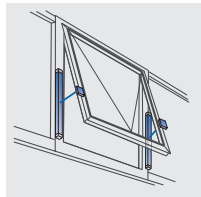
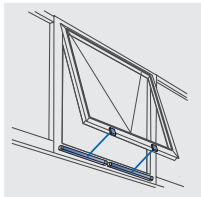
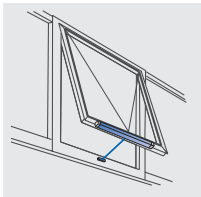
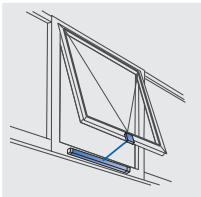
The EPD documents can be viewed or downloaded from our homepage www.aumueller-gmbh.de.

FACADE

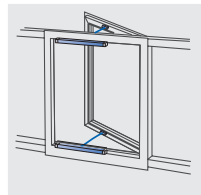
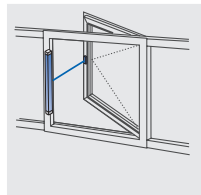
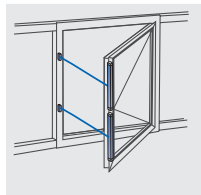
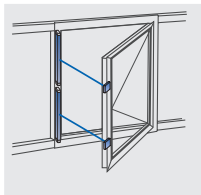
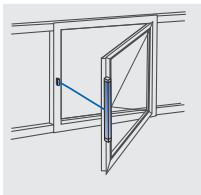
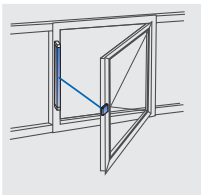
Bottom-hung



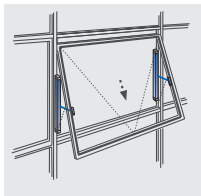
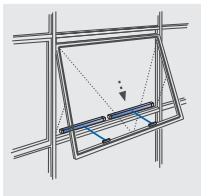
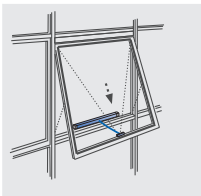
Top-hung



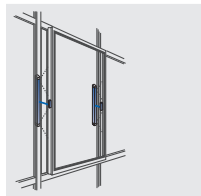
Side-hung



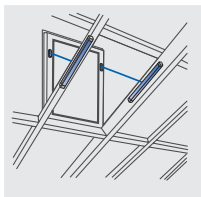
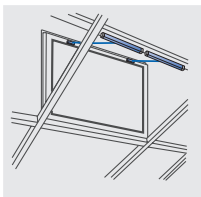
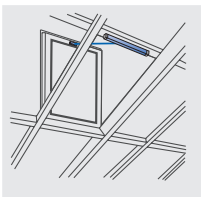
Friction hinged



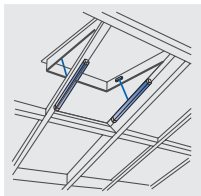
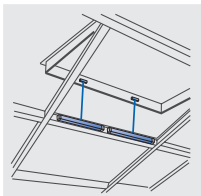
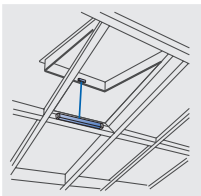
Parallel outward opening

**ROOF**

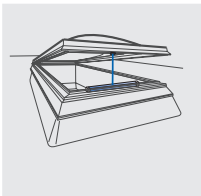
Bottom-hung



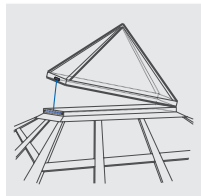
Top-hung



Sky light



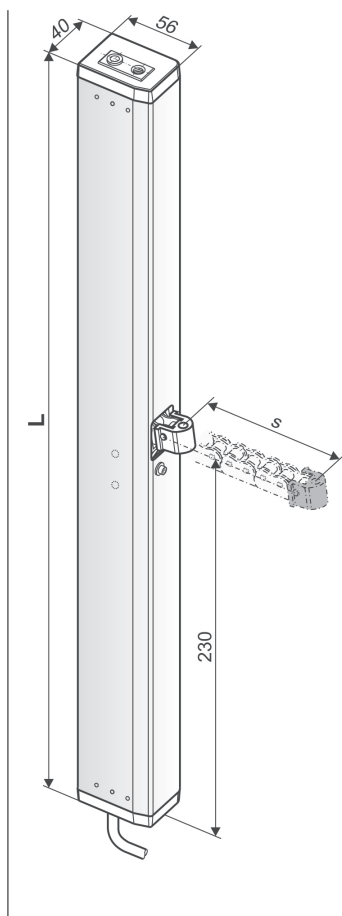
Glass pyramid



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

Options

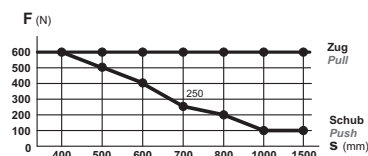
- Programmable special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)



TECHNICAL DATA

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,9 A
I_A	Cut-off current	1,2 A
P	Rated power	22 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F	Pulling force max.	600 N

Pushing force



$s > 800$ 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 ² , ~ 5 m
	Speed	$s < 400$ 8,0 mm/s 8,0 mm/s $s 500 - 600$ 12,0 mm/s 8,0 mm/s $s > 600$ 13,5 mm/s 8,0 mm/s

S	Stroke	250 – 1.500 mm ($\pm 5\%$)
L	Length	see order data

Sound pressure level A ≤ 70 dB (A)

In delivery

- 2x countersunk screws M8x16, 2x spacer ring (brass)
- chain unlocking key
- blind plug for unused cable entry
- 2x blind plugs for chain unlocking points
- warning sign sticker „Risk of entrapment“



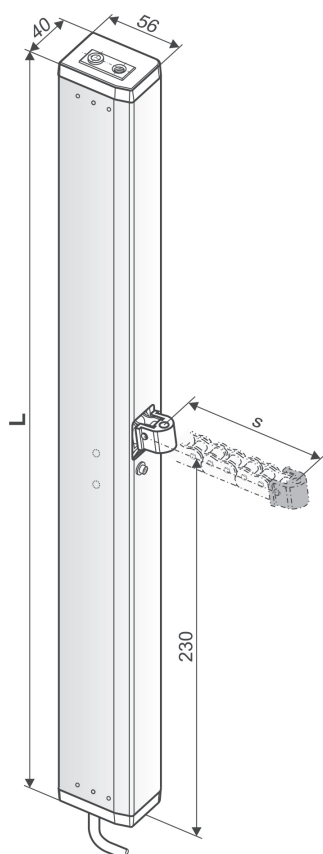
ORDER DATA							
s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.		
250	461	KSA 250 S12 24V	E6/C-0	1	524825		
300	537	KSA 300 S12 24V	E6/C-0	1	524830		
400	537	KSA 400 S12 24V	E6/C-0	1	524840		
500	639	KSA 500 S12 24V	E6/C-0	1	524850		
600	639	KSA 600 S12 24V	E6/C-0	1	524860		
800	740	KSA 800 S12 24V	E6/C-0	1	524880		
1000	842	KSA 1000 S12 24V	E6/C-0	1	524810		
1200	944	KSA 1200 S12 24V	E6/C-0	1	524912		
1500	1097	KSA 1500 S12 24V	E6/C-0	1	524950		

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

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

Options

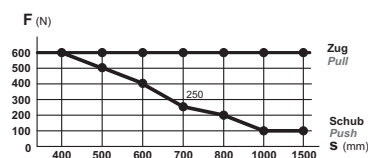
- Programmable special functions
- M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)



TECHNICAL DATA

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,9 A
I_A	Cut-off current	1,2 A
P	Rated power	22 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F	Pulling force max.	600 N

Pushing force



$s > 800$ 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 ² , ~ 5 m
	Speed	

$s < 400$	8,0 mm/s	8,0 mm/s
$s 500 - 600$	12,0 mm/s	8,0 mm/s
$s > 600$	13,5 mm/s	8,0 mm/s

S	Stroke	250 – 1.500 mm ($\pm 5\%$)
L	Length	see order data
	Sound pressure level A	≤ 70 dB (A)

In delivery

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



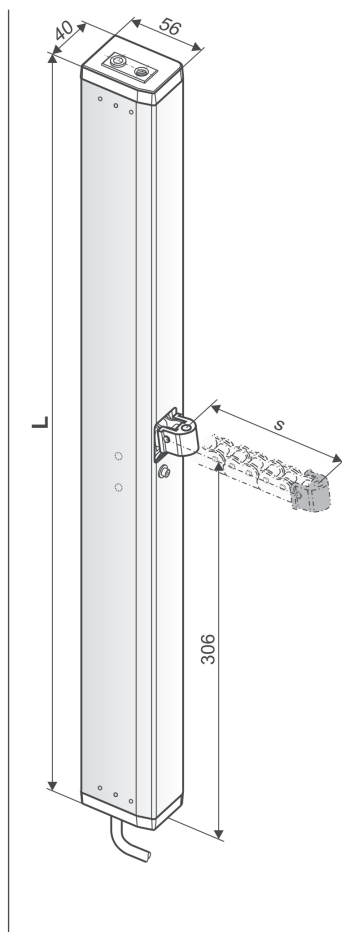
ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.	
250	461	KSA 250 S12 24V Z	E6/C-0	1	524823	
300	537	KSA 300 S12 24V Z	E6/C-0	1	524833	
400	537	KSA 400 S12 24V Z	E6/C-0	1	524843	
500	639	KSA 500 S12 24V Z	E6/C-0	1	524853	
600	639	KSA 600 S12 24V Z	E6/C-0	1	524863	
800	740	KSA 800 S12 24V Z	E6/C-0	1	524883	
1000	842	KSA 1000 S12 24V Z	E6/C-0	1	524813	
1200	944	KSA 1200 S12 24V Z	E6/C-0	1	524923	
1500	1097	KSA 1500 S12 24V Z	E6/C-0	1	524953	

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

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

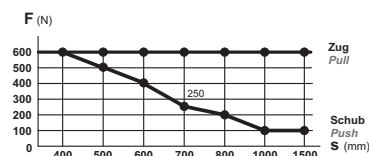
Options

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



TECHNICAL DATA

U_N	Rated voltage	230V AC (50 Hz)
I_N	Rated current	0,2 A
I_A	Cut-off current	0,2 A
P_N	Rated power	46 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	600 N
F_A	Pushing force	



$s > 800$ 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 ² , ~ 5 m
v	Speed	\searrow 8,0 mm/s \swarrow 8,0 mm/s

s	Stroke	250 – 1.500 mm (\pm 5 %)
L	Length	see order data
	Sound pressure level A	\leq 70 dB (A)

In delivery

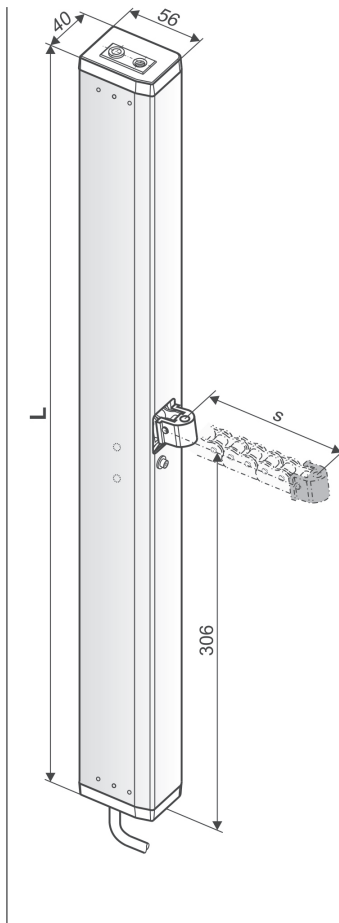
- 2x countersunk screws M8x16, 2x Spacer ring (brass)
- chain unlocking key
- blind plug for unused cable entry
- 2x blind plugs for chain unlocking points
- warning sign sticker „Risk of entrapment“



ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.	
250	537	KSA 250 S12 230V	E6/C-0	1	495220	
300	613	KSA 300 S12 230V	E6/C-0	1	495230	
400	613	KSA 400 S12 230V	E6/C-0	1	495240	
500	715	KSA 500 S12 230V	E6/C-0	1	495250	
600	715	KSA 600 S12 230V	E6/C-0	1	495260	
800	816	KSA 800 S12 230V	E6/C-0	1	495280	
1000	918	KSA 1000 S12 230V	E6/C-0	1	495200	
1200	1020	KSA 1200 S12 230V	E6/C-0	1	495320	
1500	1173	KSA 1500 S12 230V	E6/C-0	1	495350	

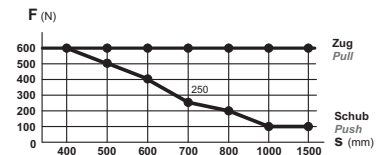
OPTIONS						
Special model				PU / pcs.	Part.-No.	
Drive housing painted/powder coated in other RAL colours						
Lump sum for coating					516030	
Specify at order stage:				1 – 20	516004	
				21 – 50	516004	
				51 – 100	516004	
				up 101	516004	
Extra length connecting cable:						
5 m – non-halogen, grey – 6 x 0,75 mm ²					501164	
10 m – non-halogen, grey – 6 x 0,75 mm ²					501166	
Microprocessor programming S12						
Programming synchronised multi-drive systems 230V S12					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. 24V, 500 mA)
- Parallel connection up to 8 drives in one group



TECHNICAL DATA

U_N	Rated voltage	230V AC (50 Hz)
I_N	Rated current	0,2 A
I_A	Cut-off current	0,2 A
P_N	Rated power	46 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	600 N
F_A	Pushing force	



$s > 800$ 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 ² , ~ 5 m
v	Speed	\nearrow 8,0 mm/s \searrow 8,0 mm/s

s	Stroke	250 – 1.500 mm (\pm 5 %)
L	Length	see order data
	Sound pressure level A	\leq 70 dB (A)

In delivery

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



ORDER DATA

s [mm]	L [mm]	Version	Finish	PU / pcs.	Part.-No.			
250	537	KSA 250 S12 230V Z	E6/C-0	1	495223			
300	613	KSA 300 S12 230V Z	E6/C-0	1	495233			
400	613	KSA 400 S12 230V Z	E6/C-0	1	495243			
500	715	KSA 500 S12 230V Z	E6/C-0	1	495253			
600	715	KSA 600 S12 230V Z	E6/C-0	1	495263			
800	816	KSA 800 S12 230V Z	E6/C-0	1	495283			
1000	918	KSA 1000 S12 230V Z	E6/C-0	1	495203			
1200	1020	KSA 1200 S12 230V Z	E6/C-0	1	495323			
1500	1173	KSA 1500 S12 230V Z	E6/C-0	1	495353			

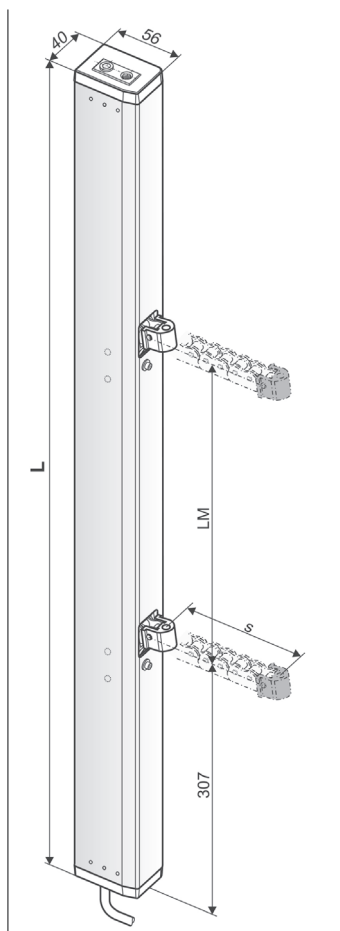
OPTIONS

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

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

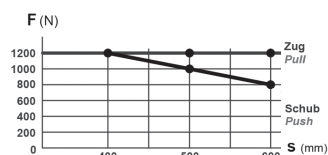
Options

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



TECHNICAL DATA

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	1,8 A
I_A	Cut-off current	2,4 A
P_N	Rated power	43 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	1.200 N
F_A	Pushing force max.	



F_H	Pullout force	5.000 N (fastening depended)
	Chain	stainless steel
	Connecting cable	non-halogen, grey 5 x 0,5 mm ² , ~ 5 m
v	Speed	$s = 400$ 8,0 mm/s $s = 500 - 600$ 12,0 mm/s
s	Stroke	400 – 600 mm ($\pm 5\%$)
L	Length	see order data
LM	Distance in between chains	see order data
	Sound pressure level A	≤ 70 dB (A)

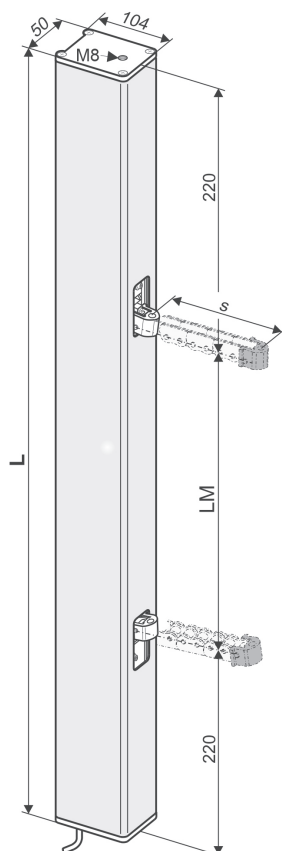
In delivery

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

ORDER DATA									
s [mm]	L [mm]	LM [mm]	Version	Finish	PU/pcs.	Part.-No.			
400	1100	485	KSA TWIN 400 S12 24V	E6/C-0	1	524845			
500	1303	587	KSA TWIN 500 S12 24V	E6/C-0	1	524855			
600	1303	587	KSA TWIN 600 S12 24V	E6/C-0	1	524865			

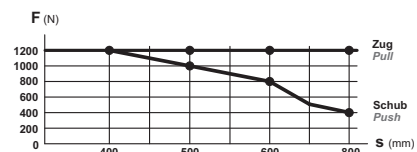
OPTIONS									
Special model					PU/pcs.	Part.-No.			
Drive housing painted/powder coated in other RAL colours									
Lump sum for coating						516030			
Specify at order stage:					1 – 20	516004			
					21 – 50	516004			
					51 – 100	516004			
					up 101	516004			
Extra length connecting cable: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







- Application: natural ventilation, SHEV
- 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

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	1,8 A
I_A	Cut-off current	2,4 A
P_N	Rated power	43 W
ED	Duty cycle	30 % (ON: 3 min./OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	1.200 N
F_A	Pushing force	



F_H	Pullout force	5.000 N (fastening depended)
	Chain	Stainless steel
	Connecting cable	non-halogen, grey- 5 x 0,5 mm ² , ~ 5 m
v	Speed	$s = 400$  8,0 m/s  8,0 m/s $s = 500 - 600$  12,0 m/s  8,0 m/s $s > 600$  13,5 m/s  8,0 m/s
s	Stroke	400 – 800 mm ($\pm 5\%$)
L	Length	see order data
LM	Distance in between chains	see order data
	Sound pressure level A	≤ 70 dB (A)

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	522140			
500	837	397	KSA D 500 S12 24V	E6/C-0	1	522150			
600	837	397	KSA D 600 S12 24V	E6/C-0	1	522160			
800	942	502	KSA D 800 S12 24V	E6/C-0	1	522180			

OPTIONS					
Special model		PU/pcs.	Part.-No.		
Drive housing painted/powder coated in other RAL colours					
Specify at order stage:	1 – 4	516004			
	5 – 9	516004			
	10 – 49	516004			
	50 – 99	516004			
	up 100	516004			
Extra length connecting cable:					
10 m – non-halogen, grey– 5 x 0,5 mm²			501056		
Microprocessor programming S12					
Electronic stroke reduction 24V S12			524190		
Programming drives 24V / 230V S12			524180		
Optional accessories		PU/pcs.	Part.-No.		
M-COM Configuration module for synchronised multi-drive systems		1	524177		

OVERVIEW OF BRACKETS

Typical application					1	2	3	4	5	6	
Frame bracket					K-A1	K81-1, K87, K-C1, K-E1, K-E2	K-B1	K-B2	K-D1	K-F	
Casement bracket					F14, F16	F14, F16, F16-1, F29-2, F33, F38, F39	F14, F16				
Space requirement	min.	[mm]			35	65 – 90	45 – 55		45	30	
Overlap thickness *1		[mm]			0 – 21	irrelevant	0 – 21		0 – 21	0 – 21	
Opening angle *2	max.	[DEG]			20	60	50		40	45	
Casement weight *3	max.	[Kg]			250	130	130		130	250	
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.

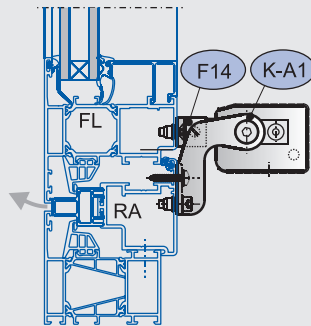
*3 Please respect the individual geometry of the different windows. The listed max. casement weight refers to a single drive on button hung window with a max. opening angle.

*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.

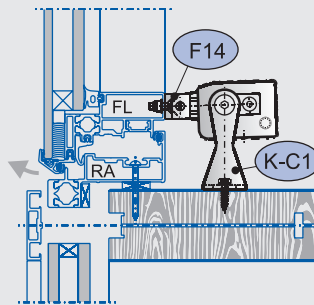
TYPICAL APPLICATIONS

1 RM, top hung, outward opening



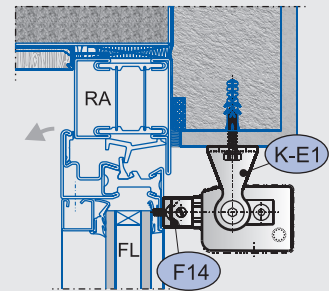
View on aluminium window

2 PR, bottom hung, inward opening



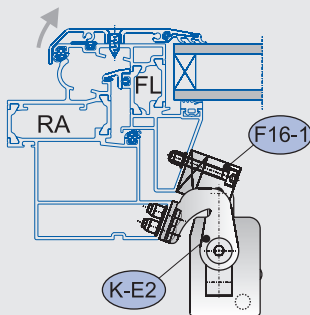
View on aluminium window

2 PR, bottom hung, outward opening



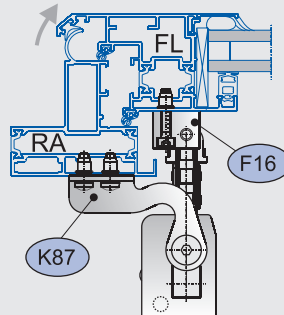
View on aluminium window

2 RM, roof



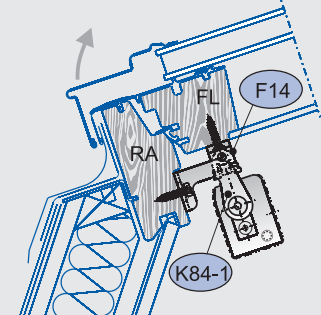
View on aluminium window

2 RM, roof



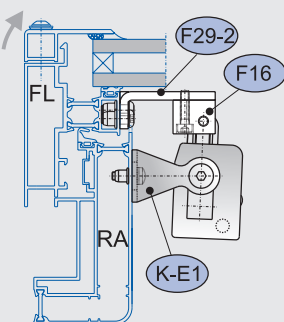
View on aluminium window

2 RM, roof



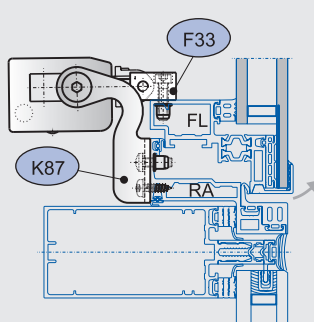
View on wooden window

2 RM, roof



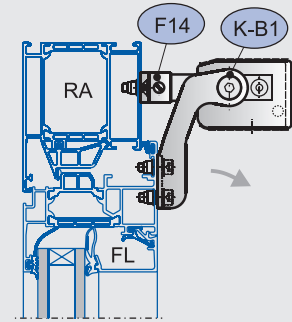
View on aluminium window

2 RM, top hung, outward opening



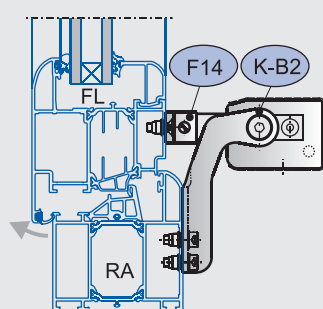
View on aluminium window

3 FM, bottom hung, inward opening



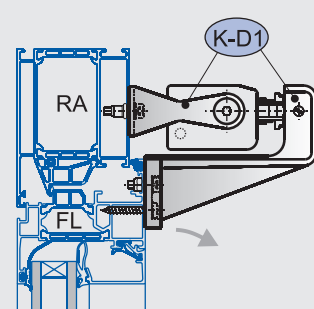
View on aluminium window

4 RM, top hung, outward opening



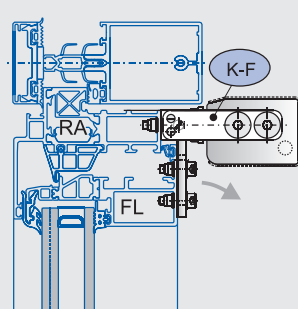
View on aluminium window

5 RM, bottom hung, inward opening



View on aluminium window

6 FM, bottom hung, inward opening



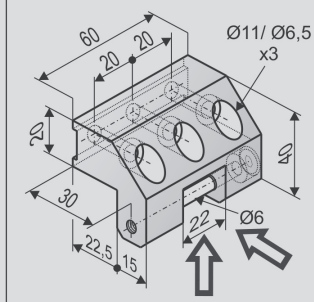
View on aluminium window

[illegible]

Material/Finish
aluminium
(natural anodized)

Feature/Equipment
1x cylinder head screw
M6x5

CASEMENT BRACKETS

F39**Application**

Surface mounting on the case-
ment profile of outward opening
roof windows, for surface moun-
ted drives **KSA** with **K-A1, K-B1,**
K-B2, K-E1, K84-1

Chain fixing in direction of the
arrow

Part.-No. 524295**Material/Finish**

aluminium
(natural anodized)

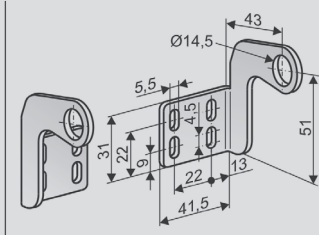
Feature/Equipment

1x cylinder head screw
M6x50

Optional accessories**B2** Base Plate F39/F40**Part.-No. 155173**

FRAME BRACKETS

K-A1



Application

Surface mounting on the casement/window frame profiles of in-/outward opening windows, for swivelly fixing of drives **KSA** with **F 4, F 6, F33, F39** (Required space on frame profile **35 mm**)

Part.-No. 524057

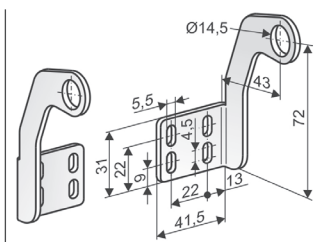
Material/Finish

Stainless steel

Feature/Equipment

1x right,
1x left

K-B1



Application

Surface mounting on the casement/ window frame profiles of in-/outward opening windows, for swivelling fixing of drives **KSA** with **F14, F16, F33, F39** (Required space on frame profile **35 – 52 mm**)

Part.-No. 524053

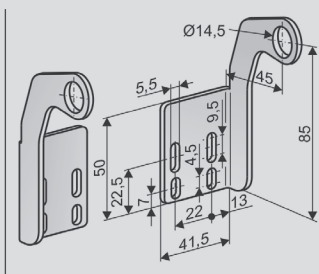
Material/Finish

Stainless steel

Feature/Equipment

1x right,
1x left

K-B2



Application

Surface mounting on the casement/ window frame profiles of in-/outward opening (wooden) windows, for swivelling fixing of drives **KSA** with **F14, F16, F33, F39** (Required space on frame profile **35 – 52 mm**)

Part.-No. 524063

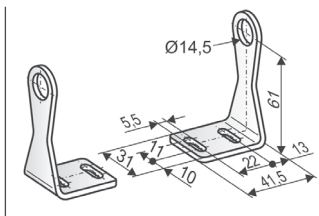
Material/Finish

Stainless steel

Feature/Equipment

1x right,
1x left

K-C1



Application

Surface mounting on the casement/window frame profiles or on the mullion/transom of outward opening windows, for swivelling fixing of drives **KSA** with **F14, F16, F33, F39**

Part.-No. 524054

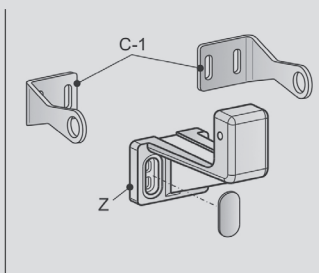
Material/Finish

Stainless steel

Feature/Equipment

1x right,
1x left

K-D1



Application

Surface mounting on the casement and frame profile of inward opening windows, for swivelling fixing of drives **KSA** on the frame profile (required space **50 mm**)

Part.-No. 524055

Material/Finish

Stainless steel (C-1),
Aluminum casting (Z)

Feature/Equipment

1x C-1,
1x Z

Accessories for

F73 Casement bracket „Z“

Part.-No. 524221

FRAME BRACKETS

K-E1	<p>Ø14,5 5,5 7 10 22 13 41,5 41</p>	Application Surface mounting on the mullion/transom of outward opening windows, for swivelling fixing of drives KSA with F14, F16, F33, F39	Part-No. 524056 Material/Finish Stainless steel Feature/Equipment 1x right, 1x left
K-E2	<p>Ø14,5 5,5 7 10 22 13 41,5 34,5 5,4</p>	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 F14, F16, F33, F39	Part-No. 524066 Material/Finish Stainless steel Feature/Equipment 1x right, 1x left
K-F	<p>F14 M8x16 x4 73 9 18 60 47,5 5,5 25 10 35 22 6,5 18 9</p>	Application Surface mounting on the casement and frame profile of inward opening bottom hung windows, for rigid fixing of drives KSA on the frame profile (required space on frame profile 29 mm, FÜ 10 mm)	Part-No. 524211 Material/Finish aluminium (natural anodized) Feature/Equipment 4x countersunk-head screw M8x16 + 1x F14
K84-1	<p>Ø14,5 5,5 7 10 22 13 39,5 39,5</p>	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 F14, F16, F33, F39	Part-No. 524224 Material/Finish Stainless steel Feature/Equipment 1x right, 1x left

F16-1



Part.-No. 155171

K-E2



Part.-No. 524066

K87



Part.-No. 524319

1/60

ROOF WINDOWS | HEROAL 085 / 180

Surface mounting on the window frame profiles of outward opening roof windows series **Heroal 085 / 180**, for fixing of drives **KSA** with **F16**

Material/Finish
Stainless steel

Feature/Equipment
2x cylinder head screw
M6x20

Surface mounting on the casement/window frame profiles of in/outward opening windows (e.g. friction hinged or roof windows), for surface mounted drives **KSA** with **K-A1, K-B1, K-B2, K-E1, K-E2, K84-1, K87**

Material/Finish
aluminium
(natural anodized)
Feature/Equipment
1x cylinder head screw
M6x50

Surface mounting on the window frame profiles or on the mullions/transoms of outward opening roof windows, for swivelling fixing of drives **KSA** with **F14, F16, F33, F39**

Material/Finish
Stainless steel

Feature/Equipment
1x right,
1x left

Mounting angle for mounting of drives **KS2** with **F21** and **KSA** with **F14** on skylight domes

Material/Finish
Stainless steel

Feature/Equipment
1x countersunk-head screw
M5x12, 3x nut M5

[illegible]

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

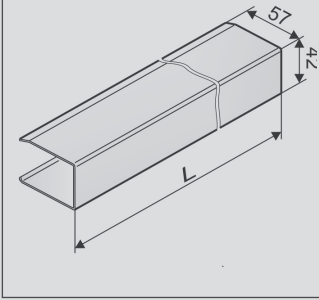
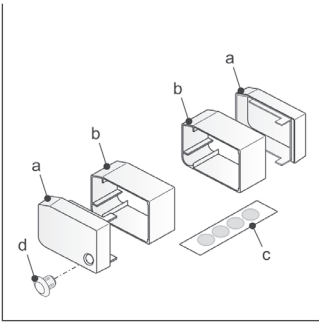
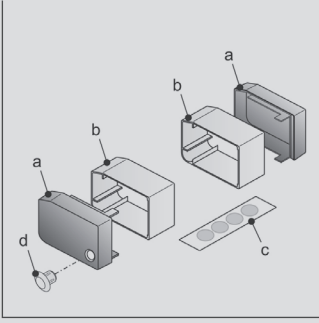
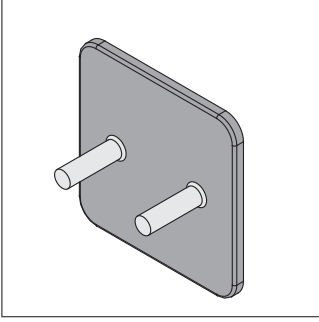
Material/Finish
Stainless steel

Feature/Equipment
4x screw M5x10

Material/Finish
aluminium

Feature/Equipment
for casement bracket F14
2x t = 3 mm, 1x t = 5 mm,
for frame brackets
4x t = 5 mm

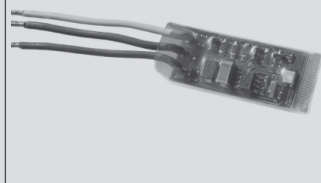
OPTIONAL ACCESSORIES

Cover-profile Set			
AP-KSA 	Application Cover profile for surface mounted drives KSA with frame bracket sets K-A1, K-B1, K-B2, K-E2, K84-1 . Profile length adjustable to the length of the drives or of the casement	Material/Finish aluminium (natural anodized) + plastic (grey) Feature/Equipment incl. mounting aid for cover profile shortening on the job site + mounting set ID: 524300	
	L = 1,45 m (length w/o end caps)	Part.-No. 524305	
	L = 2,90 m (length w/o end caps)	Part.-No. 524310	
	L = customized (Price per metre)	Part.-No. 524302	
Assembly-set for cover profile (grey and caps)			
	Part.-No. 524300 Material/Finish aluminium, plastic (grey) Feature/Equipment a. 2x end cap b. 2x spacer c. 4x stickers d. 1x dummy plug		
Assembly-set for cover profile (black and caps)			
	Part.-No. 524303 Material/Finish aluminium, plastic (black)) Feature/Equipment a. 2x end cap b. 2x spacer c. 4x stickers d. 1x dummy plug		
Chain unlocking key			
	Application Manual unlocking of the drive chain for mounting of drives KSA	Part.-No. 524210 Material/Finish plastic	

OPTIONAL ACCESSORIES

Main control unit

M-COM



Application

Configuration module for automatic configuration and surveillance of max. 6 opening or locking drives version S12 / S3 in synchronised multi-drive systems

Rated voltage:

24 V DC +/- 20%, (max. 2 Vss)

Current consumption: <12 mA

Drive type: S12

Part.-No. 524177

Protection rating

IP30 rubber envelope

Ambient temperature range

0 °C ... + 70 °C

Dimensions

45 x 17 x 6 mm

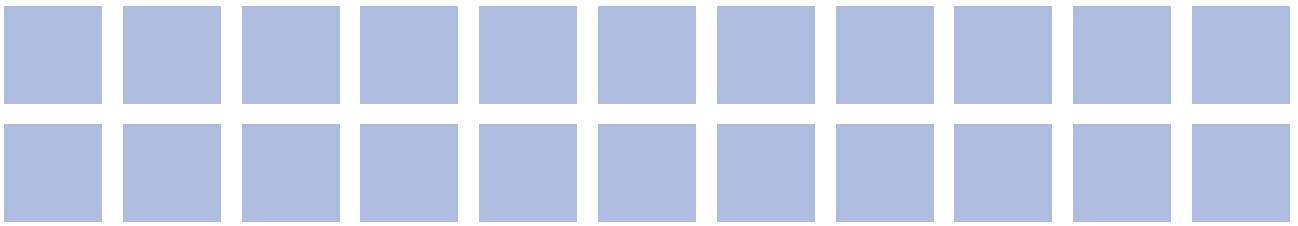
Connecting wires

3 wires 0,5 mm² x 50 mm

Feature/Equipment

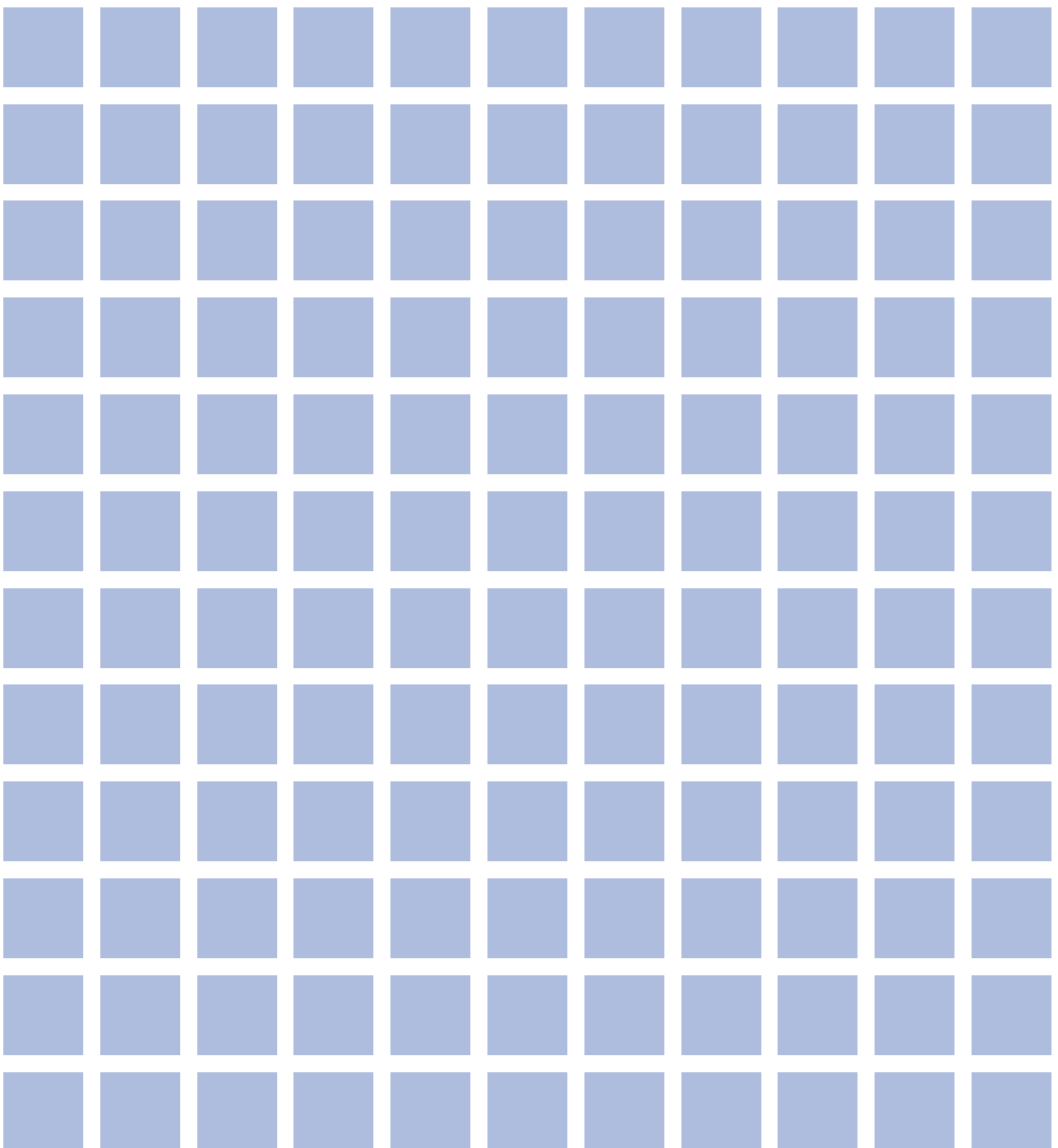
Printed circuit board with components and connection wires to be installed in connection box to be supplied on site

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



2

Spindle drives



OVERVIEW OF 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	SHEV	NSHEV	Facade	Roof	Run monitoring	Synchronised run	Sequence control
			[VDC]	[mm]	[N]	[N]	[mm/s]	[mm/s]	[mm]	[A]								
PLA	PLA6	S3	24	100–1000	600	600	6,0	6,0	350	0,8	●	●	●	■	●	●	●	●
		S12		100–1000	600	600	6,0	6,0	350	0,8	●	●	●	■	●	●	●	●
	PLA8	S3	24	100–1000	800	800	10,0	10,0	600	1,4	●	●	●	■	●	●	●	●
		S12		100–1000	800	800	10,0	10,0	600	1,4	●	●	●	■	●	●	●	●
	PLA10	S12	24	100–1000	1000	1000	12,6	12,6	750	2,5	●	●	●	■	●	●	●	●
	PLA101	S3	24	100–1000	1000	1000	4,6	4,6	250	1,0	●	●	●	■	●	●	●	●
		S12		100–1000	1000	1000	4,6	4,6	250	1,0	●	●	●	■	●	●	●	●
	PLA16	S12		100–1000	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	300–1000	1500	1500	16,0	16,0	950	4,0	●	●	●	■	●	●	●	●
	PLS30	S12	24	300–1000	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

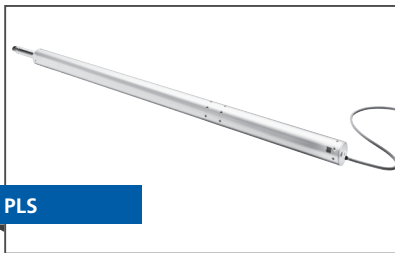
○ only with external modules (cut-off switch system, synchronisation module, sequence control module)



PLA

PLA SPINDLE DRIVES

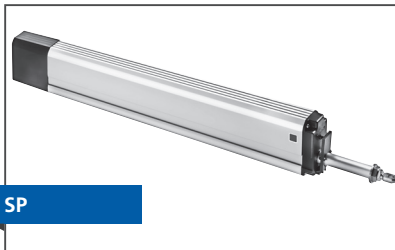
■ Model	24V DC, S3 und S12
■ Pulling force	600–1600 N (type depending)
■ Stroke length	100–1000 mm
■ Speed	4,0–12,5 mm/s (type depending)
■ Housing (DxL)	D=36 mm, length depends on stroke
■ Opening mechanism	stainless steel spindle tube
■ Versions	SOLO, Tandem, Synchro
■ Protection rating	IP65



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



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	8,5 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



SPECIAL FEATURES PLA

- For natural ventilation, smoke and heat exhausting and ferralux® NSHEV (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
- Stainless steel spindle and spindle tube, ball beared with end position dampening
- 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

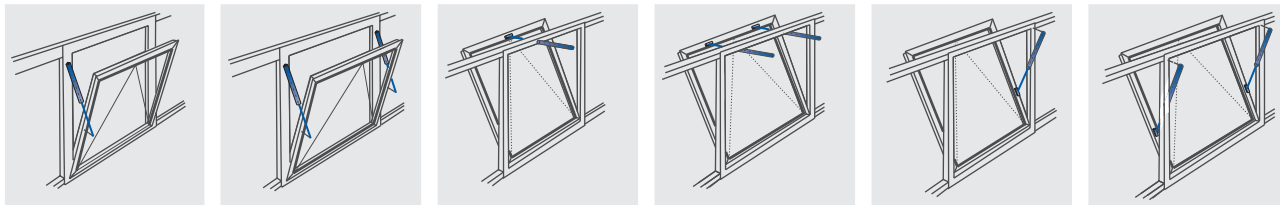
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804.

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

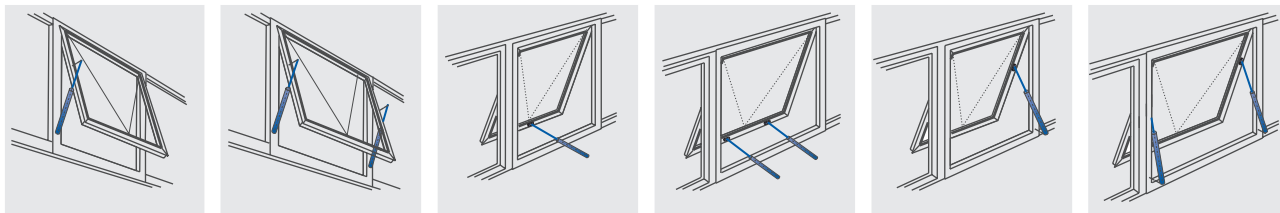
The EPD documents can be viewed or downloaded from our homepage www.aumueller-gmbh.de.

FACADE

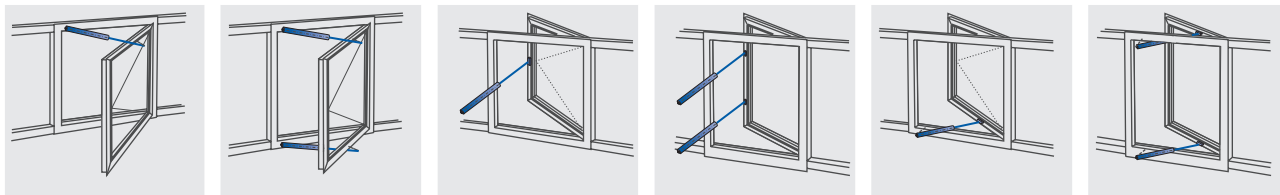
Bottom-hung



Top-hung

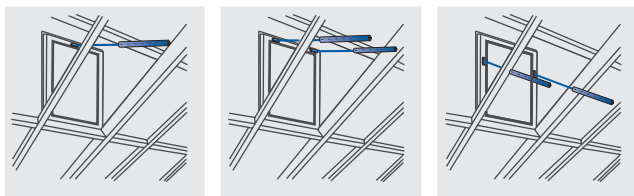


Side-hung

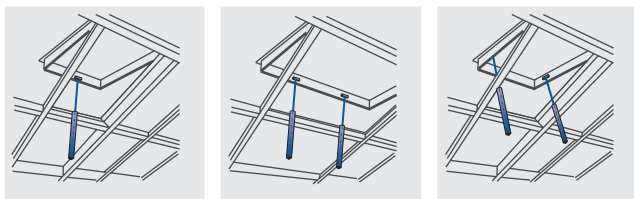


ROOF

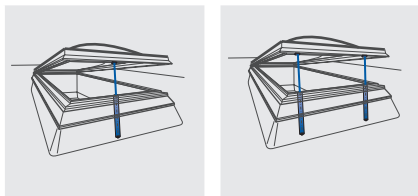
Bottom-hung



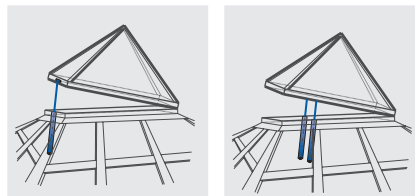
Top-hung

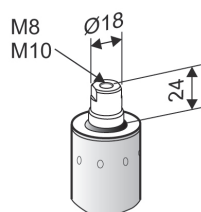


Sky light

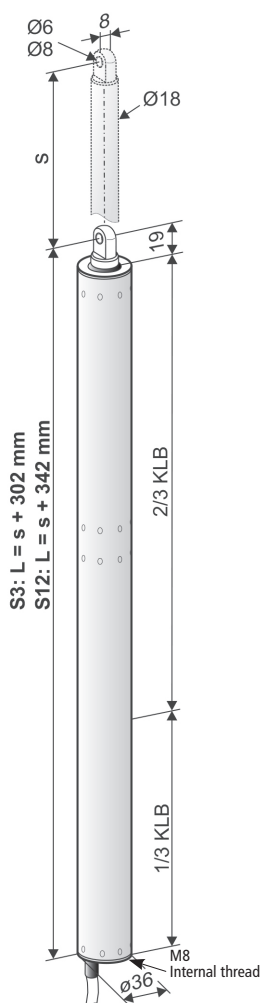


Glass pyramid

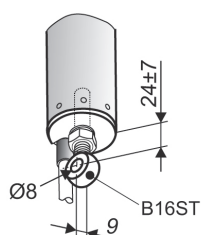




OPTION



OPTION



- Application: natural ventilation, SHEV, ferralux®-NSHEV

Options

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

S3

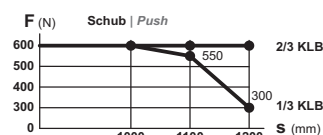
- Internal load dependend cut-off switch, post cycle resistant S3
- Programmable motion monitored run (up to 300 mm stroke)
- Programmable sequence control with Locking drives (S3 / S12)

S12

- Internal Intelligent Control Electronics S12
- 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

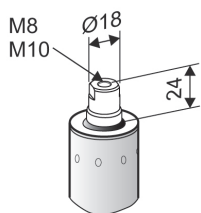
U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,6 A
I_A	Cut-off current	0,8 A
P_N	Rated power	15 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	600 N
F_A	Pushing force	



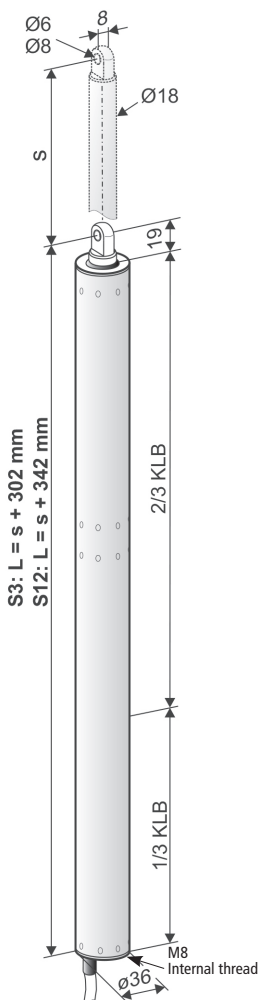
F_H	Pullout force	5000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 3 x 1,0 mm ² , ~ 3 m
v	Speed	∇ 6,0 mm/s \curvearrowright 6,0 mm/s
s	Stroke	100 – 1200 mm ($\pm 5\%$)
L	Length	(S3): s + 302 mm (S12): s + 342 mm see order data
	Sound pressure level A	≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	402	PLA6 100 S3	E6/C-0	1	564110	
	442	PLA6 100 S12		1	546310	
200	502	PLA6 200 S3	E6/C-0	1	564121	
	542	PLA6 200 S12		1	546320	
300	602	PLA6 300 S3	E6/C-0	1	564130	
	642	PLA6 300 S12		1	546330	
400	702	PLA6 400 S3	E6/C-0	1	564140	
	742	PLA6 400 S12		1	546340	
500	802	PLA6 500 S3	E6/C-0	1	564150	
	842	PLA6 500 S12		1	546350	
600	902	PLA6 600 S3	E6/C-0	1	564160	
	942	PLA6 600 S12		1	546360	
750	1052	PLA6 750 S3	E6/C-0	1	564175	
	1092	PLA6 750 S12		1	546375	
1000	1302	PLA6 1000 S3	E6/C-0	1	564200	
	1342	PLA6 1000 S12		1	546400	

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

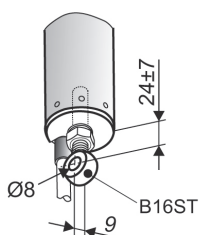


OPTION



S3: L = s + 302 mm
S12: L = s + 342 mm

OPTION



- Application: natural ventilation, SHEV, ferralux®-NSHEV

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

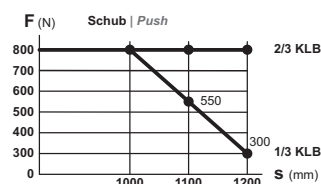
- Internal Intelligent Control Electronics S12

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

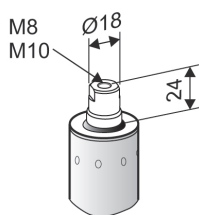
U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	1,0 A
I_A	Cut-off current	1,4 A
P_N	Rated power	24 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	800 N
F_A	Pushing force	



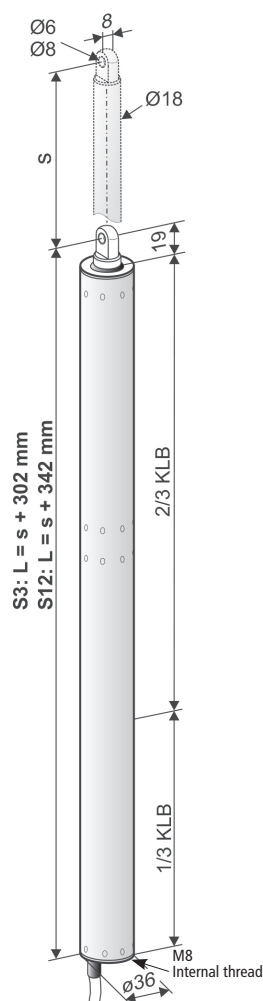
F_H	Pullout force	5000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 3 x 1,0 mm ² , ~ 3 m
v	Speed	\times 10,0 mm/s \curvearrowright 10,0 mm/s
s	Stroke	100 – 1200 mm ($\pm 5\%$)
L	Length	(S3): s + 302 mm (S12): s + 342 mm see order data
	Sound pressure level A	≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	402	PLA8 100 S3	E6/C-0	1	523710	
	442	PLA8 100 S12		1	515210	
200	502	PLA8 200 S3	E6/C-0	1	523720	
	542	PLA8 200 S12		1	515220	
300	602	PLA8 300 S3	E6/C-0	1	523730	
	642	PLA8 300 S12		1	515230	
400	702	PLA8 400 S3	E6/C-0	1	523740	
	742	PLA8 400 S12		1	515240	
500	802	PLA8 500 S3	E6/C-0	1	523750	
	842	PLA8 500 S12		1	515250	
600	902	PLA8 600 S3	E6/C-0	1	523760	
	942	PLA8 600 S12		1	515260	
750	1052	PLA8 750 S3	E6/C-0	1	523775	
	1092	PLA8 750 S12		1	515275	
1000	1302	PLA8 1000 S3	E6/C-0	1	523800	
	1342	PLA8 1000 S12		1	515295	

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

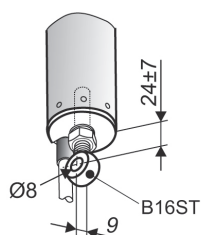


OPTION



S3: L = s + 302 mm
S12: L = s + 342 mm

OPTION



- Application: natural ventilation, SHEV, ferralux®-NSHEV

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

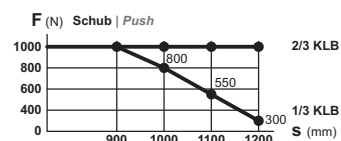
- Internal Intelligent Control Electronics S12

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

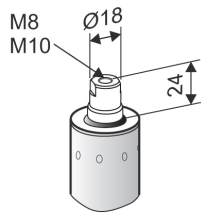
U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,8 A
I_A	Cut-off current	1,0 A
P_N	Rated power	19 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	1000 N
F_A	Pushing force	



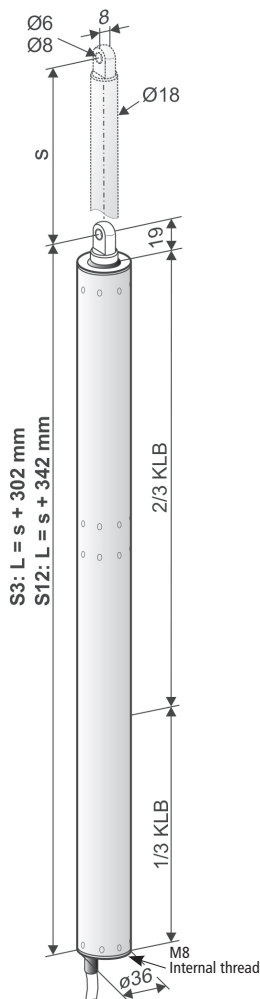
F_H	Pullout force	5000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 3 x 1,0 mm ² , ~ 3 m
v	Speed	4,6 mm/s 4,6 mm/s
s	Stroke	100 – 1200 mm ($\pm 5\%$)
L	Length	S3: s + 302 mm S12: s + 342 mm see order data
	Sound pressure level A	≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	402	PLA101 100 S3	E6/C-0	1	565110	
	442	PLA101 100 S12		1	564910	
200	502	PLA101 200 S3	E6/C-0	1	565120	
	542	PLA101 200 S12		1	564922	
300	602	PLA101 300 S3	E6/C-0	1	565130	
	642	PLA101 300 S12		1	564930	
400	702	PLA 01 400 S3	E6/C-0	1	565140	
	742	PLA101 400 S12		1	564940	
500	802	PLA101 500 S3	E6/C-0	1	565150	
	842	PLA101 500 S12		1	564950	
600	902	PLA101 600 S3	E6/C-0	1	565160	
	942	PLA101 600 S12		1	564960	
750	1052	PLA101 750 S3	E6/C-0	1	565175	
	1092	PLA101 750 S12		1	564975	
1000	1302	PLA101 1000 S3	E6/C-0	1	565200	
	1342	PLA101 1000 S12		1	565000	

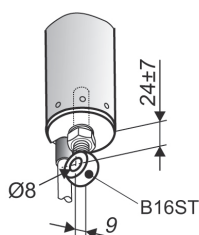
OPTIONS						
Special model				PU/pcs.	Part.-No.	
Front Fixing						
Spindle tube end with interior thread M8				1	515061	
Spindle tube end with interior thread M10				1	515060	
Drive housing painted/powder coated in other RAL colours						
Lump sum for coating					516030	
Specify at order stage:			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



OPTION



OPTION



- Application: natural ventilation, SHEV, ferralux®-NSHEV

Options

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

S3

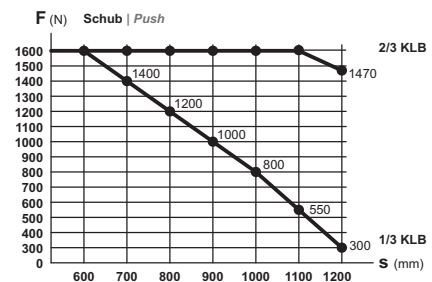
- Internal load dependant cut-off switch, post cycle resistant S3
- Programmable motion monitored run (up to 300 mm stroke)
- Programmable sequence control with locking drives (S3 / S12)

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

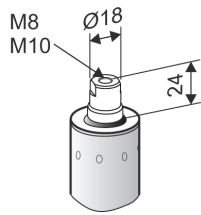
U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	1,0 A
I_A	Cut-off current	1,2 A
P_N	Rated power	24 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	1600 N
F_A	Pushing force	



F_H	Pullout force	5000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 3 x 1,0 mm ² , ~ 3 m
v	Speed	\times 4,0 mm/s \rightarrow 4,0 mm/s
s	Stroke	100 – 1200 mm ($\pm 5\%$)
L	Length	S3: s + 302 mm S12: s + 342 mm see order data
	Sound pressure level A	≤ 70 dB (A)

ORDER DATA							
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.		
100	402	PLA 116 100 S3	E6/C-0	1	565310		
	442	PLA 116 100 S12		1	565510		
200	502	PLA 116 200 S3	E6/C-0	1	565320		
	542	PLA 116 200 S12		1	565520		
300	602	PLA 116 300 S3	E6/C-0	1	565330		
	642	PLA 116 300 S12		1	565530		
400	702	PLA 116 400 S3	E6/C-0	1	565340		
	742	PLA 116 400 S12		1	565540		
500	802	PLA 116 500 S3	E6/C-0	1	565350		
	842	PLA 116 500 S12		1	565550		
600	902	PLA 116 600 S3	E6/C-0	1	565360		
	942	PLA 116 600 S12		1	565560		
750	1052	PLA 116 750 S3	E6/C-0	1	565375		
	1092	PLA 116 750 S12		1	565575		

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



OPTION

■ Application: natural ventilation, SHEV, ferralux®-NSHEV

■ Internal Intelligent Control Electronics S12

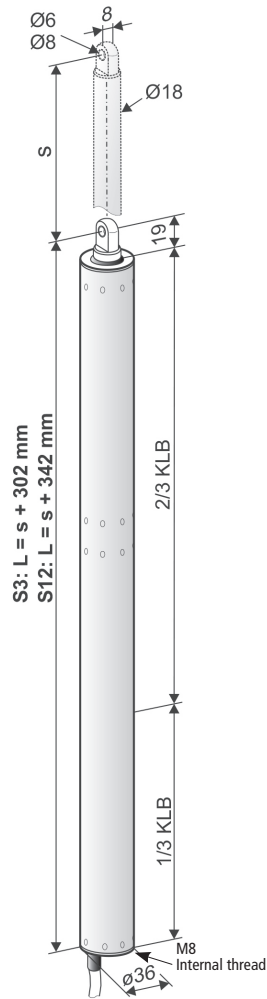
Options

■ 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 24V DC ($\pm 20\%$), max. 2 Vpp

I_N Rated current 1,9 A

I_A Cut-off current 2,5 A

P_N Rated power 45 W

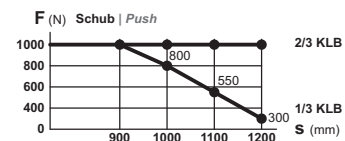
ED Duty cycle 30 % (ON: 3 min / OFF: 7 min.)

Protection rating IP 65

Ambient temperature range -5 °C ... +75 °C

F_Z Pulling force max. 1000 N

F_A Pushing force



F_H Pullout force 5000 N (fastening depended)

Spindle tube stainless steel

Connecting cable non-halogen, grey 3 x 1,0 mm², ~ 3 m

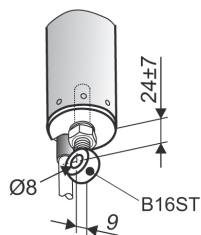
v Speed 12,6 mm/s 12,6 mm/s

s Stroke 100 – 1200 mm ($\pm 5\%$)

L Length $s + 342$ mm
see order data

Sound pressure level A ≤ 70 dB (A)

OPTION

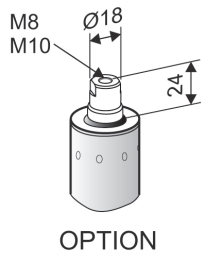


ORDER DATA

s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.			
100	442	PLA 10 100 S12	E6/C-0	1	523610			
200	542	PLA 10 200 S12	E6/C-0	1	523620			
300	642	PLA 10 300 S12	E6/C-0	1	523630			
400	742	PLA 10 400 S12	E6/C-0	1	523640			
500	842	PLA 10 500 S12	E6/C-0	1	523650			
600	942	PLA 10 600 S12	E6/C-0	1	523660			
750	1092	PLA 10 750 S12	E6/C-0	1	523675			
1000	1342	PLA 10 1000 S12	E6/C-0	1	523700			

OPTIONS

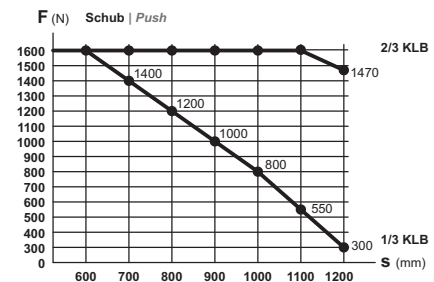
Special model	PU/pcs.	Part.-No.			
Front Fixing					
Spindle tube end with interior thread M8	1	515061			
Spindle tube end with interior thread M10	1	515060			
Drive housing painted/powder coated in other RAL colours					
Lump sum for coating		516030			
Specify at order stage:	1 – 20	516004			
	21 –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



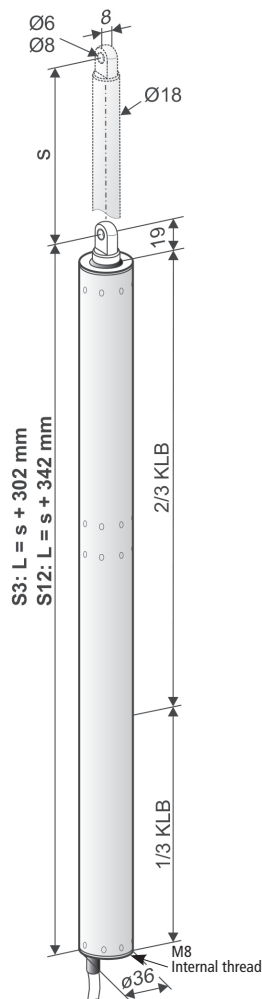
- Application: natural ventilation, SHEV, ferralux®-NSHEV
- Internal Intelligent Control Electronics S12
- Options**
 - Programmable synchronised run (max. 4 drives) and special functions
 - M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives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

TECHNICAL DATA

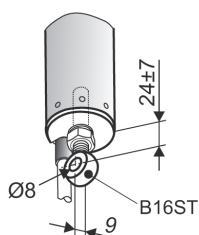
U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	1,9 A
I_A	Cut-off current	2,5 A
P_N	Rated power	45 W
ED	Duty cycle	30 % (ON: 3 min / OFF: 7 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	1600 N
F_A	Pushing force	



F_H	Pullout force	5000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 3 x 1,0 mm ² , ~ 3 m
v	Speed	7,0 mm/s 7,0 mm/s
s	Stroke	100 – 1200 mm ($\pm 5\%$)
L	Length	$s + 342$ mm see order data
	Sound pressure level A	≤ 70 dB (A)



OPTION



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.			
Front Fixing					
Spindle tube end with interior thread M8	1	515061			
Spindle tube end with interior thread M10	1	515060			
Drive housing painted/powder coated in other RAL colours					
Lump sum for coating		516030			
Specify at order stage:	1 – 20	516004			
	21 – 50	516004			
	51 – 100	516004			
	up 101	516004			
Extra length connecting cable:					
5 m – non-halogen, grey – 3 x 1,0 mm ²		501037			
10 m – non-halogen, grey – 3 x 1,0 mm ²		501039			
Mechanic stroke reduction S3					
Stroke reduction without construction length - mechanically	1	516000			
Accessories for front / rear suspension					
B16ST Eyebolt Ø8 mm, galvanized	1	100044			
B16VA Eyebolt 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			
Microprocessor programming S12					
Electronic stroke reduction 24V S12	1	524190			
Programming drives 24V / 230V S12	1	524180			
Other lengths available on request					
Optional accessories	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	Wictec 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		

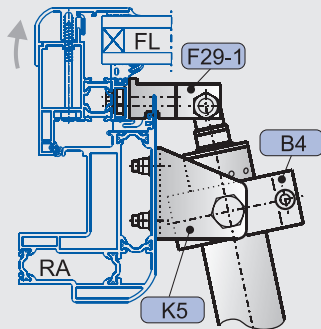
LEGEND

● 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.

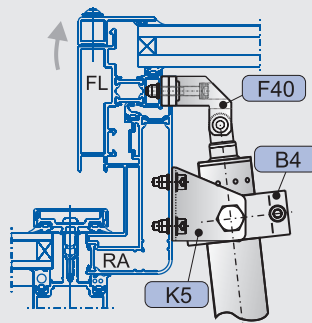
TYPICAL APPLICATIONS

1 RM, HSK, roof



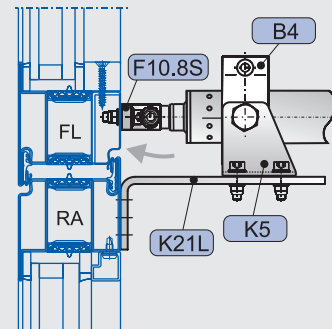
View on aluminium window

2 RM, HSK, roof



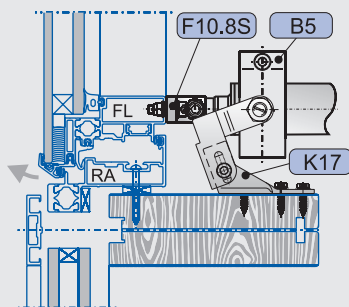
View on aluminium window

3 RM, HSK, top hung outward opening



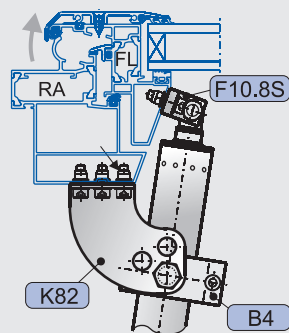
View on aluminium window

4 RM, HSK, top hung outward opening



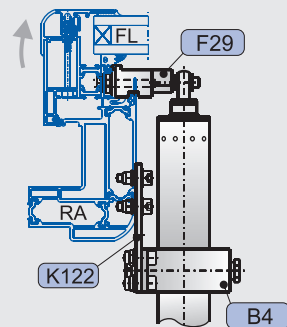
View on aluminium window

5 RM, HSK, roof



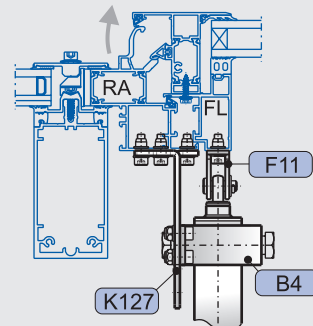
View on aluminium window

6 RM, NSK, roof



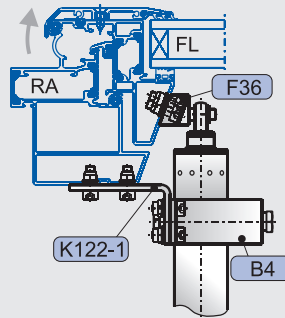
View on aluminium window

7 RM, NSK, roof



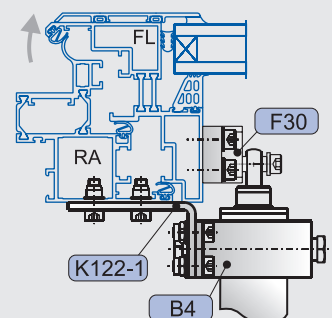
View on aluminium window

8 RM, NSK, roof



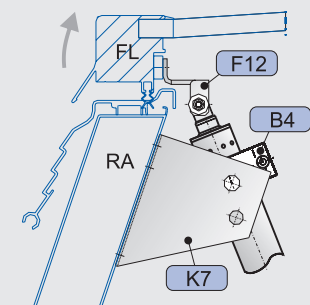
View on aluminium window

9 RM, NSK, roof



View on aluminium window

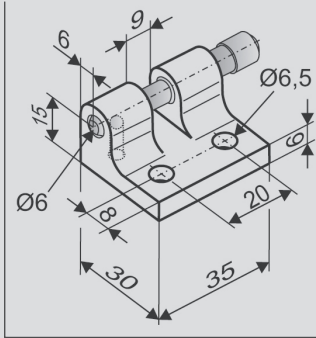
10 RM, HSK, sky-light



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

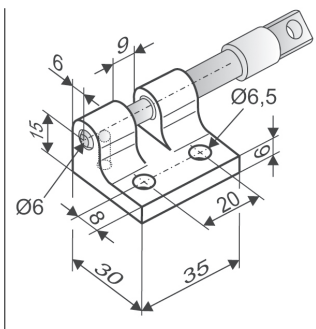
1x locking bolt

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

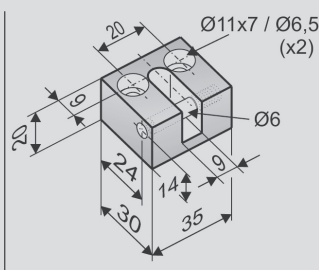
1x locking spring bolt

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

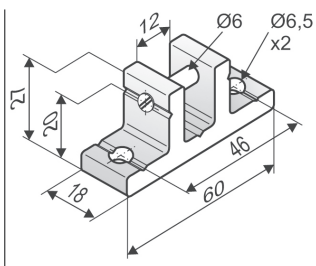
Feature/Equipment

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

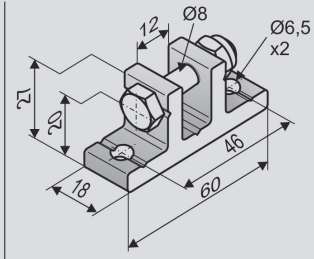
1x stud bolt Ø6 mm

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

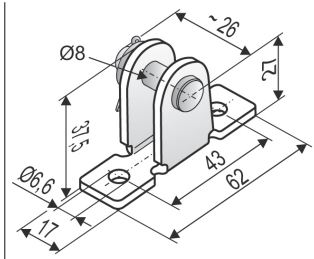
Feature/Equipment

1x nut M8,
1x screw M8x35

Load

max. 5000 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

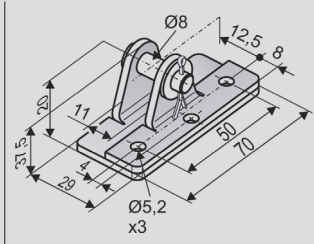
F11VA

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

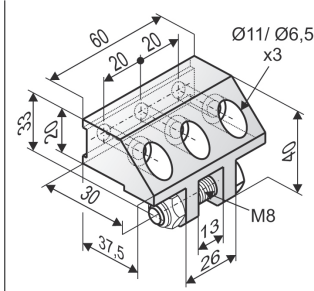
Feature/Equipment

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

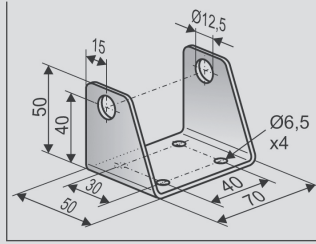
Optional accessories

B2 Base Plate F39/F49

Part.-No. 155173

FRAME BRACKETS

K5



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**,
SP with **B13**,
LKS with **B7**

Part.-No. 155800

Material/Finish

steel galvanized

Feature/Equipment
drilled holes Ø12,5 mm

Accessories

B4 clamp ring PLA
(Ø36 mm, G1/8)

Part.-No. 515900

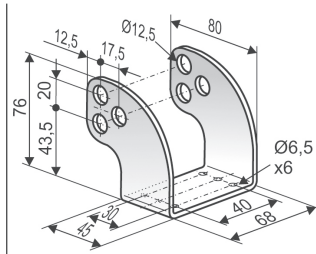
K21K Frame bracket

Part.-No. 159900

K21L Frame bracket

Part.-No. 159905

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**,
SP with **B13**,
LKS with **B7**

Part.-No. 151320

Material/Finish

stainless steel

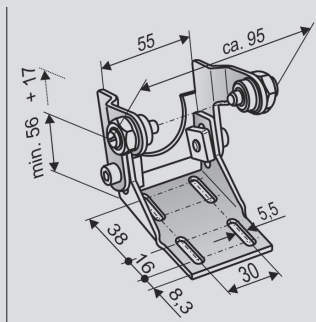
Feature/Equipment
drilled holes Ø12,5 mm

Accessories

B4 clamp ring PLA
(Ø36 mm, G1/8)

Part.-No. 515900

K17



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 **B5**,
SP with **B12**

Part.-No. 159200

Material/Finish

steel galvanized

Feature/Equipment
adjustable height

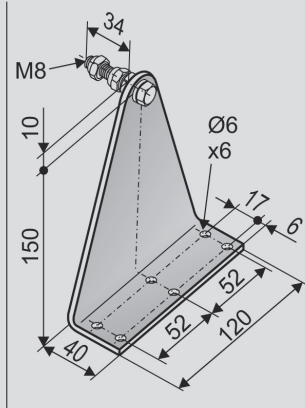
Accessories

B5 clamp ring PLA
(Ø36 mm, Ø8 mm)

Part.-No. 515825

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

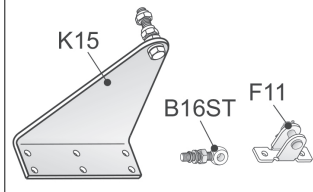
B16ST Eyebolt
(Ø8 x 40 mm ST)

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

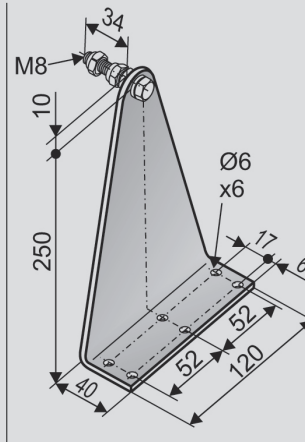
Set:

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)

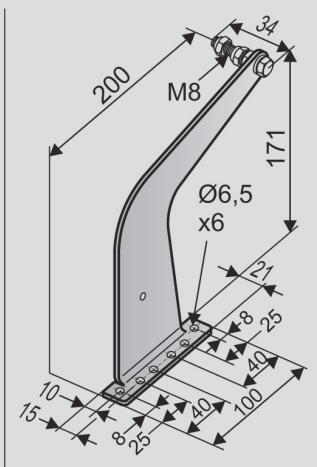
Part.-No. 100044

B16VA Eyebolt
(Ø8 x 40 mm VA)

Part.-No. 100144

FRAME BRACKETS

K97L



Application

Surface mounting on the **side closing edge** of window frame profiles of inward opening side hung windows, by obliquely arranged drives with **rear suspension** with bore **Ø8 mm**. **Required space on the frame** 20 mm

Part.-No. 160938

Material/Finish

stainless steel,
vibratory grinding

Feature/Equipment

left hand

Optional accessories

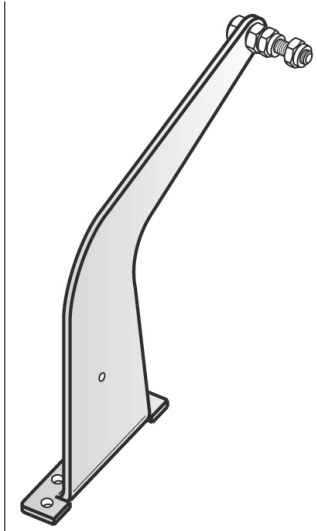
B16ST Eyebolt
(Ø8 x 40 mm ST)

Part.-No. 100044

B16VA Eyebolt
(Ø8 x 40 mm VA)

Part.-No. 100144

K97R



Application

Surface mounting on the **side closing edge** of window frame profiles of inward opening side hung windows, by obliquely arranged drives with **rear suspension** with bore **Ø8 mm**. **Required space on the frame** 20 mm

Part.-No. 160939

Material/Finish

stainless steel,
vibratory grinding

Feature/Equipment

right hand

Accessories

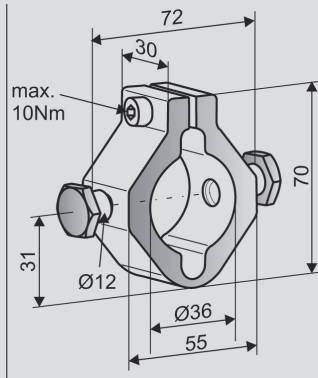
B16ST Eyebolt
(Ø 8 x 40 mm ST)

Part.-No. 100044

B16VA Eyebolt
(Ø8 x 40 mm VA)

Part.-No. 100144

OPTIONAL ACCESSORIES

B4**Application**

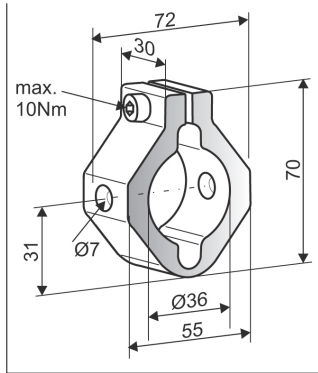
Adjustable clamping of the PLA drive housing, for surface mounting with **swivelling suspension** on **K5, K7, K82, K22, K22-1, K127** (preferably on outward opening windows)

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

aluminium (antreated), stainless steel

Feature/Equipment

2x B8 collar screw Ø12mm, G1/8
1x cylinder head screw M6x16mm

B5**Application**

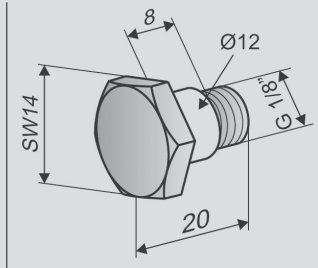
Adjustable clamping of the PLA drive housing, for surface mounting with **swivelling suspension** on **K17** (preferably on outward opening windows)

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

aluminium (antreated), stainless steel

Feature/Equipment

2x Holes Ø7 mm
1x cylinder head screw M6x16

B8**Application**

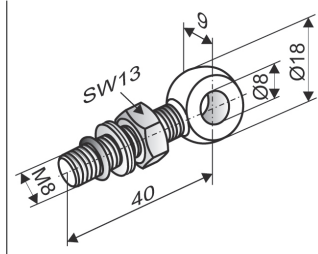
Swivelling suspensin of the clamp rings
B4 for **PLA**
B7 for **LKS**
or of the clamping blocks
B11, B13 for **SP**
for U-shaped frame brackets with bore **Ø12,5 mm**

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)

[illegible]

Technical drawing of a mechanical part with the following dimensions:

- Overall width: 60
- Overall height: 40
- Overall length: 70
- Top flange width: 40
- Top flange thickness: 5
- Top flange hole diameter: $\varnothing 6,5$ x4
- Top flange hole position from left edge: 10
- Top flange hole position from front edge: 30
- Internal hole diameter: $\varnothing 6,5$ x3
- Internal hole position from front edge: 13
- Internal hole position from bottom edge: 17
- Internal hole position from right edge: 50
- Internal hole position from bottom edge: 50
- Internal hole position from right edge: 60
- Internal hole position from bottom edge: 40

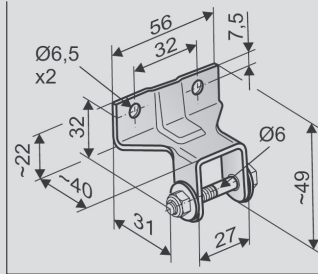
Technical drawing of a bent metal profile. The profile is L-shaped with a total length of 140 and a total height of 50. The flange width is 40, and the web height is 40. The bend radius is 12. There are four holes in the flange, each with a diameter of Ø6.5, spaced 30 units apart from the ends. There are three holes in the web, each with a diameter of Ø6.5, spaced 12 units apart from the bend. The web thickness is 5 units.

aluminium
Feature/Equipment
60 x 20 x 5 mm

SPECIFIC APPLICATIONS

SKY-LIGHT ESSMANN TYP 810

F12

**Application**

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

Part.-No. 151500

Material/Finish
steel galvanized

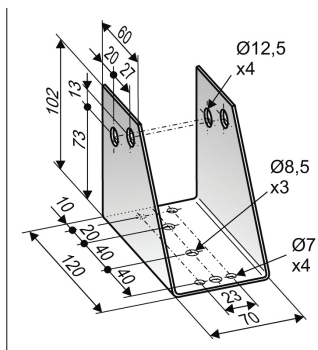
Feature/Equipment

1x screw M6,
washer,
nut

Load

max. 800 N

K7

**Application**

Surface mounting on the main closing edge of the upstand of skylight domes **Essmann 810** for swivelling suspension of drives
PLA with **B4**,
SP with **B13**,
LKS with **B7**

Part.-No. 157500

Material/Finish
steel galvanized

Feature/Equipment
drilled holes Ø12,5 mm

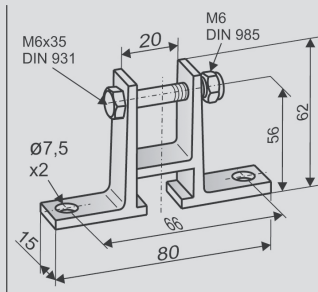
Accessories

B4 clamp ring PLA
(Ø36 mm, G1/8)

Part.-No. 515900

SKY-LIGHT ETERNIT

F2

**Application**

Surface mounting on the main closing edge of skylight domes **Eternit**, for drives with front suspension with bore Ø6 mm

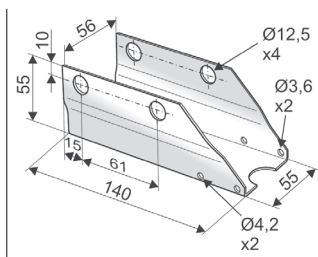
Part.-No. 150303

Material/Finish
aluminium

Feature/Equipment

1x nut M6,
1x screw M6x35

K4-L

**Application**

Surface mounting on the main closing edge of the upstand of skylight domes **Eternit** for swivelling suspension of drives
PLA with **B4**,
SP with **B11**,

Part.-No. 155610

Material/Finish
steel galvanized

Feature/Equipment

2x screw Taptite M4x10,
1x nut M4,
1x screw M4x65

Accessories

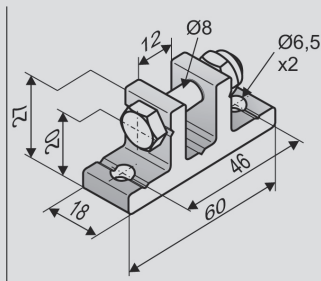
B4 clamp ring PLA
(Ø36 mm, G1/8)

Part.-No. 515900

SPECIFIC APPLICATIONS

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

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

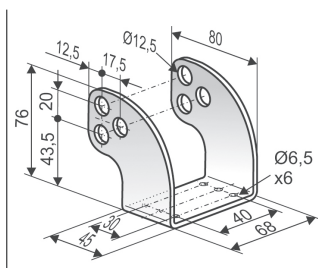
Feature/Equipment

1x nut M8,
1x screw M8x35

Load

max. 5000 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,
SP with B13,
LKS with B7

Part.-No. 151320

Material/Finish
stainless steel

Feature/Equipment

drilled holes Ø12,5 mm

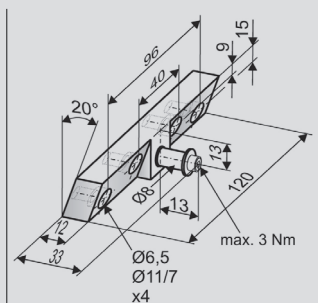
Accessories

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**

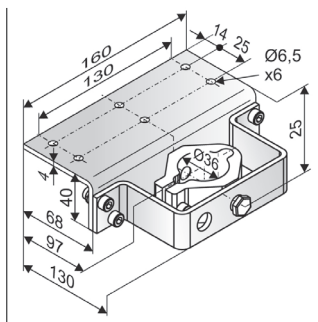
Part.-No. 155170

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

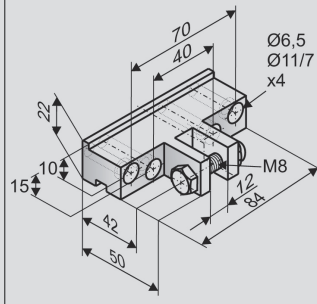
without clamping ring B4

Accessories

B4 clamp ring PLA
(Ø 36 mm, G1/8)

Part.-No. 515900

F29-1



Material/Finish
aluminium
(natural anodized),
stainless steel

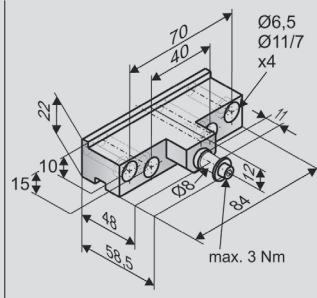
Feature/Equipment
1x screw M8x35,
nut M8

Material/Finish
steel galvanized

Feature/Equipment
drilled holes Ø12,5 mm

Part.-No. 515900

F29



Material/Finish
aluminium
(natural anodized),
stainless steel

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

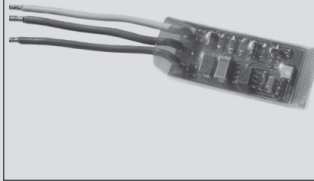
Technical drawing of the 'Klammer' (bracket) showing dimensions: 160, 130, 10, 20, 20, 75, 90, 33, 66, Ø6,5 x6, 4, Ø36, and a 70° angle.

Material/Finish
stainless steel

Feature/Equipment
without clamping ring B4
(#515900)

Part.-No. 515900

OPTIONAL ACCESSORIES

Main control unit					
M-COM		Application Configuration module for automatic configuration and surveillance of max. 6 opening or locking drives version S12 / S3 in synchronised multi-drive systems Rated voltage: 24 V DC +/- 20%, (max. 2 Vss) Current consumption: <12 mA Drive type: S12	Part.-No. 524177 Protection rating IP30 rubber envelope Ambient temperature range 0 °C ... + 70 °C Dimensions 45 x 17 x 6 mm Connecting wires 3 wires 0,5 mm ² x 50 mm Feature/Equipment Printed circuit board with components and connection wires to be installed in connection box to be supplied on site.		

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



SPECIAL FEATURES PLS

- For natural ventilation, smoke and heat exhausting and ferralux® NSHEV (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)
- Stainless steel spindle, ball beared with end position dampening and gentle soft-start and soft-stop mode
- 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

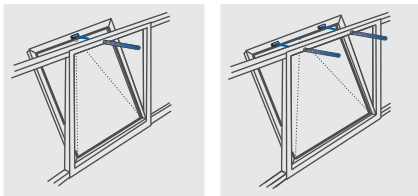
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804.

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

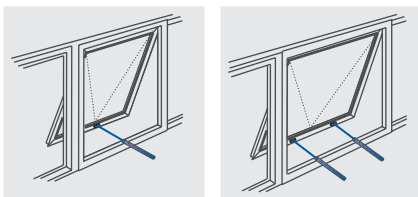
The EPD documents can be viewed or downloaded from our homepage www.aumueller-gmbh.de.

FACADE

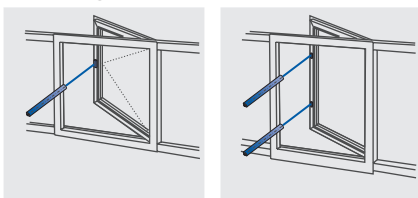
Bottom-hung



Top-hung

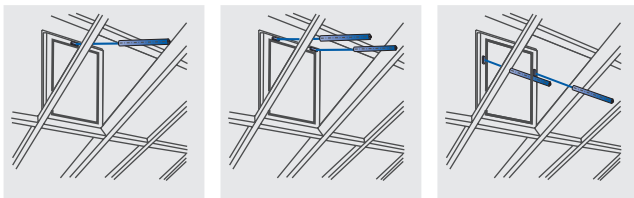


Side-hung

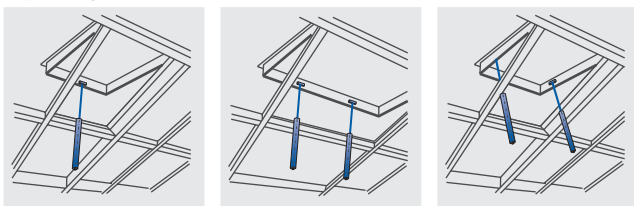


ROOF

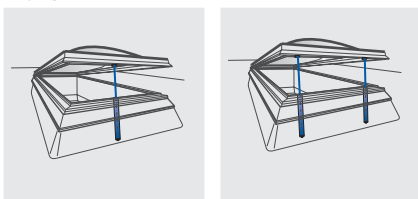
Bottom-hung



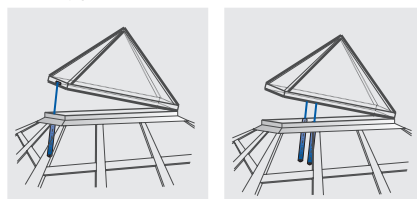
Top-hung

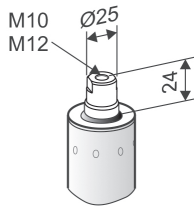


Skylight



Glass pyramid





OPTION

■ Application: natural ventilation, SHEV, ferralux®-NSHEV

■ Internal Intelligent Control Electronics S12

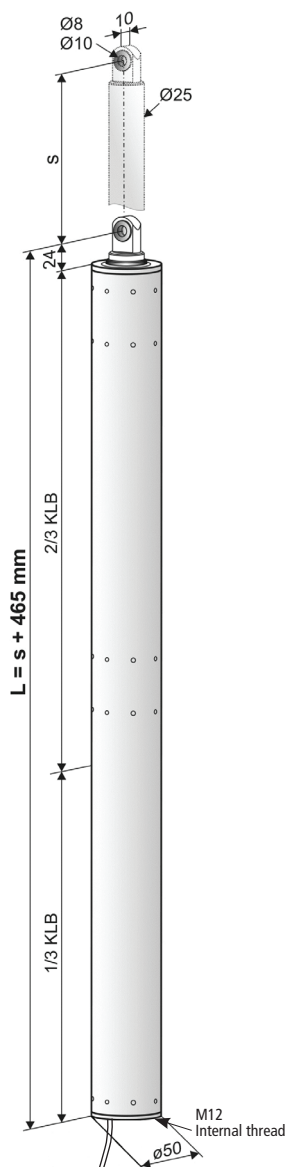
Options

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

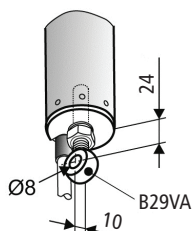
■ M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)

■ Spindle tube end with interior thread for clevis

■ Eyebolt and clevis for rear suspension



OPTION



TECHNICAL DATA

U_N Rated voltage 24V DC ($\pm 20\%$), max. 2 Vpp

I_N Rated current 3,0 A

I_A Cut-off current 4,0 A

P_N Rated power 72 W

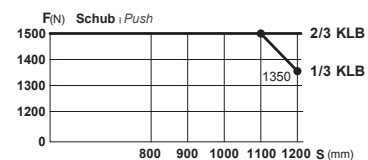
ED Duty cycle 30 % (ON: 3 min. / OFF: 7 min.)

Protection rating IP 54

Ambient temperature range $-5\text{ }^{\circ}\text{C} \dots +75\text{ }^{\circ}\text{C}$

F_Z Pulling force max. 1500 N

F_A Pushing force



F_H Pullout force 25000 N (fastening depended)

Spindle tube stainless steel

Connecting cable non-halogen, grey 3 x 1,0 mm², ~ 3 m

v Speed $\times 16,0\text{ mm/s}$ $\curvearrowright 16,0\text{ mm/s}$

s Stroke 300 – 1200 mm ($\pm 5\%$)

L Length $s + 465\text{ mm}$
see order data

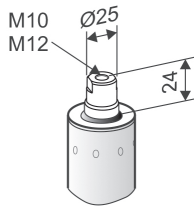
Sound pressure level A $\leq 70\text{ dB (A)}$

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



OPTION

■ Application: natural ventilation, SHEV, ferralux®-NSHEV

■ Internal Intelligent Control Electronics S12

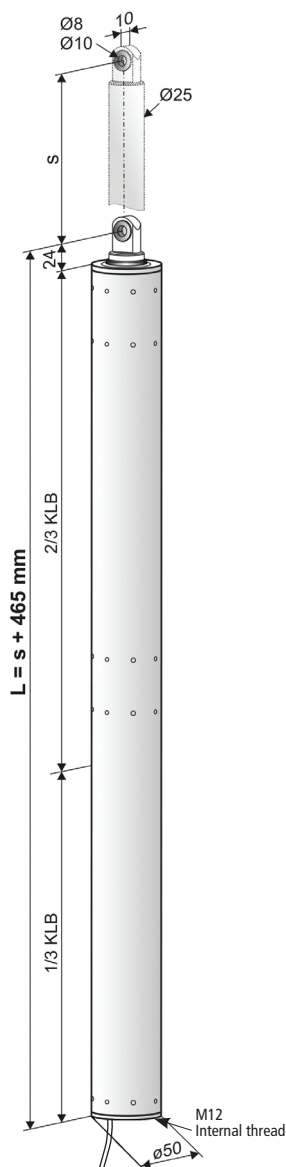
Options

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

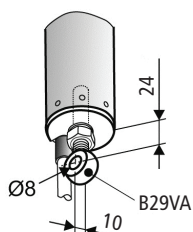
■ M-COM for automatic synchronised run of multi drive systems and automatic sequence control with locking drives (S3 / S12)

■ Spindle tube end with interior thread for clevis

■ Eyebolt and clevis for rear suspension



OPTION



TECHNICAL DATA

U_N Rated voltage 24V DC ($\pm 20\%$), max. 2 Vpp

I_N Rated current 3,8 A

I_A Cut-off current 5,0 A

P_N Rated power 91 W

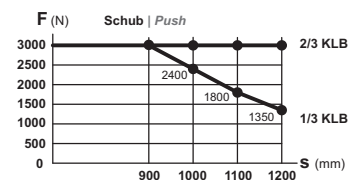
ED Duty cycle 30 % (ON: 3 min. / OFF: 7 min.)

Protection rating IP 54

Ambient temperature range -5 °C ... +75 °C

F_Z Pulling force max. 3000 N

F_A Pushing force



F_H Pullout force 25000 N (fastening depended)

Spindle tube stainless steel

Connecting cable non-halogen, grey 3 x 1,0 mm², ~ 3 m

v Speed 7,8 mm/s 7,8 mm/s

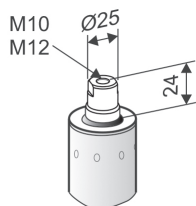
s Stroke 300 – 1200 mm ($\pm 5\%$)

L Length $s + 465$ mm
see order data

Sound pressure level A ≤ 70 dB (A)

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

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

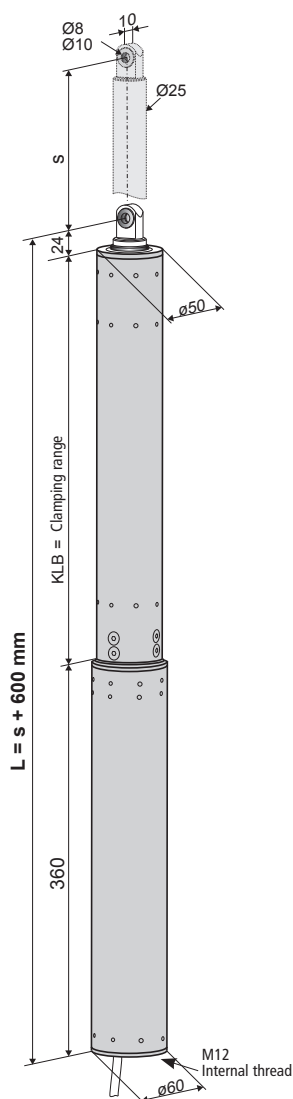


OPTION

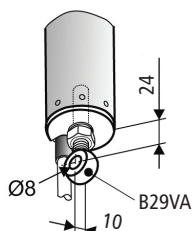
- Application: natural ventilation, SHEV
- Internal Intelligent Control Electronics S12

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



OPTION



TECHNICAL DATA

U_N Rated voltage 24V DC ($\pm 20\%$), max. 2 Vpp

I_N Rated current 3,0 A

I_A Cut-off current 4,2 A

P_N Rated power 72 W

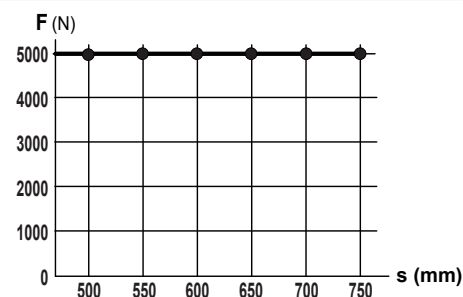
ED Duty cycle 30 % (ON: 3 min. / OFF: 7 min.)

Protection rating IP 54

Ambient temperature range -5 °C ... +75 °C

F_Z Pulling force max. 5000 N

F_A Pushing force



F_H Pullout force 25000 N (fastening depended)

Spindle tube stainless steel

Connecting cable non-halogen, grey 3 x 1,0 mm², ~ 3 m

v Speed 4,0 mm/s 4,0 mm/s

s Stroke 200 – 750 mm ($\pm 5\%$)

L Length $s + 600$ mm
see order data

Sound pressure level A ≤ 70 dB (A)

ORDER DATA

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

OPTIONS

Special model	PU/pcs.	Part.-No.			
Front / Rear Fixing					
Spindle tube end with interior thread M10	1	515062			
Spindle tube end with interior thread M12	1	515063			
Drive housing painted/powder coated in other RAL colours					
Lump sum for coating		516030			
Specify at order stage:	1 – 20	516004			
	21 – 50	516004			
	51 – 100	516004			
	up 101	516004			
Extra length connecting cable:					
5 m – non-halogen, grey – 3 x 1,0 mm ²		501037			
10 m – non-halogen, grey – 3 x 1,0 mm ²		501039			
Accessories for front / rear suspension					
B29VA Eyebolt M12x40mm, Ø8 mm, stainless steel	1	105430			
B28ST Clevis M10x20 mm, galvanized, thread M10x50 mm	1	105520			
Microprocessor programming S12					
Electronic stroke reduction 24V S12	1	524190			
Programming drives 24V / 230V S12	1	524180			
Other lengths available on request					
Optional accessories	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	
Frame bracket					K70	K82-1	K82-1	K121	K127-1	K-121-1	K12-1	
Mounting aid												
Bracket accessories					clamping ring B6 (50 mm-G1/8)							
Casement bracket					F10.8S, F10.10		F28-1	F28	F11	F36	F30	
Special application					Wictec 50, Wing 105 D	AWS 57RO, Wing 105D	Heroal 085D	Heroal 085D	Raico Wing 105 D	Schüco AWS 57RO	Wicona Wictec 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							

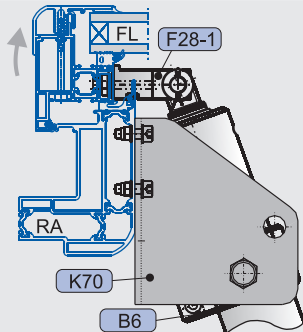
LEGEND

- 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.

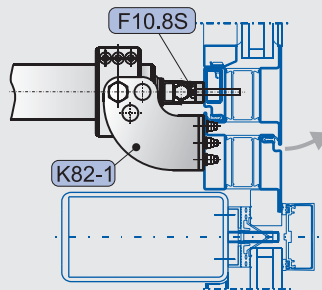
TYPICAL APPLICATIONS

1 RM, HSK, Roof



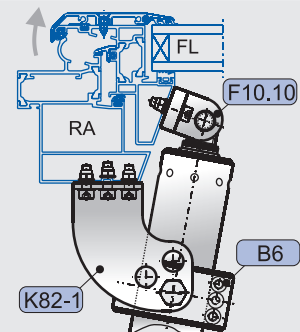
View on aluminium window

1 RM, HSK, Top-hung outward opening



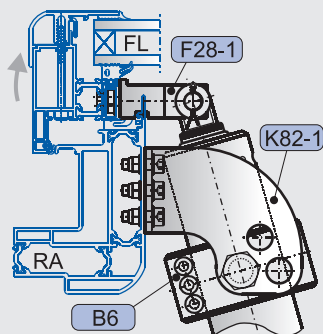
View on steel window

2 RM, HSK, Roof



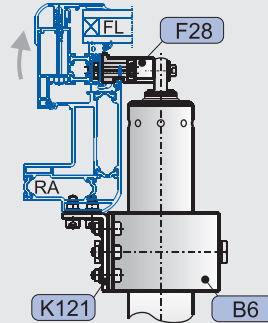
View on aluminium window

3 RM, HSK, Roof



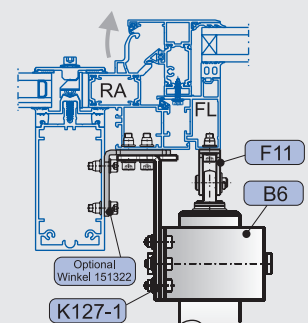
View on aluminium window

4 RM, NSK, Roof



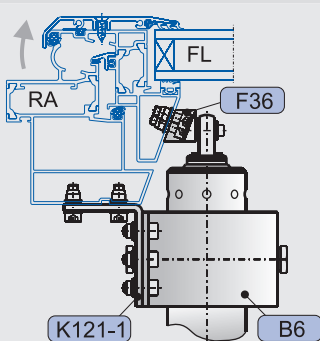
View on aluminium window

5 RM, NSK, Roof



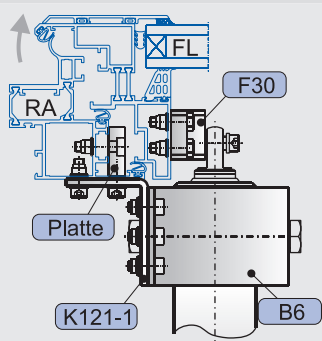
View on aluminium window

6 RM, NSK, Roof



View on aluminium window

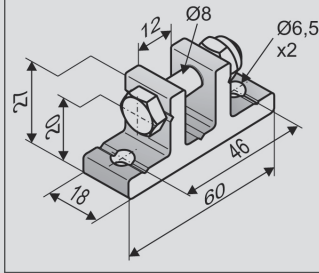
7 RM, NSK, Roof



View on aluminium window

CASEMENT BRACKETS

F10.8S



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

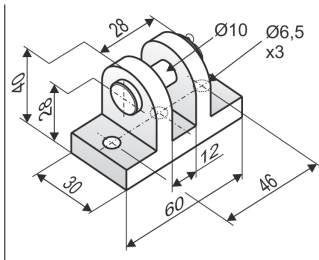
Feature/Equipment

1x nut M8,
1x screw M8x35

Load

max. 3000 N

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

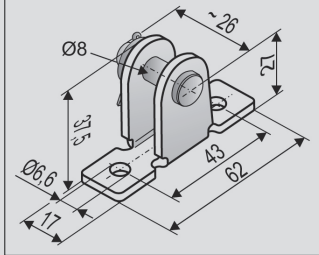
Feature/Equipment

1x bolt Ø10 mm,
washer, split pin

Load

max. 5000 N

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

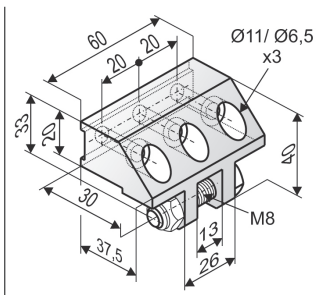
F11VA

Part.-No. 151401

Material/Finish

stainless steel

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

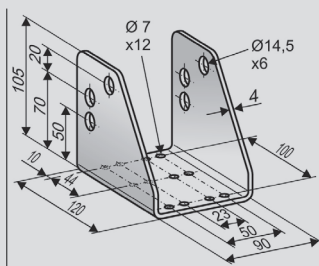
Optional accessories

B2 Base plate F39 / F49

Part.-No. 155173

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

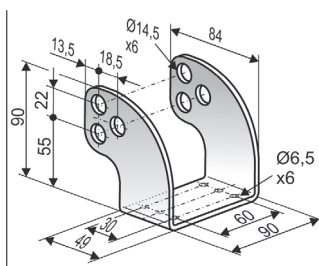
Feature/Equipment
drilled holes Ø14,5 mm

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

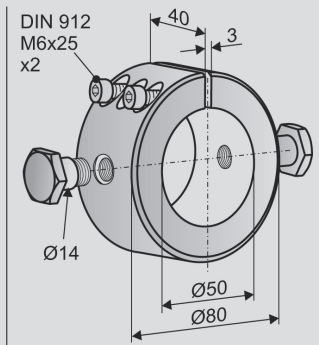
Accessories

B6 clamp ring PLS
(Ø50mm, G1/8)

Part.-No. 576001

OPTIONAL ACCESSORIES

B6



Application

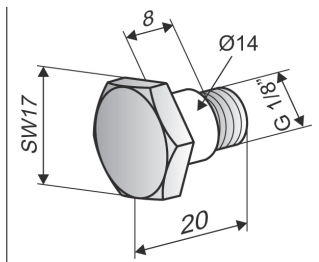
Adjustable clamping of the PLS drive housing, for surface mounting with swivelling suspension on K70, K82-1, K121, K 21-1, K127-1 (preferably on outward opening windows.)

Part.-No. 576001

Material/Finish

aluminium (antreated),
stainless steelFeature/Equipment
2x B9 collar screw
Ø14mm, G1/8,
2x cylinder head screw
M6x25

B9



Application

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

Part.-No. 172900

Material/Finish

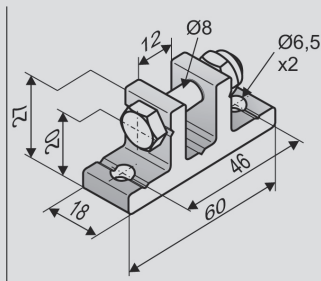
stainless steel

Feature/Equipment
Collar Ø14 mm, G1/8"

SPECIFIC APPLICATIONS

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

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

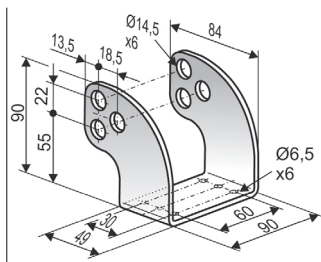
Feature/Equipment

1x nut M8,
1x screw M8x35

Load

max. 5000 N

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

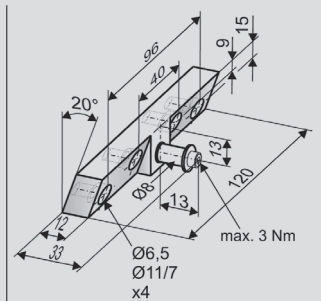
Accessories

B6 Clamp ring PLS
(Ø50 mm, G1/8)

Part.-No. 576001

SCHÜCO AWS 57RO – 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**

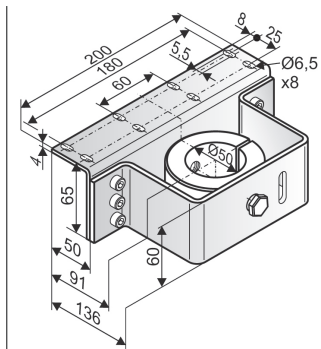
Part.-No. 155170

Material/Finish
aluminium
(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

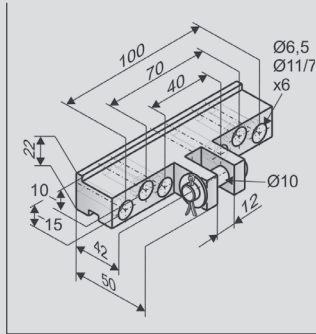
B6 Clamp ring PLS
(Ø50 mm, G1/8)

Part.-No. 576001

SPECIFIC APPLICATIONS

HEROAL 085 / 180 – HSK

F28-1



Application

Surface mounting on the **main closing edge** of outward opening casement profiles of roof windows **Heroal 085D**, for drives with **front suspension** with bore **Ø10 mm**

Part.-No. 155154

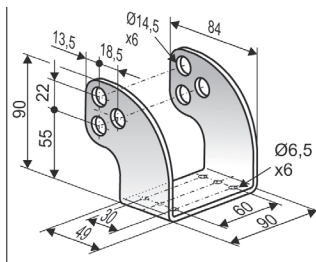
Material/Finish

aluminium
(natural anodized),
stainless steel

Feature/Equipment

1x bolt Ø10 mm,
screw M5,
washer A5,3
split pin 2x20

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

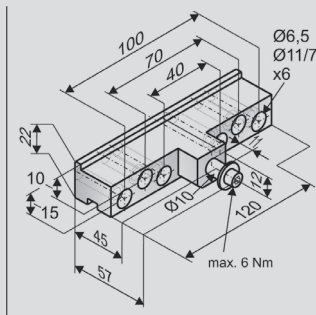
Accessories

B6 Clamp ring PLS
(Ø50 mm, G1/8)

Part.-No. 576001

HEROAL 085 / 180 – NSK

F28



Application

Surface mounting on the **side closing edge** of outward opening casement profiles of roof windows **Heroal 085D**, for drives with **front suspension** with bore **Ø10 mm**

Part.-No. 155155

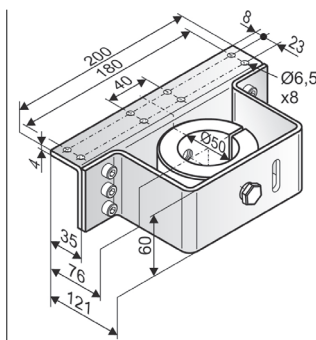
Material/Finish

aluminium
(natural anodized),
stainless steel

Feature/Equipment

1x bolt Ø10 mm,
screw M5,
washer A5,3

K121



Application

Surface mounting on the **side closing edge** of window frame profiles of outward opening roof windows **Schüco RS 106D**, **Heroal 085D** for **swivelling suspension** of drives **PLS** with **B6**

Part.-No. 155110

Material/Finish

stainless steel

Feature/Equipment

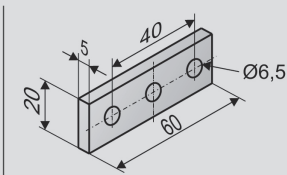
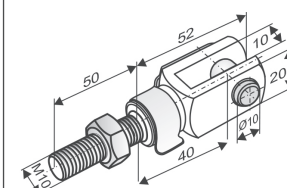
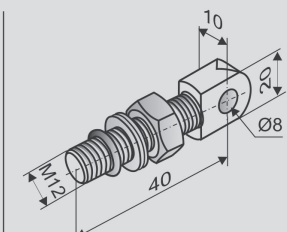
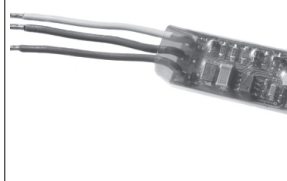
without clamping ring B6

Accessories

B6 Clamp ring PLS
(Ø50 mm, G1/8)

Part.-No. 576001

OPTIONAL ACCESSORIES

Base Plate			
B2		Application Support for F39 and F40 as packing plate for mounting on the casement profiles of outward opening roof windows	Part.-No. 155173 Material/Finish aluminium (natural anodized) Feature/Equipment 60 x 20 x 5 mm
Clevis			
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 50 mm with spring bolt Ø8 mm and thread M10x 50 mm 1x nut M10 + Nordlock-safety-washer + O-ring, max. screw-in depth in the drive 25 mm
Eyebolt			
B29VA		Application Eyebolt for rear or front suspension of spindle drives with M12 thread in the rear base cap or in the spindle tube	Part.-No. 105430 Material/Finish stainless steel Feature/Equipment M12x 40 (eye Ø8,2 mm), 1x nut M12 + Nordlock-safety-washer + o-ring, minimum depth drive 25 mm
Main control unit			
M-COM		Application Configuration module for automatic configuration and surveillance of max. 6 opening or locking drives version S12 / S3 in synchronised multi-drive systems Rated voltage: 24 V DC +/- 20%, (max. 2 Vss) Current consumption: <12 mA Drive type: S12	Part.-No. 524177 Protection rating IP30 rubber envelope Ambient temperature range 0 °C ... + 70 °C Dimensions 45 x 17 x 6 mm Connecting wires 3 wires 0,5 mm² x 50 mm Feature/Equipment Printed circuit board with components and connection wires to be installed in connection box to be supplied on site
Special model			
PU/pcs.		Part.-No.	
Casement brackets painted / powder coated in other RAL colours			
Lump sum for coating		516030	
Specify at order stage:	1 – 20	516032	
	21 – 50	516032	
	51 – 100	516032	
	up 101	516032	
Frame brackets painted / powder coated in other RAL colours			
Lump sum for coating		516030	
Specify at order stage:	1 – 20	516031	
	21 – 50	516031	
	51 – 100	516031	
	up 101	516031	



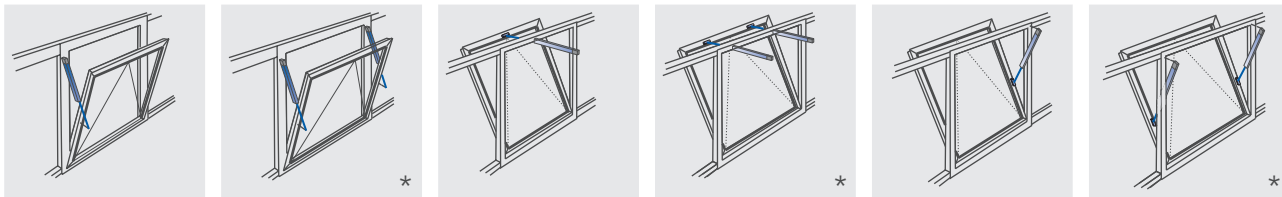
SPECIAL FEATURES SP

- 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 24 V DC and 230 V AC
- Limit switch to protect against overload

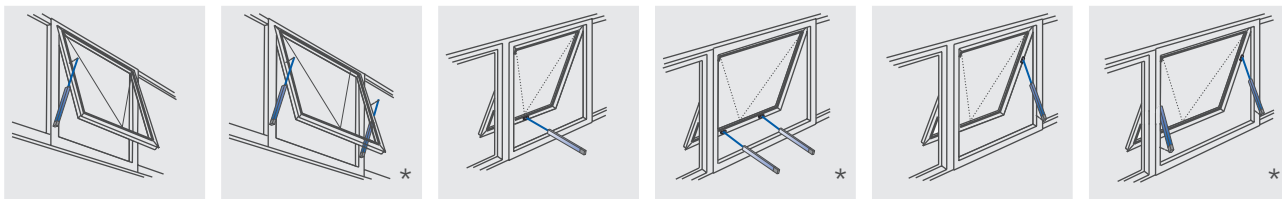
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage www.aumueller-gmbh.de.

FACADE

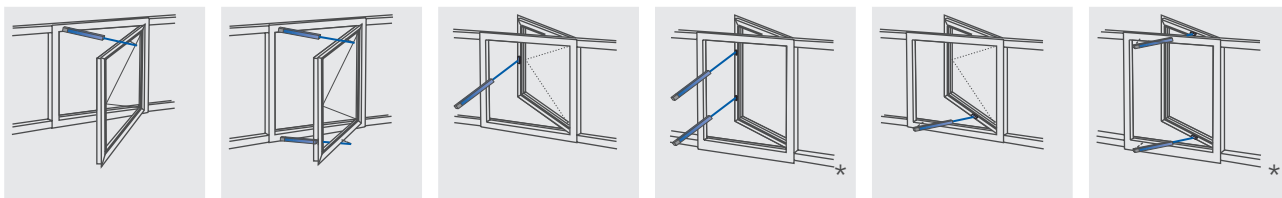
Bottom-hung



Top-hung

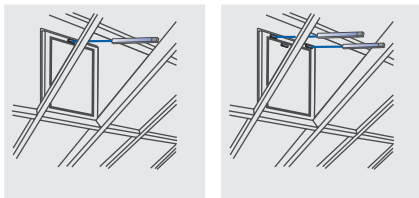


Side-hung

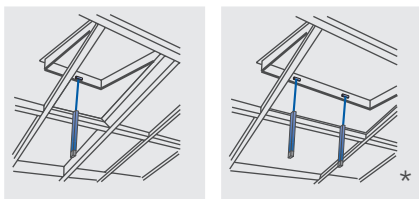


ROOF

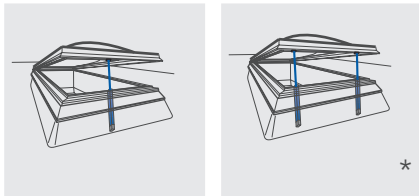
Bottom-hung



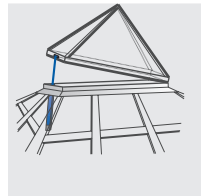
Top-hung



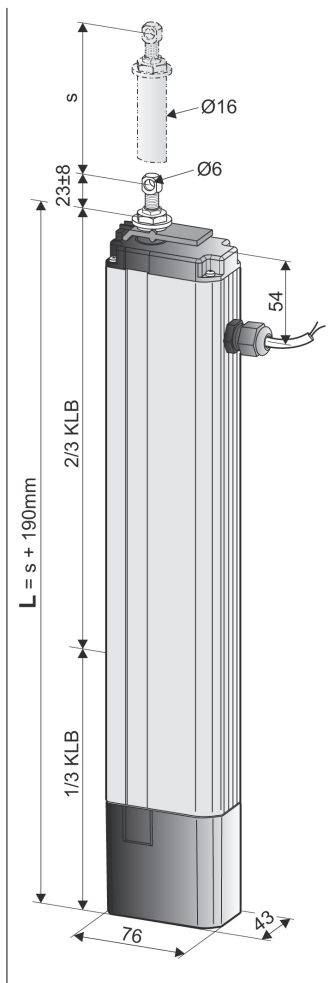
Skylight



Glass pyramid



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



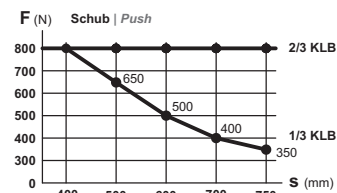
- Application: natural ventilation and SHEV
- Cut-off via limit switch
- „Z“-Version: Potential free NC contact for closed end position feedback (max. 24V, 500 mA)
- Preferably application for skylight domes

Options

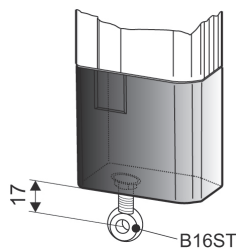
- Rear suspension (only to 500 mm stroke)
- Stroke reduction
- Protection rating IP65

TECHNICAL DATA

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,8 A
I_A	Cut-off current	1,0 A
P_N	Rated power	20 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 54
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	800 N
F_A	Pushing force	



OPTION

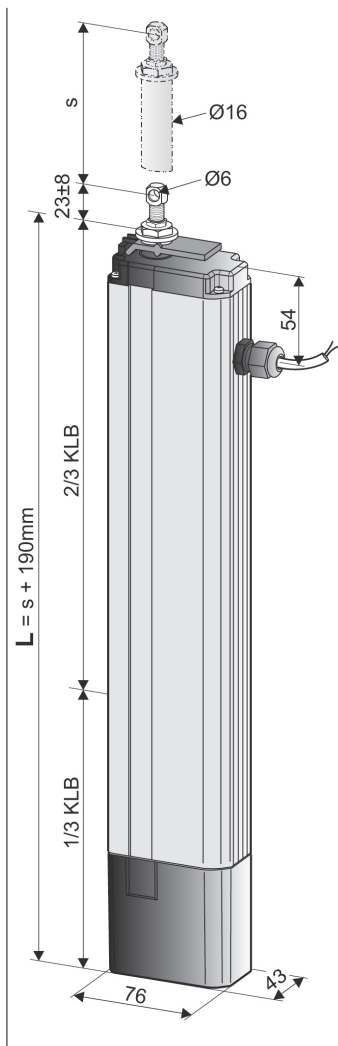


The rear suspension is fitted at the factory.
Only up to 500 mm stroke possible!

F_H	Pullout force	3000 N (fastening depended)
	Spindle tube	aluminium
	Connecting cable	non-halogen, grey SP8: 2 x 0,75 mm ² , ~ 1 m SP8-Z: 4 x 0,75 mm ² , ~ 1 m
v	Speed	7,0 mm/s 7,0 mm/s
S	Stroke	100 – 750 mm ($\pm 5\%$)
L	Length	s + 190 mm see order data
	Sound pressure level A	≤ 70 dB (A)

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.		
Rear Suspension							
Cape for rear suspension (only to 500 mm stroke) incl. eyebolt B16ST M8 x 40 mm, bore Ø8 mm				1	512002		
Protection rating IP65							
Drive with additional gaskets for IP65					512005		
Mechanical stroke reduction							
Stroke reduction without construction length - mechanically					516000		
Drive housing painted/powder coated in other RAL colours							
Lump sum for coating					516030		
Specify at order stage:				1 – 20	516004		
				21 – 50	516004		
				51 – 100	516004		
				up 101	516004		
Extra length connecting cable:							
3 m – non-halogen, grey – 2 x 0,75 mm ²					501023		
5 m – non-halogen, grey – 2 x 0,75 mm ²					501024		
10 m – non-halogen, grey – 2 x 0,75 mm ²					501039		
5 m – non-halogen, grey – 4 x 0,75 mm ² („Z“-Version)					501044		
10 m – non-halogen, grey – 4 x 0,75 mm ² („Z“-Version)					501046		



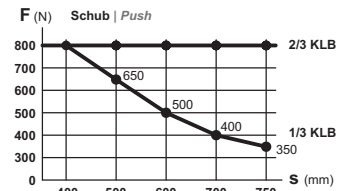
- Application: natural ventilation as single-drive
- Cut-off via limit switch
- Potential free NC contact for closed end position feedback (max. 24V, 500 mA)
- Parallel connection up to 8 drives in one group
- Preferably application for skylight domes
- Minimum basic length of housing for stroke $s =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

Options

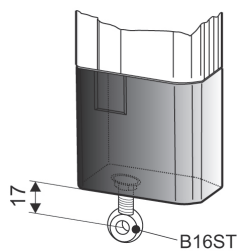
- Stroke reduction (for $s < 300$ mm)
- Rear suspension (only to 500 mm stroke)
- Protection rating IP65

TECHNICAL DATA

U_N	Rated voltage	230V AC (50 Hz)
I_N	Rated current	0,12 A
I_A	Cut-off current	0,2 A
P_N	Rated power	5 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 54
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	800 N
F_A	Pushing force	



OPTION



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

F_H	Pullout force	3000 N (fastening depended)
	Spindle tube	aluminium
	Connecting cable	non-halogen, grey – 6 x 0,75 mm ² , ~ 1 m
v	Speed	7,0 mm/s 7,0 mm/s
s	Stroke	300 – 750 mm ($\pm 5\%$)
L	Length	$s + 190$ mm see order data
	Minimum length of housing	490 mm ($s \geq 300$ mm)
	Sound pressure level A	≤ 70 dB (A)

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.			
Rear Suspension					
Cape for rear suspension (only to 500 mm stroke) incl. eyebolt B16ST M8 x 40 mm, bore Ø8 mm	1	512002			
Protection rating IP65					
Drive with additional gaskets for IP65		512005			
Mechanical stroke reduction					
Stroke reduction without construction length - mechanically		516000			
Drive housing painted/powder coated in other RAL colours					
Lump sum for coating		516030			
Specify at order stage:	1 – 20	516004			
	21 – 50	516004			
	51 – 100	516004			
	up 101	516004			
Extra length connecting cable:					
3 m – non-halogen, grey – 6 x 0,75 mm ²		501163			
5 m – non-halogen, grey – 6 x 0,75 mm ²		501164			
10 m – non-halogen, grey – 6 x 0,75 mm ²		501166			

OVERVIEW OF BRACKETS

Typical applications				1	2	3	4	5	6	7	
Frame bracket				K4L	K7	K57, K57.2, K57.3	K59	K57, K57.2, K57.3, K59	K92	K82	
Mounting aid								K9			
Bracket accessories				B11	B13	B10 inkl.				B13	
Casement bracket				F2	F12	F1, F1V, F1.1, F10.6					
Special application				Sky light Eternit	Sky light Essmann				Sky light Lamilux		
Space requirement		min.	[mm]	140	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	1200	450 – 1300					
FAH(*1		Solo	[mm]	1200	1200	450 – 1500					

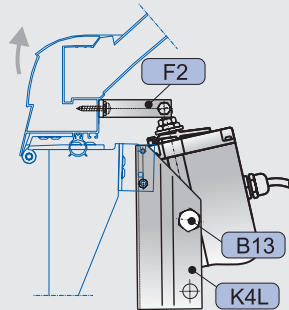
LEGEND

● 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.

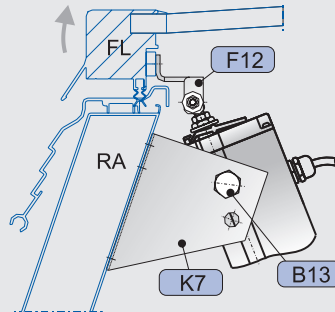
TYPICAL APPLICATIONS

1 RM, HSK, sky light



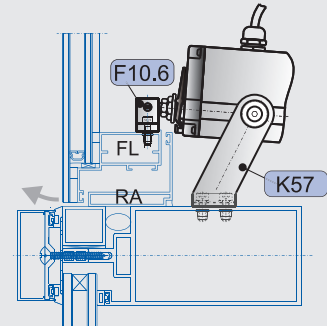
View on sky light Eternit

2 RM, HSK, sky light



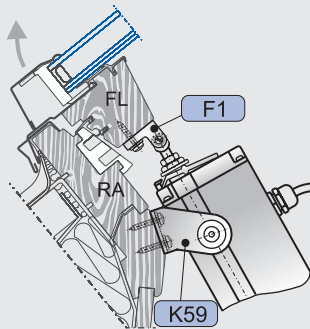
View on sky light Essmann

3 RM, HSK, top hung outward opening



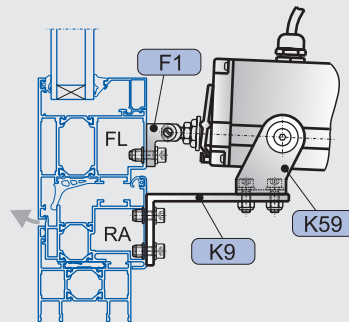
View on aluminium window

4 RM, HSK, roof



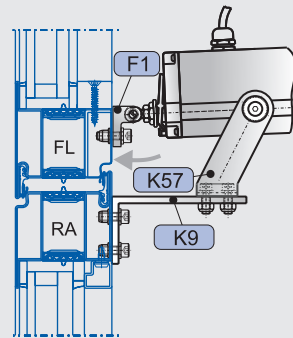
View on wooden window

5 RM, HSK, top hung outward opening



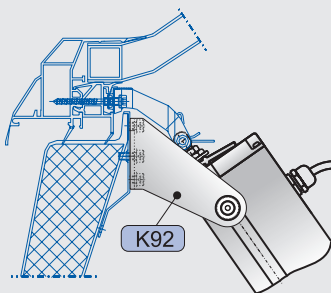
View on aluminium window

5 RM, HSK, top hung outward opening



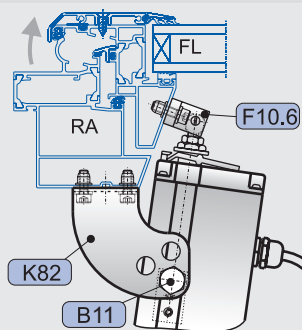
View on steel window

6 RM, HSK, sky light



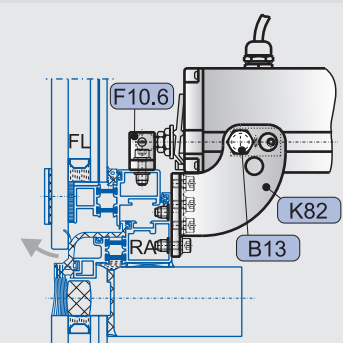
View on sky light Lamilux

7 RM, HSK, roof



View on aluminium window

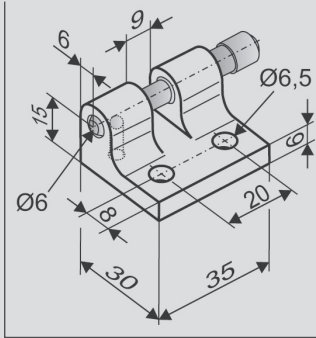
7 RM, HSK, top hung outward opening



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

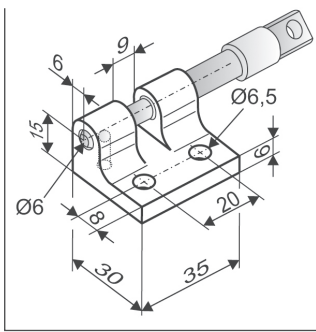
1x locking bolt

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

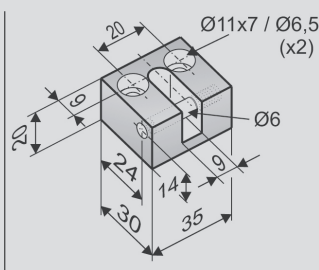
1x locking spring bolt

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

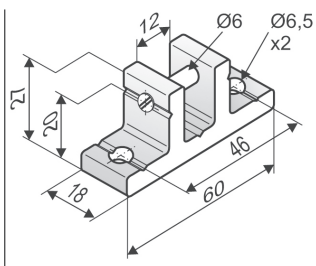
Feature/Equipment

1x 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

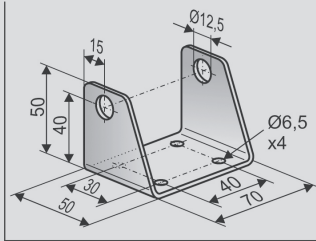
1x stud bolt Ø6 mm

Load

max. 1600 N

FRAME BRACKETS

K5

**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**,
SP with **B13**,
LKS with **B7**

Part.-No. 155800

Material/Finish

steel galvanized

Feature/Equipment
drilled holes Ø12,5 mm

Accessories

B13 clamp block SP
(12 mm, G1/8)

Part.-No. 513901

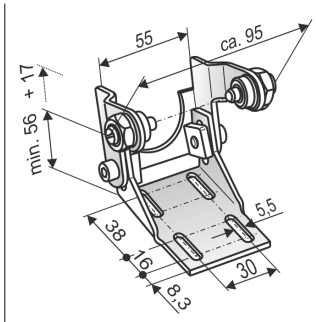
K21K Frame bracket

Part.-No. 159900

K21L Frame bracket

Part.-No. 159905

K17

**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 **B5**,
SP with **B12**

Part.-No. 159200

Material/Finish

steel galvanized

Feature/Equipment
adjustable height

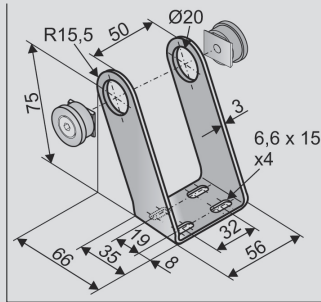
Accessories

B12 clamp block SP
(7,0 mm thick, Ø8 mm)

Part.-No. 513903

FRAME BRACKETS

K57



Application

Surface mounting on the **main closing edge** of the window frame of outward opening roof windows or skylight domes for **swivelling suspension** of drives **SP**, Space in between clamp axis and fixing level **75 mm**

Part.-No. 160930

Material/Finish

steel galvanized

Feature/Equipment

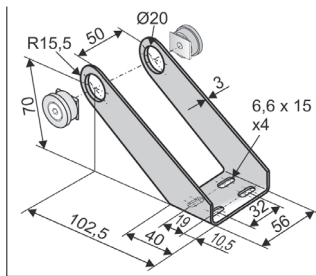
2x B10 clamping bolts

Accessories

K9 Frame bracket

Part.-No. 158501

**K57.2
ST**



Application

Surface mounting on the **main closing edge** of the window frame of outward opening roof windows or skylight domes for **swivelling suspension** of drives **SP**, Space in between clamp axis and fixing plane **70 mm**

Part.-No. 160931

steel galvanized

Feature/Equipment

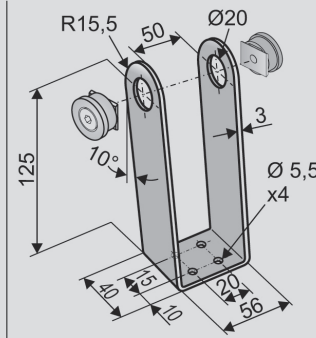
2x B10 clamping bolts

Accessories

K9 Frame bracket

Part.-No. 158501

K57.3



Application

Surface mounting on the **main closing edge** of the window frame of outward opening roof windows or skylight domes for **swivelling suspension** of drives **SP**, Space in between clamp axis and fixing plane **125 mm**

Part.-No. 160935

Material/Finish

steel galvanized

Feature/Equipment

2x B10 clamping bolts

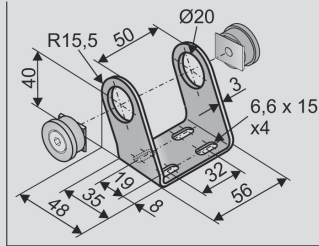
Accessories

K9 Frame bracket

Part.-No. 158501

FRAME BRACKETS

K59

**Application**

Surface mounting on the **main closing edge** of the window frame of outward opening roof windows or skylight domes for **swivelling suspension** of drives **SP**, Space in between clamp axis and fixing plane **40 mm**

Part.-No. 160934

Material/Finish

steel, powdercoated (RAL 9006-silver)

Feature/Equipment

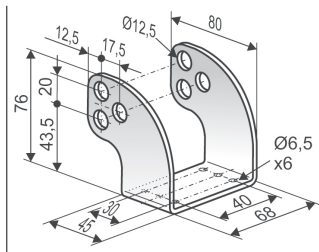
2x B10 clamping bolts

Accessories

K9 Frame bracket

Part.-No. 158501

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**,
SP with **B13**,
LKS with **B7**

Part.-No. 151320

Material/Finish

stainless steel

Feature/Equipment

drilled holes Ø12,5 mm

Accessories

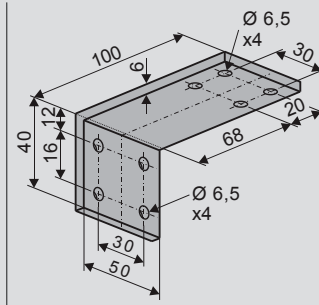
B13 clamp block SP
(12 mm, G1/8) thick

Part.-No. 513901

OPTIONAL ACCESSORIES

Window console

K9



Application

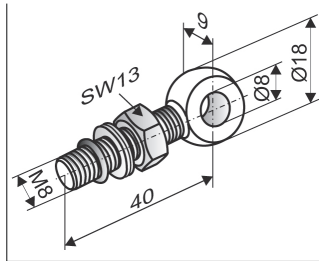
Shift the fastening level of the frame brackets **K57**, **K59** from the horizontal to the vertical side of the **main closing edge** of window frames

Part.-No. 158501

Material/Finish
aluminium

Eyebolt

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

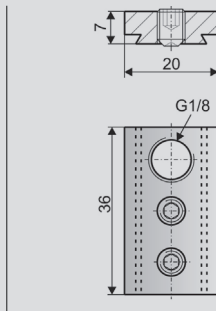
B16VA

Part.-No. 100144

Material/Finish
stainless steel (V2A)

Clamp blocks

B11



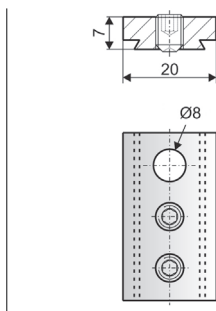
Application

Swivelling suspension of drives **SP8** on frame brackets **K4-L** with collar screw **B8**

Part.-No. 513902

Material/Finish
aluminium
Feature/Equipment
7,0 mm thick,
thread G1/8",
incl. 2 collar screws
B8, Ø12 mm

B12



Application

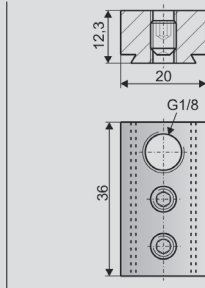
Swivelling suspension of drives **SP8** on frame brackets **K17**

Part.-No. 513903

Material/Finish
aluminium
Feature/Equipment
7,0 mm thick,
bore Ø8,2 mm
2 pieces

OPTIONAL ACCESSORIES

B13

**Application**

Swivelling suspension of drives SP8 on frame brackets K5, K7, K82 with collar screw B8

Part.-No. 513901

Material/Finish

aluminium

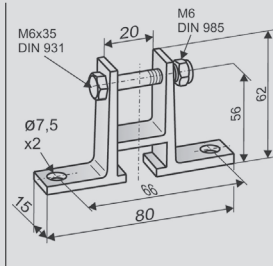
Feature/Equipment

12,3 mm thick,
thread G1/8",
incl. 2 collar screws
B8, Ø12 mm

SPECIFIC APPLICATIONS

SKY-LIGHT ETERNIT

F2

**Application**

Surface mounting on the main closing edge of skylight domes Eternit, for drives with front suspension with bore Ø6 mm

Part.-No. 150303

Material/Finish

aluminium

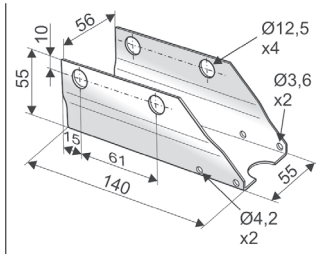
Feature/Equipment

1x nut M6,
1x screw M6x35

Load

max. 800 N

K4-L

**Application**

Surface mounting on the main closing edge of the upstand of skylight domes Eternit for swivelling suspension of drives PLA with B4, SP with B11,

Part.-No. 155610

Material/Finish

steel galvanized

Feature/Equipment

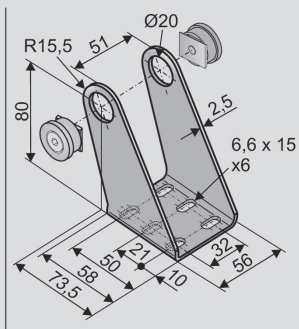
2x nut Taptite M4x10,
1x nut M4,
1x nut M4x65

Accessories

B11 clamp block SP
(7 mm, G1/8)

SKY-LIGHT LAMILUX

K92

**Application**

Surface mounting on the main closing edge of the upstand of skylight domes Lamilux for swivelling suspension of drives SP. For the front suspension the original casement bracket of Lamilux is used

Part.-No. 160937

Material/Finish

steel, powder coated
(RAL 9010 white)

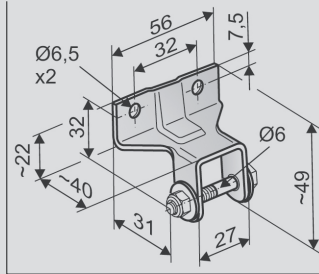
Feature/Equipment

2x B10 clamping bolts

SPECIFIC APPLICATIONS

SKY-LIGHT ESSMANN TYP 810

F12



Application

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

Part.-No. 151500

Material/Finish
steel galvanized

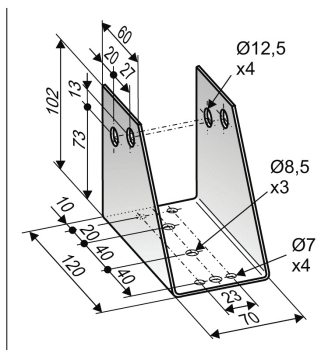
Feature/Equipment

1x screw M6, washer, nut

Load

max. 800 N

K7



Application

Surface mounting on the main closing edge of the upstand of skylight domes
Essmann 810 for swivelling suspension of drives
PLA with B4,
SP with B13,
LKS with B7

Part.-No. 157500

Material/Finish
steel galvanized

Feature/Equipment
drilled holes Ø12,5 mm

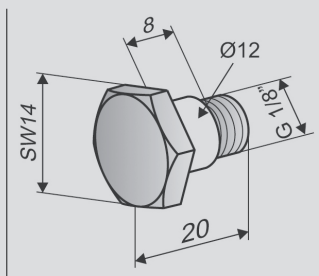
Accessories

B13 clamp block SP
(12 mm, G1/8)

Part.-No. 513901

OPTIONAL ACCESSORIES

B8



Application

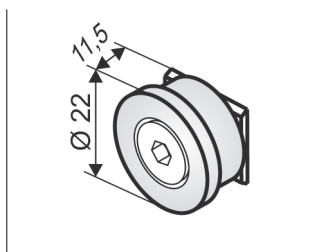
Swivelling suspension of the clamp rings
B4 for PLA
B7 for LKS
or of the clamping blocks
B11, B13 for SP
for U-shaped frame brackets with bore Ø12,5 mm

Part.-No. 172800

Material/Finish
stainless steel

Feature/Equipment
collar Ø12 mm, G1/8"

B10



Application

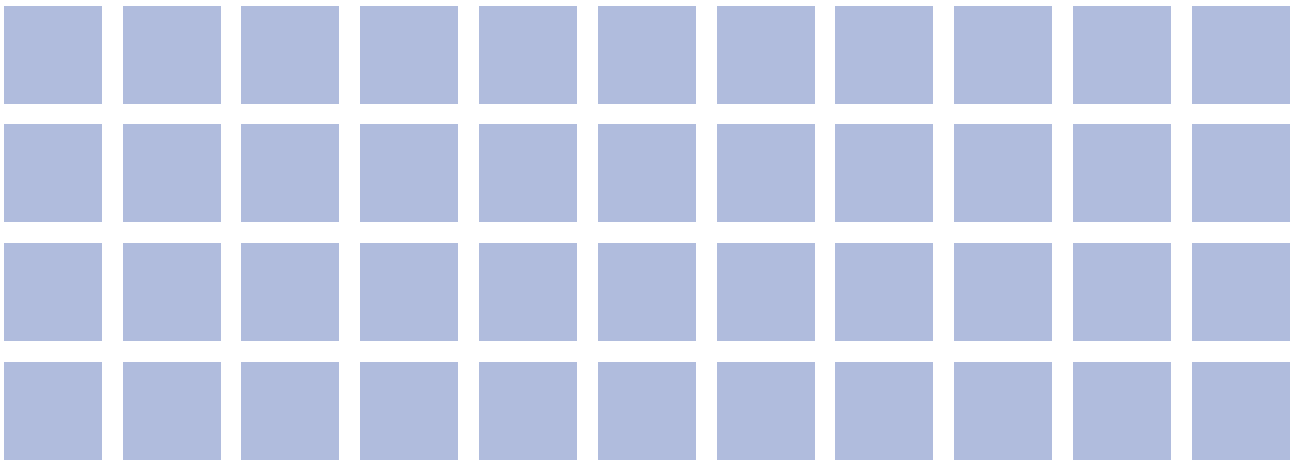
Swivelling suspension of drives
SP8 on frame brackets K57,
K57.2, K57.3, K59, K92

Part.-No. 155010

Material/Finish
cast steel, nickel plated

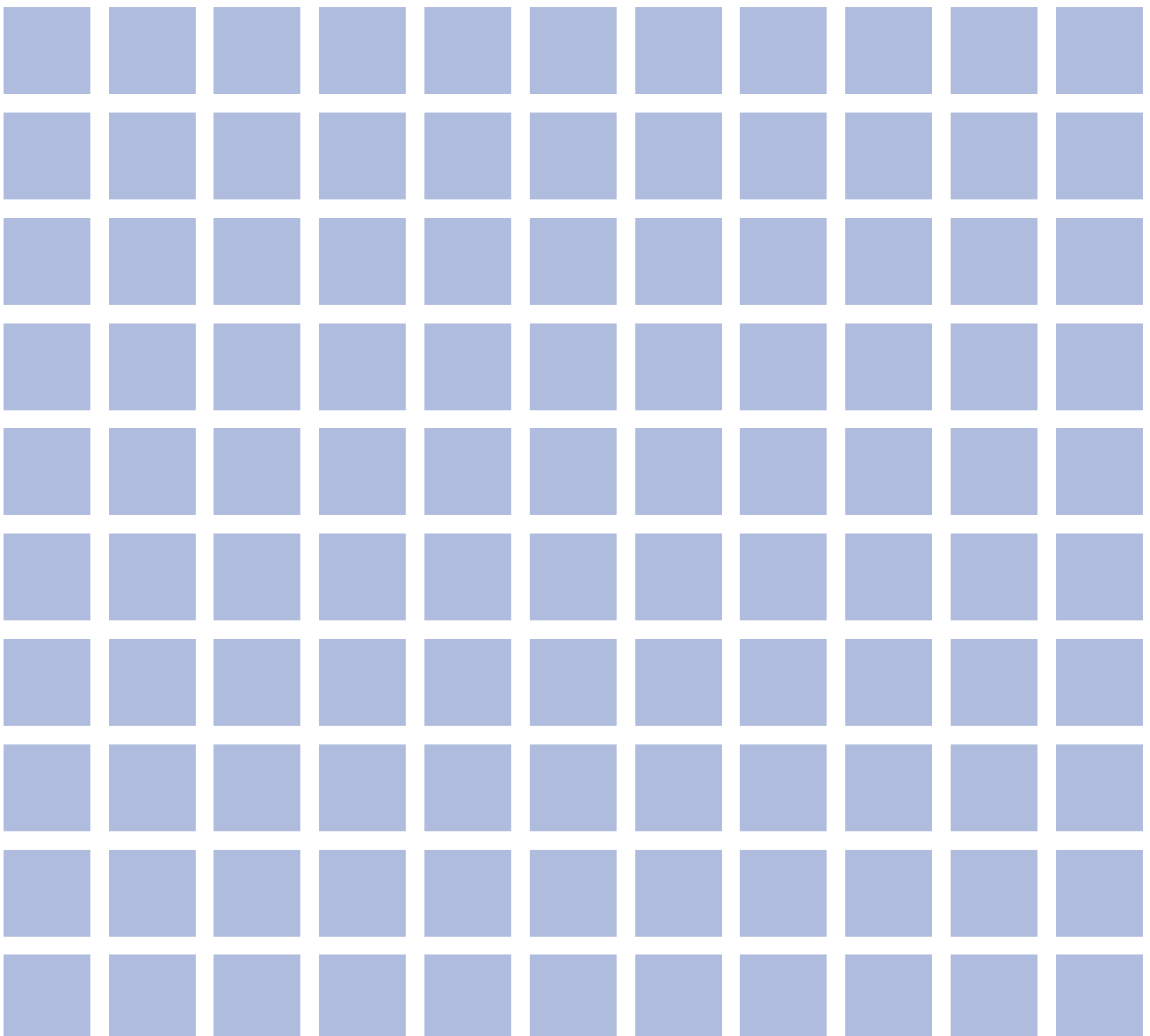
Feature/Equipment
2 pieces (for drilled holes Ø20 mm)

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



3

Rack and pinion drives



OVERVIEW OF 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	SHEV	NSHEV	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	●	●		■	●		●	○

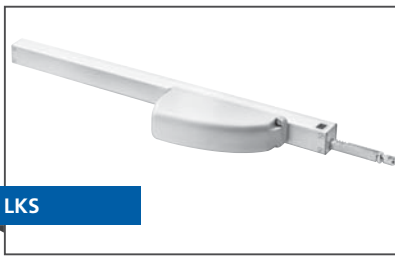
LEGEND

● suitable

■ not recommended

S2 internal load dependend cut-off switch

○ only with external control module USKM



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-T

LKS-T 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
- **Opening mechanism** Chromated stainless steel rack
- Version SOLO with follower and connection shaft
- Protection rating IP54



LKS-TV

LKS-TV RACK AND PINION DRIVES

- Model 24V DC, S2
- Pulling/Pushing force 1100 N
- Stroke length 100 – 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



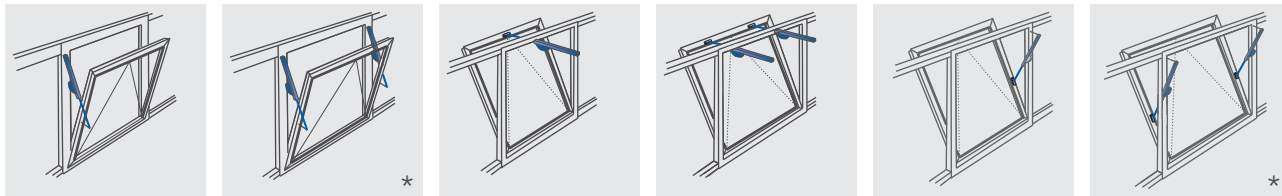
SPECIAL FEATURES LKS

- 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

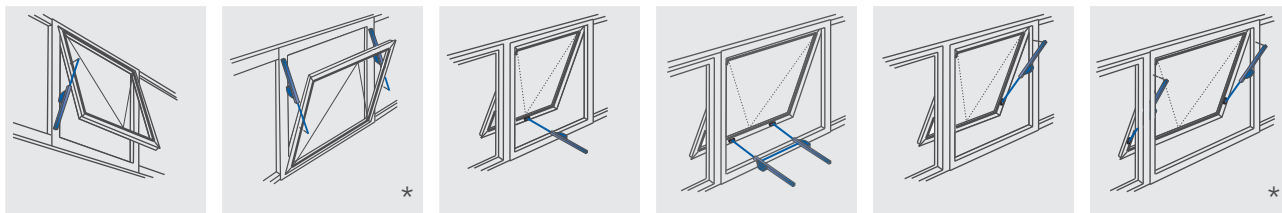
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage www.aumueller-gmbh.de.

FACADE

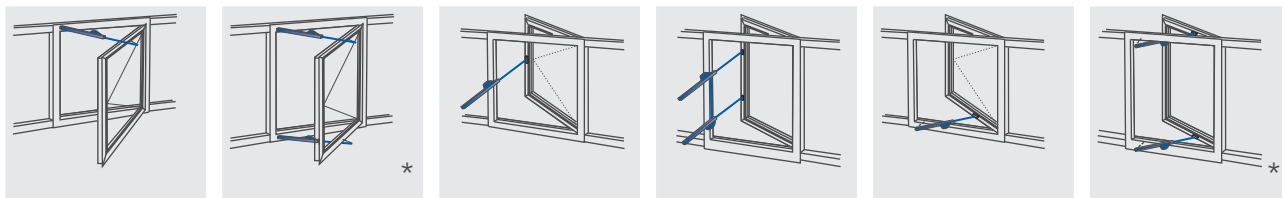
Bottom-hung



Top-hung

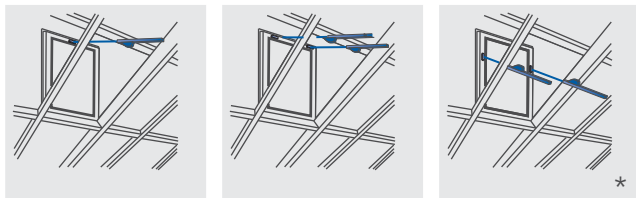


Side-hung

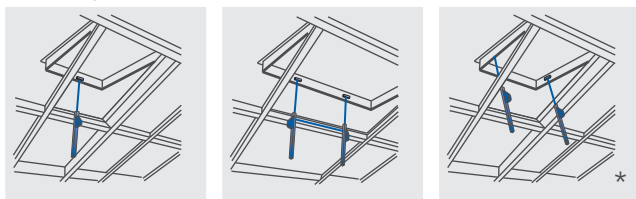


ROOF

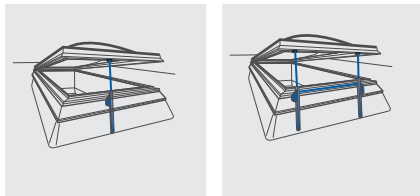
Bottom-hung



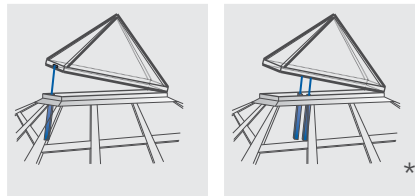
Top-hung



Sky light



Glass pyramid



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

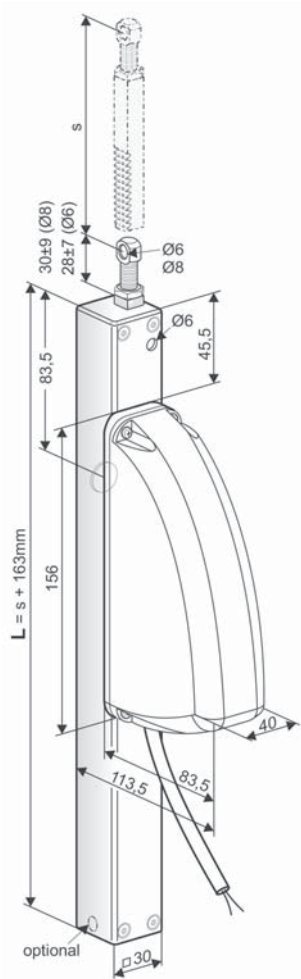
- Application: natural ventilation and SHEV as single-drive

- Internal load dependent 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 24V DC ($\pm 20\%$), max. 2 Vpp

I_N Rated current 0,6 A

I_A Cut-off current 0,8 A

P_N Rated power 15 W

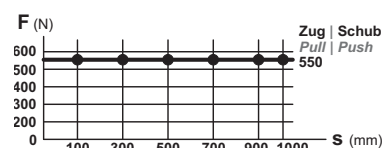
ED Duty cycle 30 % (ON: 3 min. / OFF: 7 min.)

Protection rating IP 54

Ambient temperature range range $-5^\circ\text{C} \dots +75^\circ\text{C}$

F_Z Pulling force max. 550 N

F_A Pushing force



F_H Pullout force 3000 N (fastening depended)

Chain stainless steel

Connecting cable non-halogen, grey 2 x 0,75 mm², ~ 1 m

v Speed $\frac{\Delta}{\Delta t} = 6,0$ mm/s $\frac{\Delta}{\Delta t} = 6,0$ mm/s

s Stroke 100 – 1000 mm ($\pm 5\%$)

L Length $s + 163$ mm
see order data

Sound pressure level A ≤ 70 dB (A)

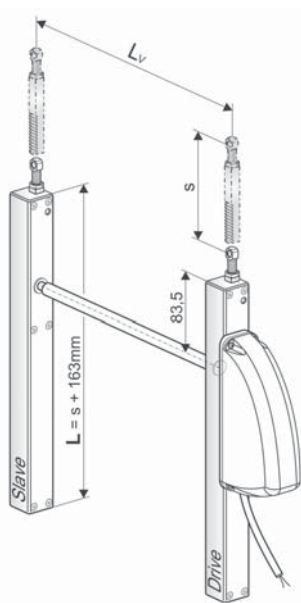
ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
100	263	LKS 100 S2	E6/C-0	1	513100.N	
200	363	LKS 200 S2	E6/C-0	1	513200.N	
300	463	LKS 300 S2	E6/C-0	1	513300.N	
400	563	LKS 400 S2	E6/C-0	1	513400.N	
500	663	LKS 500 S2	E6/C-0	1	513500.N	
600	763	LKS 600 S2	E6/C-0	1	513600.N	
750	913	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.			
Drive housing painted/powder coated in other RAL colours						
Lump sum for coating			516030			
Specify at order stage:		1 – 20	516004			
		21 – 50	516004			
		51 – 100	516004			
		up 101	516004			
Extra length connecting cable:						
3 m – non-halogen, grey – 2 x 0,75 mm ²			501023			
5 m – non-halogen, grey – 2 x 0,75 mm ²			501024			
10 m – non-halogen, grey – 2 x 0,75 mm ²			501039			
Accessories for front / rear suspension						
2 additional holes Ø6 mm in the bottom of housing for rear suspension with K28, K29			1	520901		
Mechanic stroke reduction						
Stroke reduction without construction length - mechanically			1	516000		
Other lengths available on request						
Tandem control with or without sequence control		PU/pcs.	Part.-No.			
Connection shaft						
USKM (s ≤ 300mm)			1	512140		

- Application: natural ventilation and SHEV 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 24V DC ($\pm 20\%$), max. 2 Vpp


I_N Rated current 0,6 A

I_A Cut-off current 0,8 A

P_N Rated power 15 W

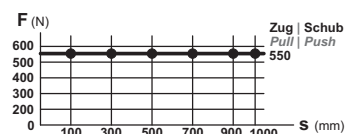
ED Duty cycle 30 % (ON: 3 min. / OFF: 7 min.)

Protection rating IP 54

 Ambient temperature range -5 °C ... +75 °C

F_Z Pulling force max. 550 N


F_A Pushing force



F_H Pullout force 3000 N (fastening depended)

Chain stainless steel

Connecting cable non-halogen, grey 2 x 0,75 mm², ~ 1 m

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

s Stroke 300 – 1000 mm ($\pm 5\%$)

L Length s + 163 mm
see order data

L_v Connection shaft Standard length see order data

Sound pressure level A ≤ 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.			
Drive housing painted/powder coated in other RAL colours						
Lump sum for coating			516030			
Specify at order stage:		1 – 20	516004			
		21 – 50	516004			
		51 – 100	516004			
		up 101	516004			
Extra length connecting cable:						
3 m – non-halogen, grey – 2 x 0,75 mm ²			501023			
5 m – non-halogen, grey – 2 x 0,75 mm ²			501024			
10 m – non-halogen, grey – 2 x 0,75 mm ²			501039			
Accessories for front / rear suspension						
2 additional holes Ø6 mm in the bottom of housing for rear suspension with K28, K29			1	520901		
Mechanic stroke reduction						
Stroke reduction without construction length - mechanically			1	516000		
Other lengths available on request						
Accessories	Lv [mm]	PU/pcs.	Part.-No.			
Connection shaft						
B17-1	1000	1	513050			
B17-2	1500	1	513052			
B17-3	2000	1	513054			

- Application: natural ventilation and SHEV 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 24V DC ($\pm 20\%$), max. 2 Vpp


I_N Rated current 1,2 A

I_A Cut-off current 1,6 A

P_N Rated power 30 W

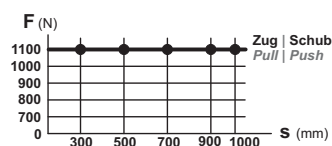
ED Duty cycle 30 % (ON: 3 min. / OFF: 7 min.)

Protection rating IP 54

 Ambient temperature range -5 °C ... +75 °C

F_Z Pulling force max. 1100 N

F_A Pushing force



F_H Pullout force 3000 N (fastening depended)

Chain stainless steel

Connecting cable non-halogen, grey 2 x 0,75 mm², ~ 1 m

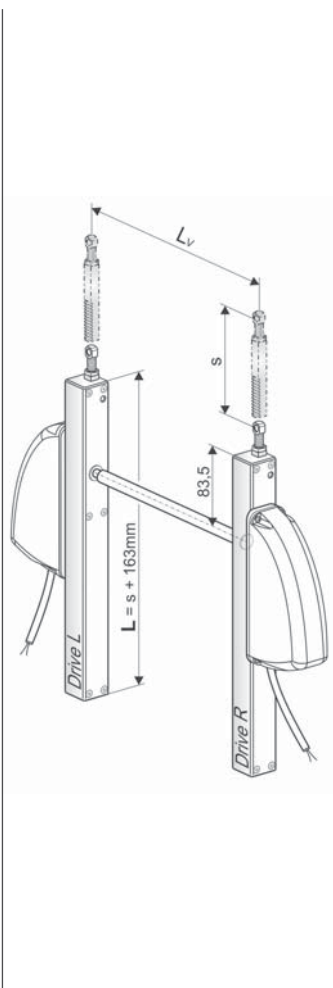
v Speed  6,0 mm/s  6,0 mm/s

s Stroke 300 – 1000 mm ($\pm 5\%$)

L Length $s + 163$ mm
see order data

L_V Connection shaft Standard length see order data

Sound pressure level A ≤ 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	513300.TV	
500	563	LKS TV 500 S2	E6/C-0	1	513500.TV	
600	463	LKS TV 600 S2	E6/C-0	1	513600.TV	
750	913	LKS TV 750 S2	E6/C-0	1	513800.TV	
1000	1163	LKS TV 1000 S2	E6/C-0	1	513805.TV	

OPTIONS						
Special model		PU/pcs.	Part.-No.			
Drive housing painted/powder coated in other RAL colours						
Lump sum for coating			516030			
Specify at order stage:		1 – 20	516004			
		21 – 50	516004			
		51 – 100	516004			
		up 101	516004			
Extra length connecting cable:						
3 m – non-halogen, grey – 2 x 0,75 mm ²			501023			
5 m – non-halogen, grey – 2 x 0,75 mm ²			501024			
10 m – non-halogen, grey – 2 x 0,75 mm ²			501039			
Accessories for fron / rear suspension						
2 additional holes Ø6 mm in the bottom of of housing for rear suspension with K28, K29			1	520901		
Mechanic stroke reduction						
Stroke reduction without construction length - mechanically			1	516000		
Other lengths available on request						
Accessories	Lv [mm]	PU/pcs.	Part.-No.			
Connection shaft						
B17-1	1000	1	513050			
B17-2	1500	1	513052			
B17-3	2000	1	513054			

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, F10.6		F1, F1V, F2, 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	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]	700 – 1300							
		Sync2	[mm]	1200 – 2500							
FAH*1		Solo	[mm]	450 – 1500							
		Sync2	[mm]	450 – 2500							

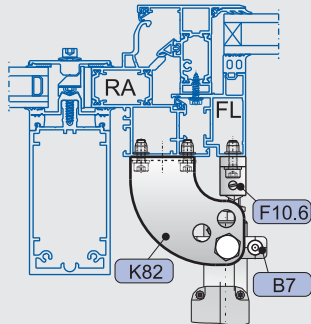
LEGEND

● 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.

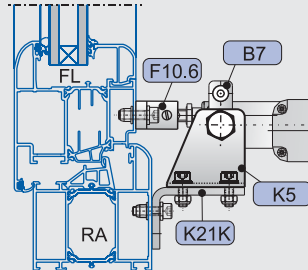
TYPICAL APPLICATIONSE

1 RM, HSK, roof



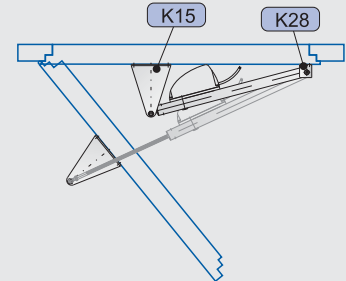
View on aluminium window

2 RM, HSK, top-hung outward opening



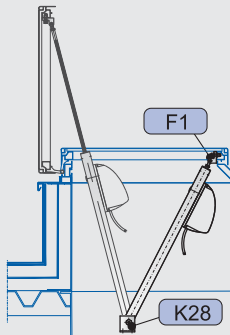
View on PVC-window

2 RM, NSK, side-hung outward opening



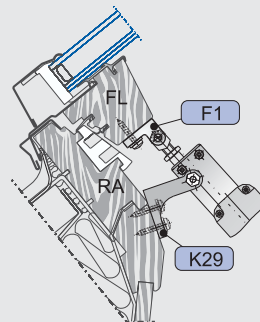
View for example

3 RM, HSK, roof



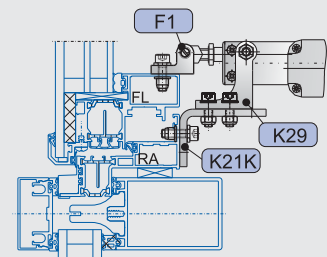
View on roof window

4 RM, HSK, roof



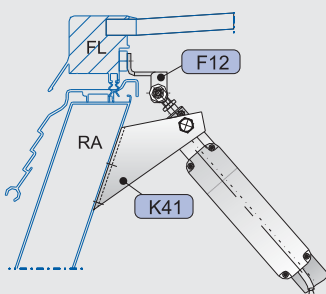
View on wooden window

5 RM, HSK, top-hung outward opening



View on aluminium window

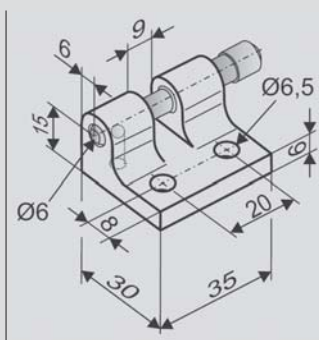
6 RM, HSK, sky light



View on sky light Essmann

CASEMENT BRACKETS

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

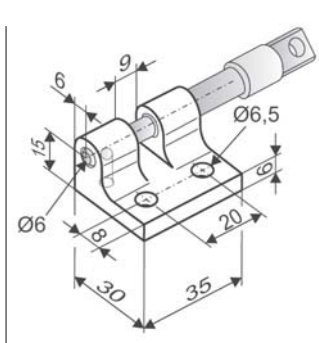
1x Locking bolt

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

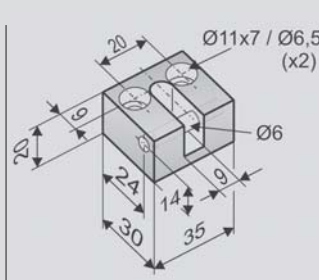
1x Locking spring bolt

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

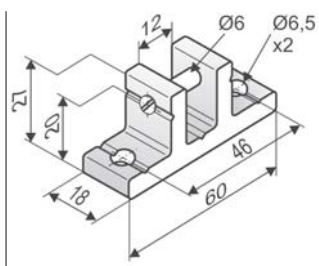
Feature/Equipment

1x grubscrew Ø 6 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

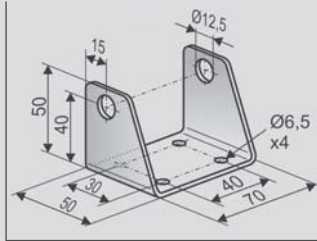
1x stud bolt Ø6 mm

Load

max. 1600 N

CASEMENT BRACKETS

K5

**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**,
SP with **B13**,
LKS with **B7**

Part.-No. 155800

Material/Finish
 steel, galvanized

Feature/Equipment
 bore holes Ø12,5 mm

Accessories

B7 clamp ring LKS
 (30 x 30 mm, G1/8)

Part.-No. 513900

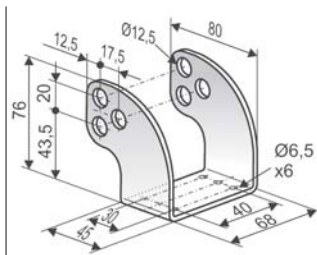
K21K Frame bracket

Part.-No. 159900

K21L Frame bracket

Part.-No. 159905

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**,
SP with **B13**,
LKS with **B7**

Part.-No. 151320

Material/Finish
 stainless steel

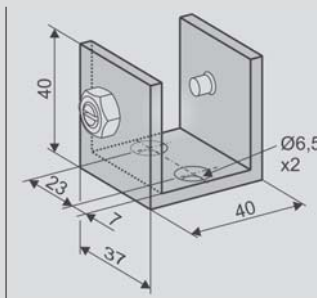
Feature/Equipment
 bore holes Ø12,5 mm

Accessories

B7 clamp ring LKS
 (30 x 30 mm, G1/8)

Part.-No. 513900

K28

**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 **LKS** with **front or rear** bore Ø6,0 mm

Part.-No. 160800

Material/Finish
 aluminium, nature

Feature/Equipment
 2x grubscrew M8,
 nut M8

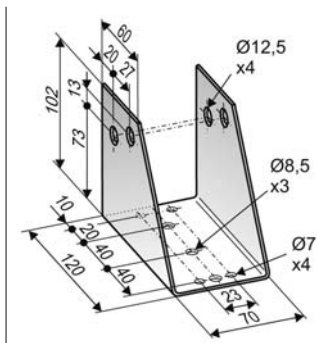
Load
 max. 600 N

Accessories

2 rear holes Ø6 mm

Part.-No. 520901

K7

**Application**

Surface mounting on the **main closing edge** of the upstand of skylight domes **Essmann 810** for **swivelling suspension** of drives
PLA with **B4**,
SP with **B13**,
LKS with **B7**

Part.-No. 157500

Material/Finish
 steel galvanized

Feature/Equipment
 drilled holes Ø12,5 mm

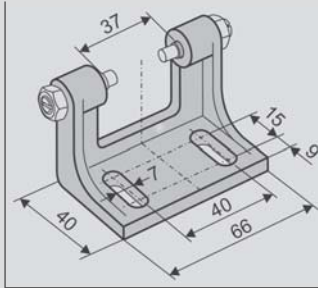
Accessories

B4 clamp ring PLA
 (Ø36 mm, G1/8)

Part.-No. 515900

CASEMENT BRACKETS

K29



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 **LKS** with **front or rear bore Ø6,0 mm**

Part.-No. 160900

Material/Finish
aluminium, nature

Feature/Equipment
2x grubscREW M8,
nut M8

Load
max. 600 N

Accessories

2 rear holes Ø 6 mm

Part.-No. 520901

K21K Frame bracket

Part.-No. 159900

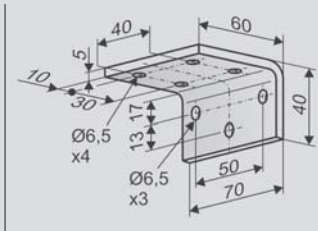
K21L Frame bracket

Part.-No. 159905

ACCESSORIES

Frame bracket

K21K



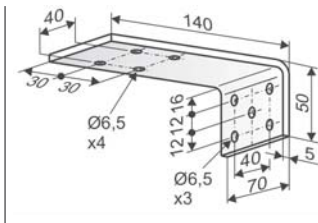
Application

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

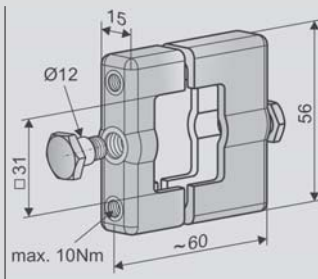
Shift the fastening level of the frame brackets **K5**, **K29** from the horizontal to the vertical position of the **main closing edge** of window frame profiles

Part.-No. 159905

Material/Finish
steel, galvanized

Clamp ring

B7



Application

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

Part.-No. 513900

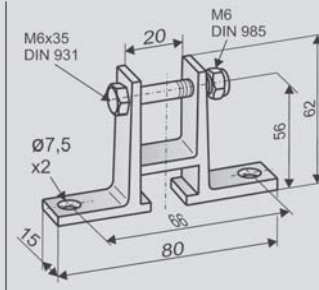
Material/Finish
aluminium (E6/C-0),
stainless steel

Feature/Equipment
2x B8 collar screw
Ø12mm, G1/8
2x cylinder head screw
M6x50

SPECIFIC APPLICATIONS

SKY LIGHT ETERNIT

F2



Application

Surface mounting on the **main closing edge** of skylight domes **Eternit**, for drives with **front suspension** with bore **Ø6 mm**

Part.-No. 150303

Material/Finish
aluminium

Feature/Equipment

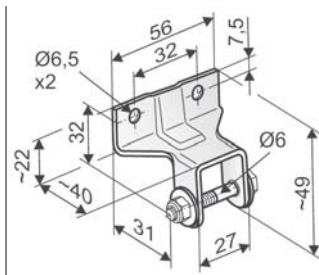
1x nut M6,
1x screw M6x35

Load

max. 800 N

SKY-LIGHT ESSMANN TYP 810

F12



Application

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

Part.-No. 151500

Material/Finish
steel, galvanized

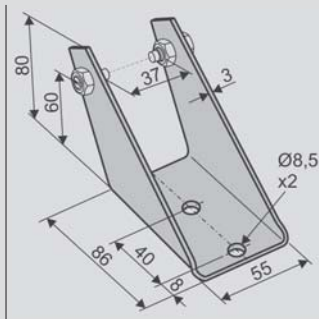
Feature/Equipment

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

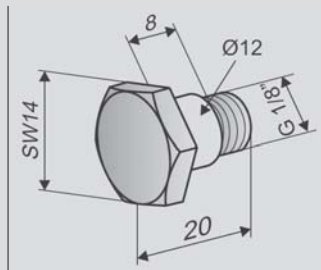
Feature/Equipment

2x grubscrew M8,
nut M8

OPTIONAL ACCESSORIES

Collar screw

B8



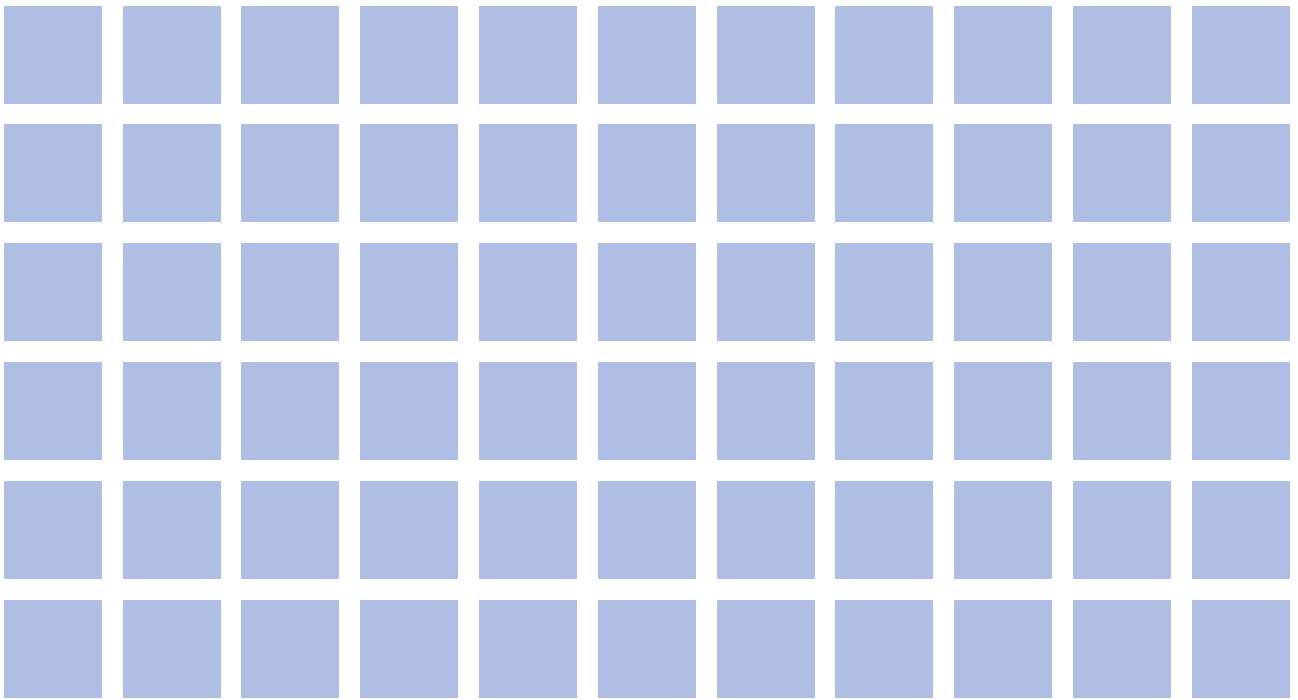
Application

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 mm**

Part.-No. 172800

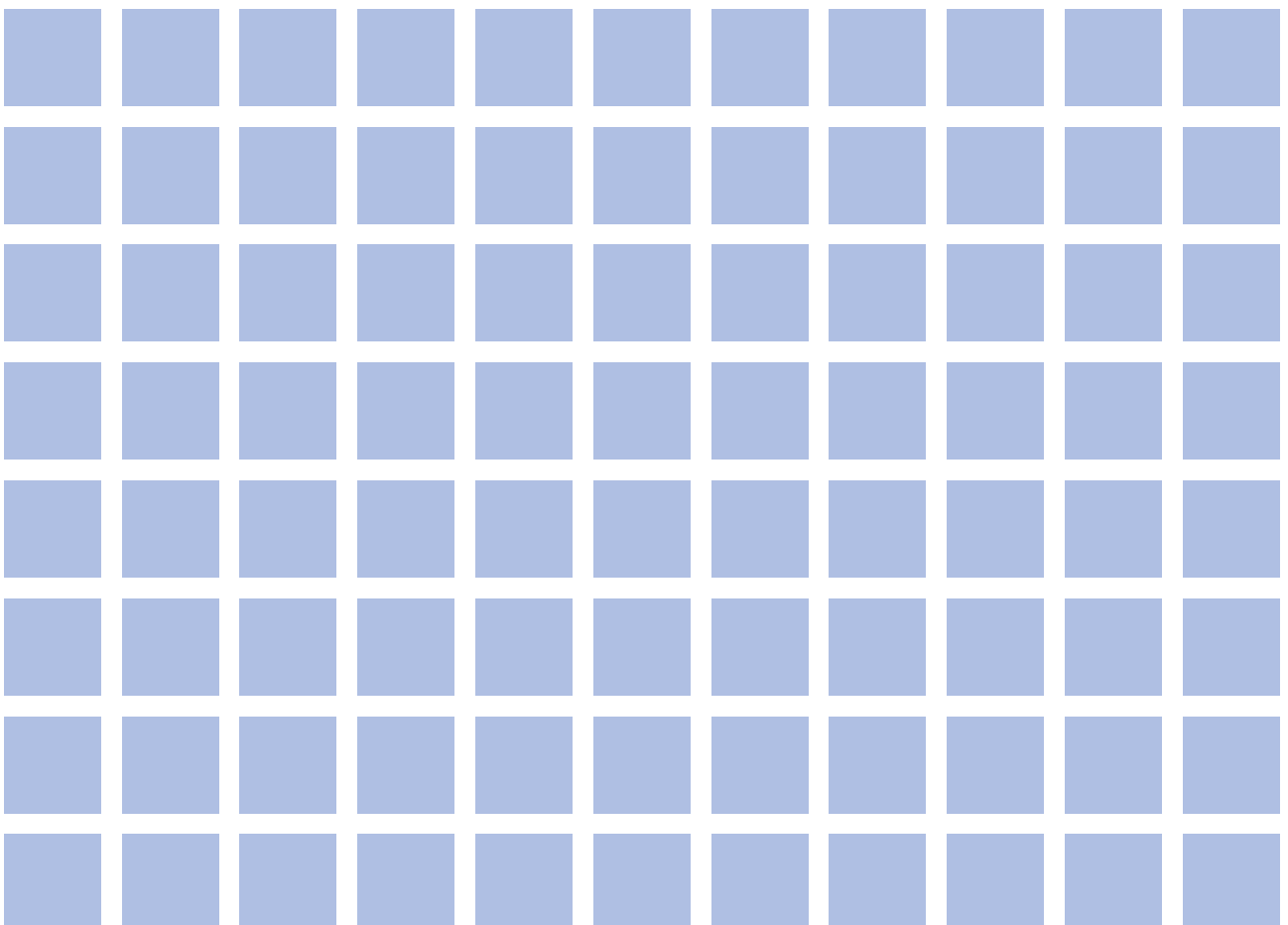
Material/Finish
stainless steel (1.4305)
Feature/Equipment
collar Ø12 mm, G1/8"

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



4

Folding arm drives

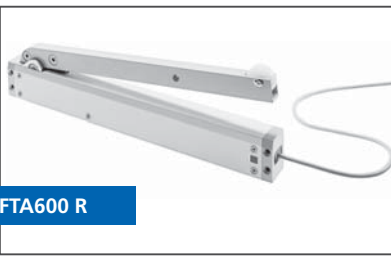


OVERVIEW OF FOLDING ARM DRIVES																	
Type	Form	Model		Stroke	Torque		Running time		Cut-off current	Use			Location		Functions		
		Type of cut-off	Rated voltage	Range	Opening torque	Closing torque	OPEN	CLOSE	Max.	Natural ventilation	SHEV	NSHEV	Facade	Roof	Run monitoring	Synchronised run	Sequence 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



FTA600 R

FTA600 R FOLDING ARM DRIVES

- Model 24V DC, S12
- Pulling/Pushing force 215 Nm / 215 Nm
- Stroke length 0 – 93 Degree
- Speed 2,0 Degree/s (45 s für 90°)
- Housing (WxH) 40 x 56 x 421 mm, aluminium
- Opening mechanism Lever arm 20 x 30 x 380 mm, aluminium
- Version SOLO with roller for air inlets
- Protection rating IP32



FTA600 DF

FTA600 DF FOLDING ARM DRIVES

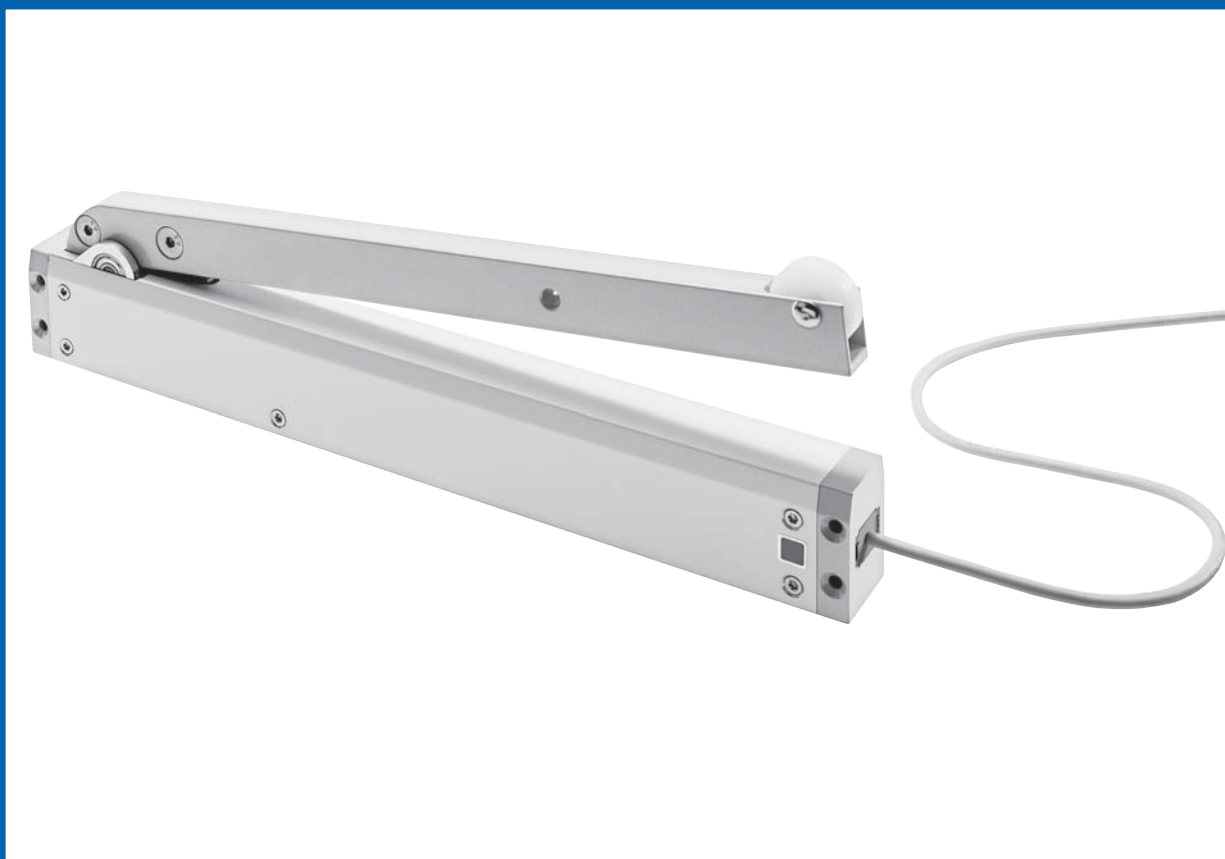
- Model 24V DC, S12
- Pulling/Pushing force 215 Nm / 215 Nm
- Stroke length 0 – 93 Degree
- Speed 2,0 Degree/s (45 s für 93°)
- Housing (WxH) 40 x 56 x 421 mm, aluminium
- Opening mechanism Lever arm 20 x 30 x 380 mm, aluminium
- Version SOLO with knuckle joint for side-hung inward opening windows
- Protection rating IP32



FTA600 GF

FTA600 GF FOLDING ARM DRIVES

- Model 24V DC, S12
- Pulling/Pushing force 215 Nm / 215 Nm
- Stroke length 0 – 93 Degree
- Speed 3,0 Degree/s (45 s für 93°)
- Housing (WxH) 40 x 56 x 421 mm, aluminium
- Opening mechanism Lever arm 20 x 30 x 380 mm, aluminium
- Version SOLO with slide rail for side hung outward opening windows
- Protection rating IP32



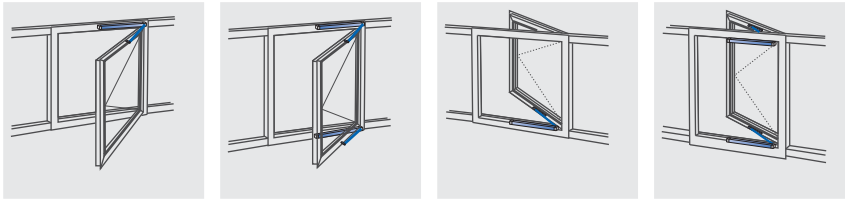
SPECIAL FEATURES FTA600

- For natural ventilation, smoke and heat exhausting systems and ferralux® NSHEV (EN12101-2)
- Type:
 - R – with role: The folding arm opens via role free moving doors 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 93° 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

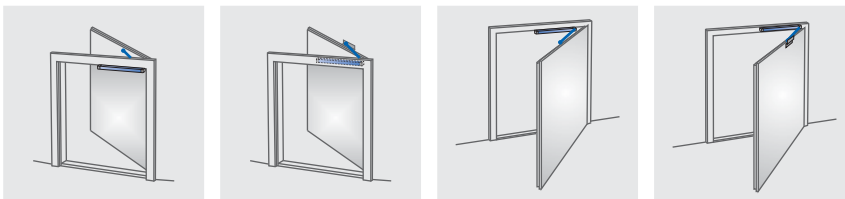
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage www.aumüller-gmbh.de.

FACADE

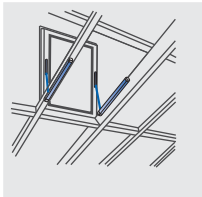
Side-hung (FTA600 DF/GF)

**INLET AIR**

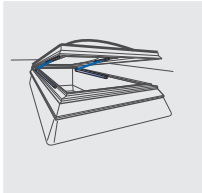
Doors (FTA600 R)

**ROOF**

Bottom-hung (FTA600 GF)



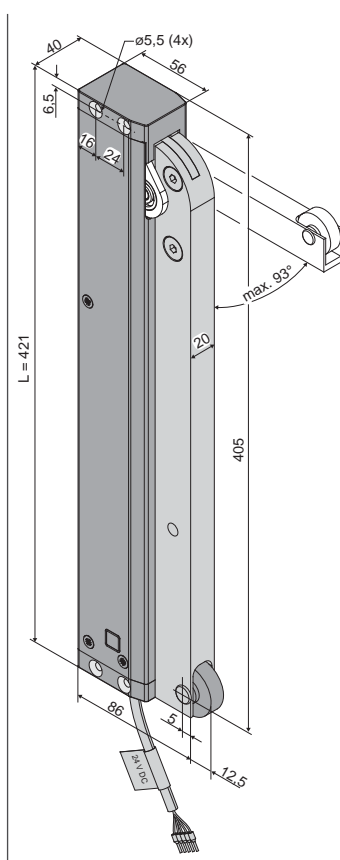
Sky-light (FTA600 GF)






- Application: natural ventilation, SHEV
- Mainly for opening of doors as air inlets
- Internal Intelligent Control Electronics S12
- Programmable contact for door opener
- Unified plug solution for all **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

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	1,2 A
I_A	Cut-off current	1,4 A
P_N	Rated power	24 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
M_A	Torque OPEN	215 Nm (600 N)
M_Z	Torque CLOSE	215 Nm (600 N)
F_H	Pullout force	3000 N (fastening depended)
	Lever arm	aluminium (RAL9006)
	Connecting cable	non-halogen, grey 5 x 0,5 mm ² , ~ 3 m
t	Running time (0° – 90°)	 45 s (2,0°/s)  45 s (2,0°/s)
s	Stroke	0 – 93 DEG ($\pm 5\%$)
L	Length	421 mm
	Potential free contact	max. 24VDC / 0,5A programmable
	Sound pressure level A	≤ 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	524144			
Accessories				PU/pcs.	Part.-No.			
K88 Casement bracket FTA600 R				1	524156			

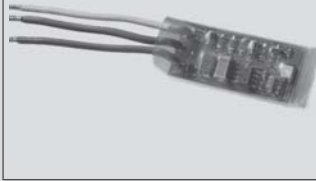
OPTIONS

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

OPTIONAL ACCESSORIES

Main control unit and plug solution

M-COM



Application

Configuration module for automatic configuration and surveillance of max. 6 opening or locking drives version S12 / S3 in synchronised multi-drive systems

Rated voltage:

24 V DC +/- 20%, (max. 2 Vss)

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 mm² x 50 mm

Feature/Equipment

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

Aumüller-Click plug solution



Aumüller-Click plug solution:

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

Rated voltage:

24 V DC +/- 20 %, (max. 2 Vss)

Connecting cable:

non-halogen, grey 5 x 0,5 mm²

Terminal: to 1,5 mm²

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

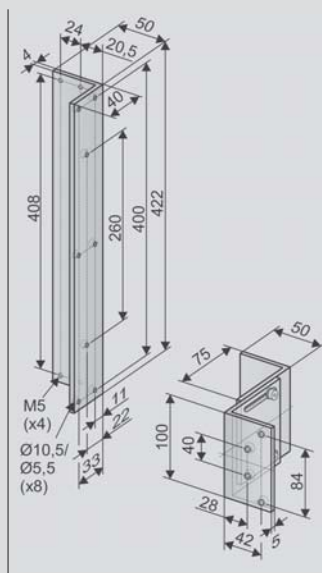
VARIANTS:

1 m cable length - 24 V DC	Part.-No. 501250
2 m cable length - 24 V DC	Part.-No. 501258
3 m cable length - 24 V DC	Part.-No. 501251
5 m cable length - 24 V DC	Part.-No. 501252
10 m cable length - 24 V DC	Part.-No. 501253

OPTIONAL ACCESSORIES

Casement bracket

K88



Application

Surface mounting on the **side closing edge** of door frame profiles of inward opening doors as air inlets.

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

Two angle brackets 100 mm for mounting on the door as sliding guidance of the carrier role, adjustable for compensation of the door overlap

Part.-No. 524156

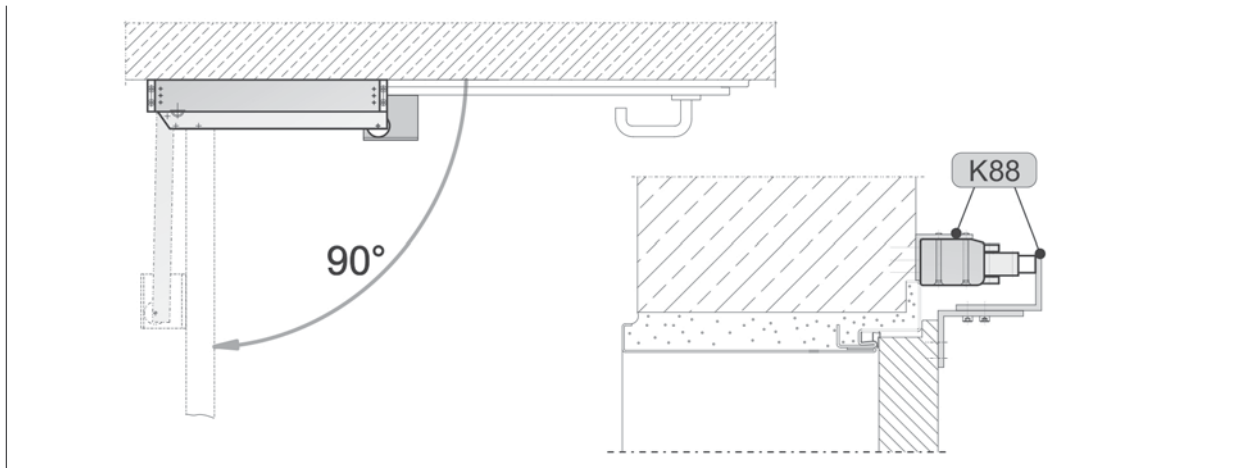
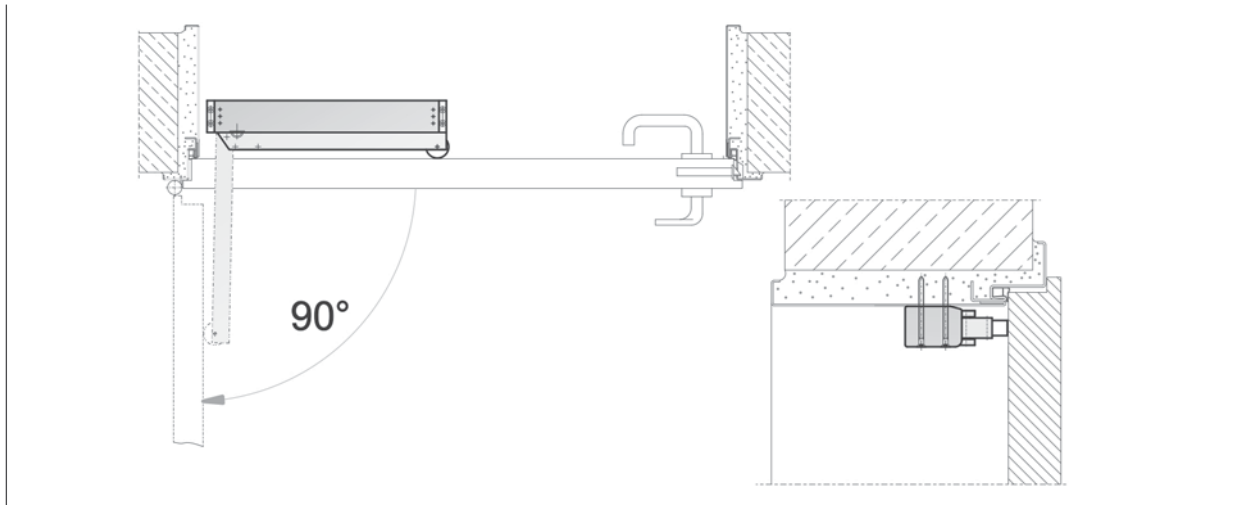
Material/Finish
aluminium

Feature/Equipment
1x angle 50x40x422
(t = 4) mm
2x angles 50x75x100
(t = 5) mm
fixing screws and nuts

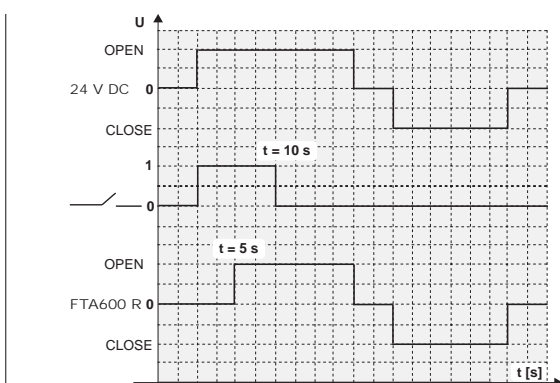
Load
max. 600 N

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

Typical applications



Contact diagramm



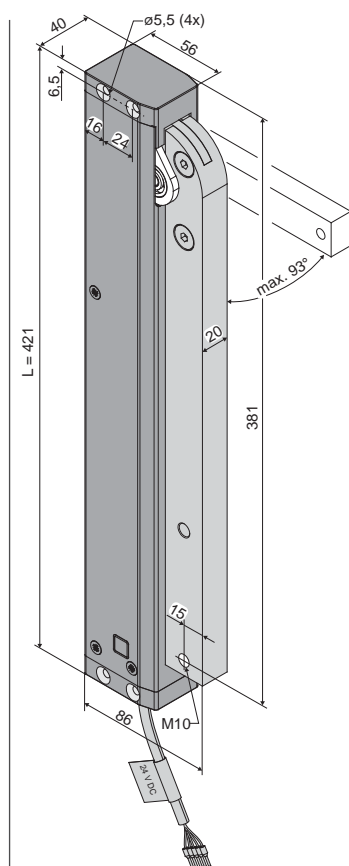
After application of the voltage, the door lock contact is activated for 10 seconds. With a delay of about 5 seconds, the drive arm of the folding arm drives **FTA600 R** starts moving and opens to an angle of max. 93°.

During the **closing operation**, the door lock contact is not activated.




- Application: natural ventilation, SHEV
- Mainly for opening and closing of side-hung inward opening windows
- Internal Intelligent Control Electronics S12
- Programmable contact for door opener
- Unified plug solution for all **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

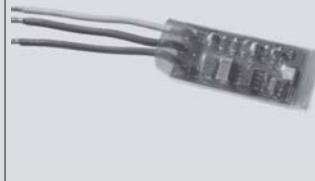



TECHNICAL DATA

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	1,0 A
I_A	Cut-off current	1,4 A
P_N	Rated power	20 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
M_A	Torque OPEN	215 Nm (600 N)
M_Z	Torque CLOSE	215 Nm (600 N)
F_H	Pullout force	3000 N (fastening depended)
	Lever arm	aluminium (RAL9006)
	Connecting cable	non-halogen, grey 5 x 0,5 mm ² , ~ 3 m
t	Running time (0° – 90°)	 45 s (2,0%/s)  45 s (2,0%/s)
s	Stroke	0 – 93 DEG ($\pm 5\%$)
L	Length	421 mm
	Potential free contact	max. 24VDC / 0,5A programmable
	Sound pressure level A	≤ 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	524145	
Accessories				PU/pcs.	Part.-No.	
K103 Casement bracket FTA600 DF				1	524172	
OPTIONS						
Special model				PU/pcs.	Part.-No.	
Drive housing painted/powder coated in other RAL colours						
Lump sum for coating					516030	
Specify at order stage:				1 – 20	516004	
				21 – 50	516004	
				51 – 100	516004	
				up 101	516004	
Extra length connecting cable:						
10 m – non-halogen, grey – 5 x 0,5 mm ²					501056	
Microprocessor programming S12						
Electronic stroke reduction 24V S12				1	524190	
Programming drives 24V / 230V S12					524180	
Optional accessories				PU/pcs.	Part.-No.	
Configuration module for synchronised multi-drive systems				1	524177	

OPTIONAL ACCESSORIES

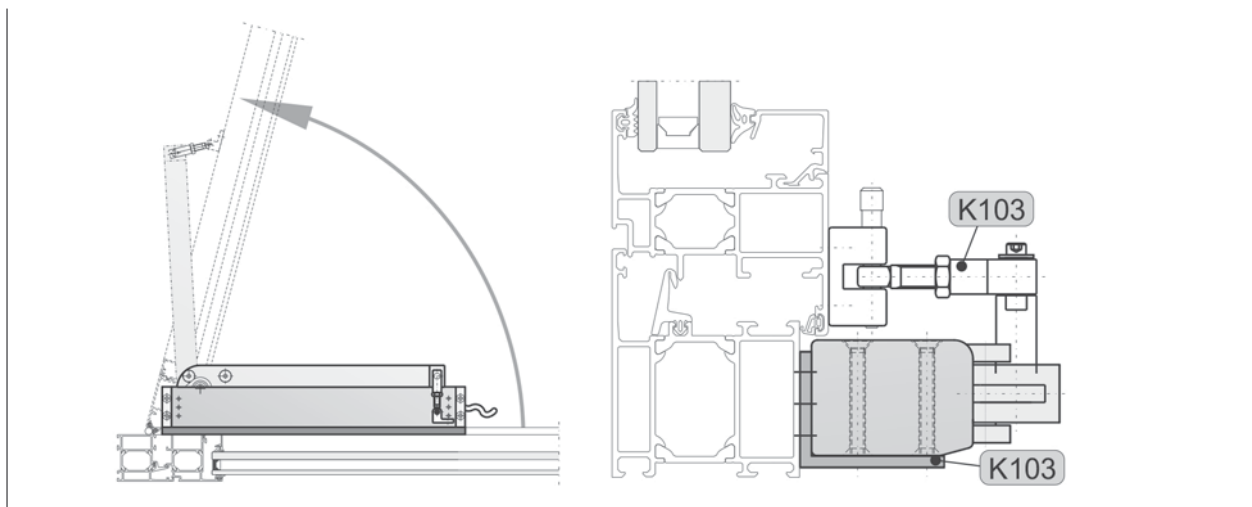
Main control unit and plug solution				
M-COM		Application Configuration module for automatic configuration and surveillance of max. 6 opening or locking drives version S12 / S3 in synchronised multi-drive systems	Part.-No. 524177 Ambient temperature range 0 °C ... + 70 °C Dimensions 45 x 17 x 6 mm Connecting wires 3 wires 0,5 mm ² x 50 mm Feature/Equipment Printed circuit board with components and connection wires to be installed in connection box to be supplied on site	
		Rated voltage: 24 V DC +/- 20%, (max. 2 Vss) Current consumption: <12 mA Drive type: S12 Protection rating IP30 rubber envelope		
Aumüller-Click plug solution		Aumüller-Click plug solution: Unified plug solution for all AUMÜLLER chain drives and AUMÜLLER folding arm drives.	Feature/Equipment <ul style="list-style-type: none">• 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	
		Rated voltage: 24 V DC +/- 20 %, (max. 2 Vss) Connecting cable: non-halogen, grey 5 x 0,5 mm ² Terminal: to 1,5 mm ²		
		VARIANTS:		
		1 m cable length - 24 V DC	Part.-No. 501250	
		2 m cable length - 24 V DC	Part.-No. 501258	
		3 m cable length - 24 V DC	Part.-No. 501251	
		5 m cable length - 24 V DC	Part.-No. 501252	
10 m cable length - 24 V DC	Part.-No. 501253			

ACCESSORIES

Casement bracket			
K103		<p>Application</p> <p>Surface mounting on the side closing edge of window frame profiles of inward opening side-hung windows.</p> <p>Angle bracket 422 mm for mounting of FTA600-DF on the window frame profile.</p> <p>F1 for mounting on the casement profile and for the fixing with the knuckle joint, adjustable for compensation of the door overlap</p>	<p>Part.-No. 524172</p> <p>Material/Finish aluminium</p> <p>Feature/Equipment 1x angle 50x40x422 (t = 4) mm 1x casement bracket F1 1x fixing accessories</p> <p>Load max. 600 N</p>

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

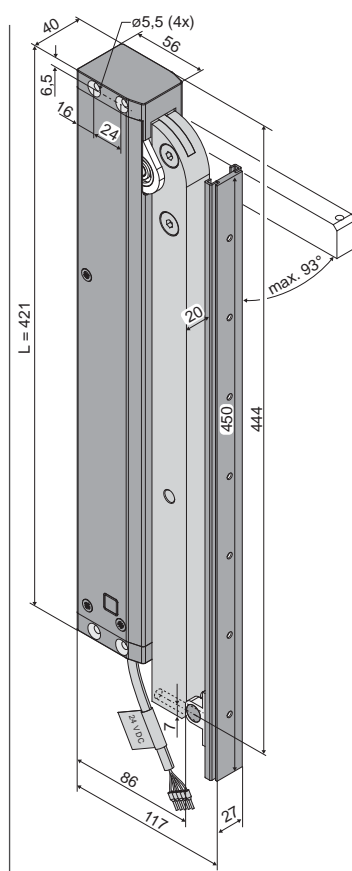
Typical applications






- Application: natural ventilation, SHEV
- Mainly for opening and closing of side-hung outward opening windows
- Internal Intelligent Control Electronics S12
- Programmable contact for door opener
- Unified plug solution for all **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

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,8 A
I_A	Cut-off current	1,4 A
P_N	Rated power	20 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
M_A	Torque OPEN	215 Nm (600 N)
M_Z	Torque CLOSE	215 Nm (600 N)
F_H	Pullout force	3000 N (fastening depended)
	Lever arm	aluminium (RAL9006)
	Connecting cable	non-halogen, grey 5 x 0,5 mm ² , ~ 3 m
t	Running time (0° – 90°)	 45 s (2,0°/s)  45 s (2,0°/s)
s	Stroke	0 – 93 DEG ($\pm 5\%$)
L	Length	455 mm
	Potential free contact	max. 24VDC / 0,5A programmable
	Sound pressure level A	≤ 70 dB (A)

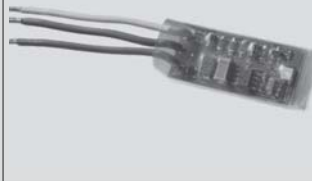

ORDER DATA

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

OPTIONS

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

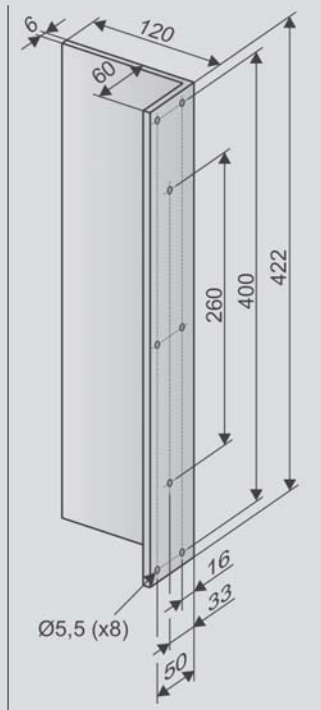
OPTIONAL ACCESSORIES

Main control unit and plug solution						
M-COM		Application Configuration module for automatic configuration and surveillance of max. 6 opening or locking drives version S12 / S3 in synchronised multi-drive systems	Part.-No. 524177 Ambient temperature range 0 °C ... + 70 °C Dimensions 45 x 17 x 6 mm Connecting wires 3 wires 0,5 mm² x 50 mm Feature/Equipment Printed circuit board with components and connection wires to be installed in connection box to be supplied on site			
		Rated voltage: 24 V DC +/- 20%, (max. 2 Vss) Current consumption: <12 mA Drive type: S12 Protection rating IP30 rubber envelope				
Aumüller-Click plug solution		Aumüller-Click plug solution: Unified plug solution for all AUMÜLLER chain drives and AUMÜLLER folding arm drives.	Feature/Equipment <ul style="list-style-type: none">Flexible cable lengthConnect multiple drives in series connectionTorsion-plugLocking hooks prevent withdrawal of the plug under tensile loadStrain relief according DIN EN 60335-1 by screwing the housing halves			
		Rated voltage: 24 V DC +/- 20 %, (max. 2 Vss) Connecting cable: non-halogen, grey 5 x 0,5 mm² Terminal: to 1,5 mm²				
		VARIANTS:				
		1 m cable length - 24 V DC	Part.-No. 501250			
		2 m cable length - 24 V DC	Part.-No. 501258			
		3 m cable length - 24 V DC	Part.-No. 501251			
		5 m cable length - 24 V DC	Part.-No. 501252			
10 m cable length - 24 V DC	Part.-No. 501253					

ACCESSORIES

Casement bracket

K104



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-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,

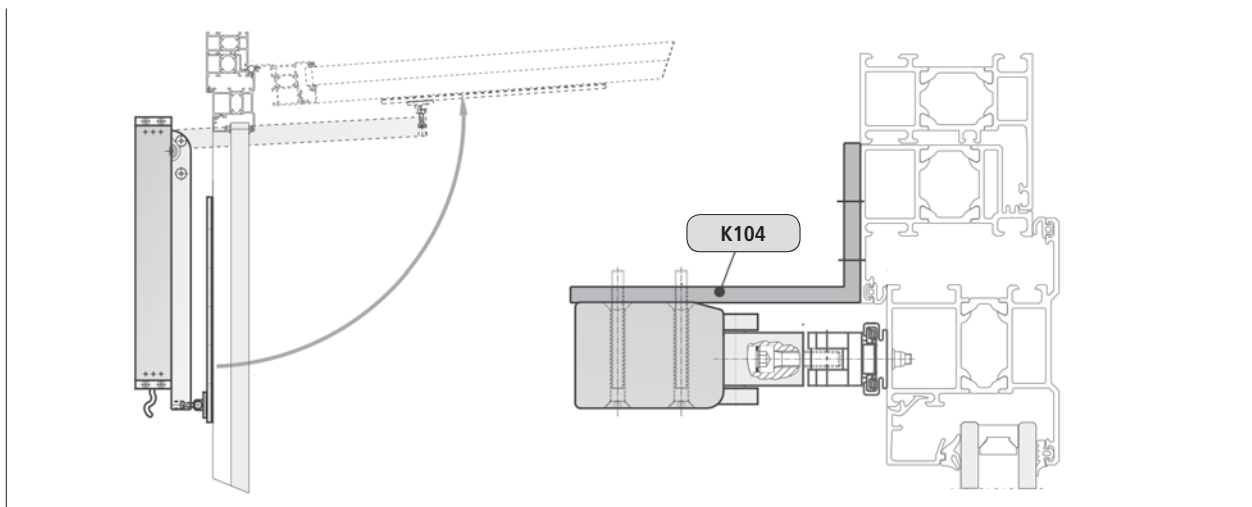
M5x45 mm

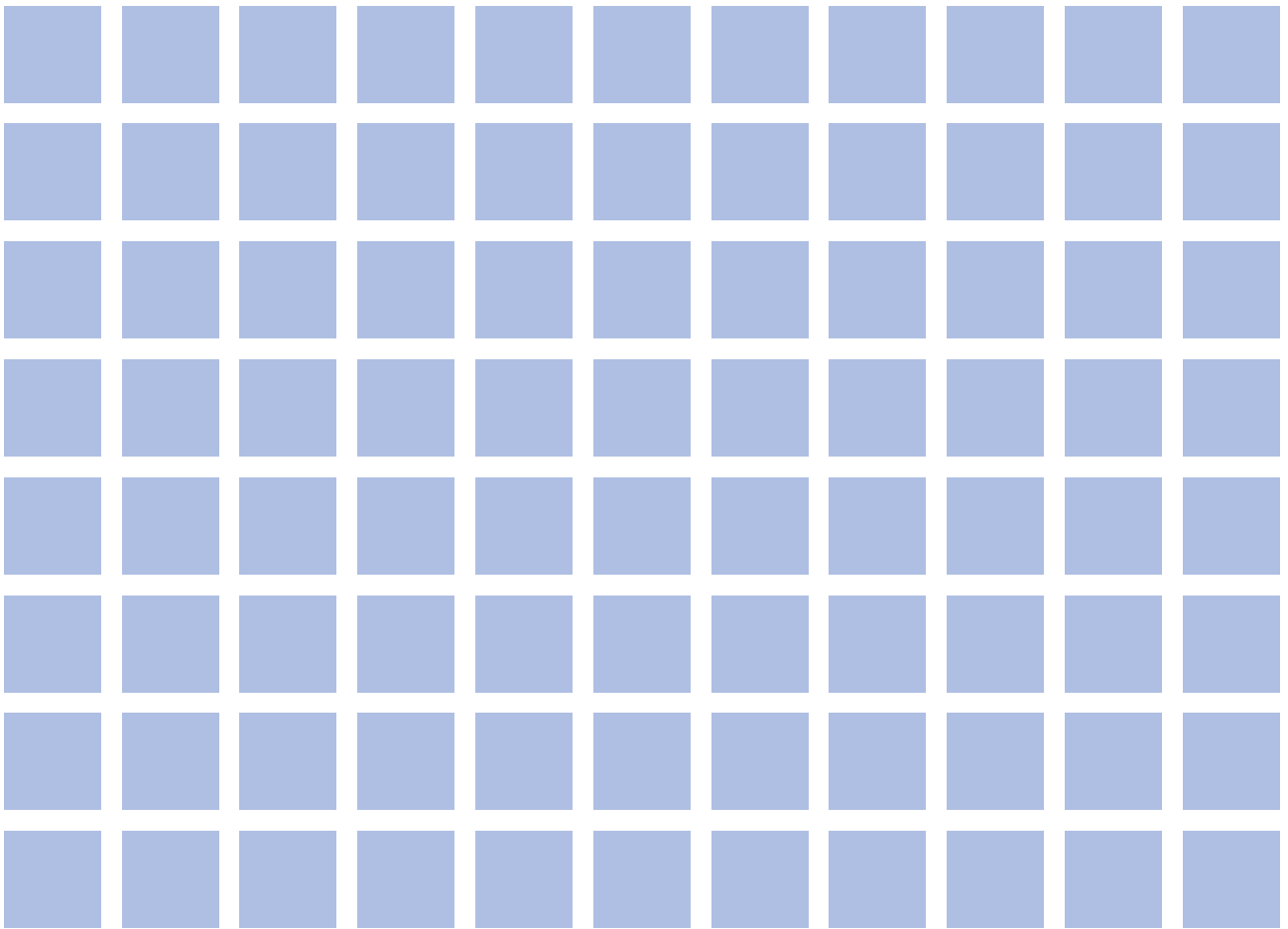
Load

max. 600 N

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

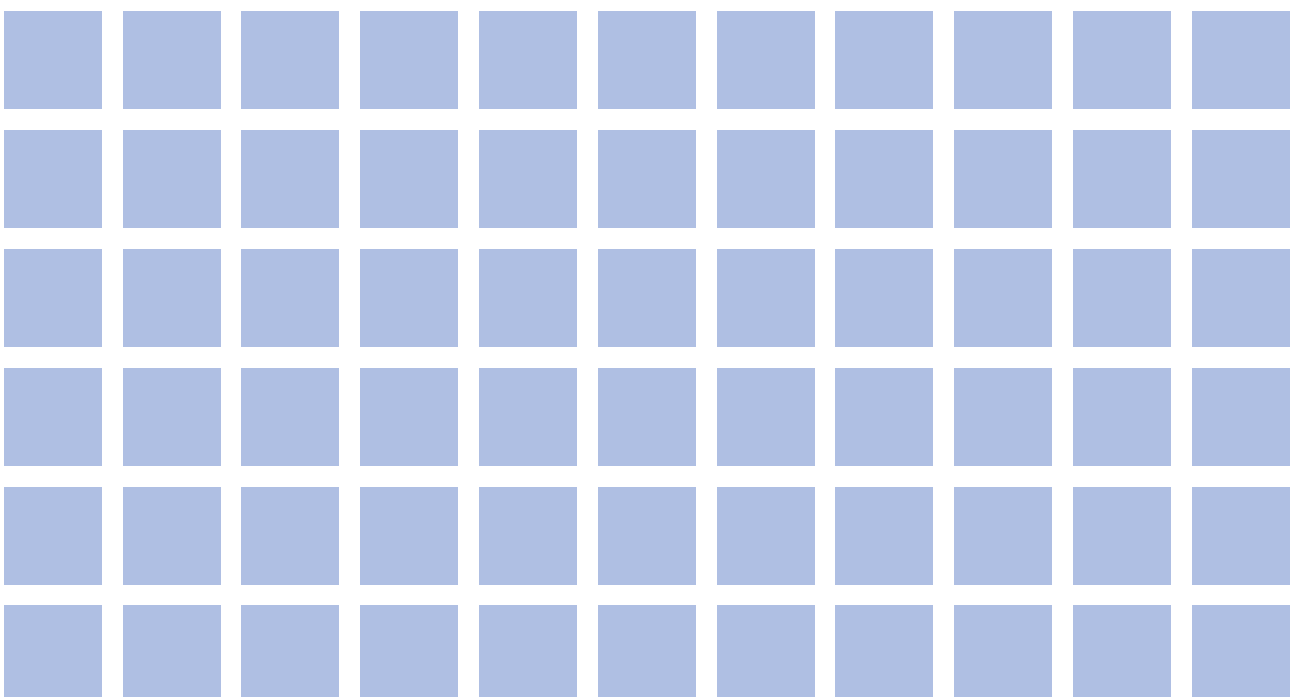
Typical applications





5

Louvre drives



OVERVIEW OF 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	SHEV	NSHEV	Facade	Roof	Run monitoring	Synchronised run	Sequence control
			[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



LLA10

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



LLA16

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



SPECIAL FEATURES LLA

- For smoke and heat exhausting, natural ventilation and ferralux® NSHEV (EN12101-2)
- DIP-Switches for the selection of the running direction and solo-/synchronised run
- Reed-contact for the activation of the emergency closing programm functions
- Self learning stroke recognition
- Robust corrosion-resistant design
- Easy installation by concealed holes below the oblique end caps
- Coupling adapter with milling groove Ø13,3 x 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.aumüller-gmbh.de.

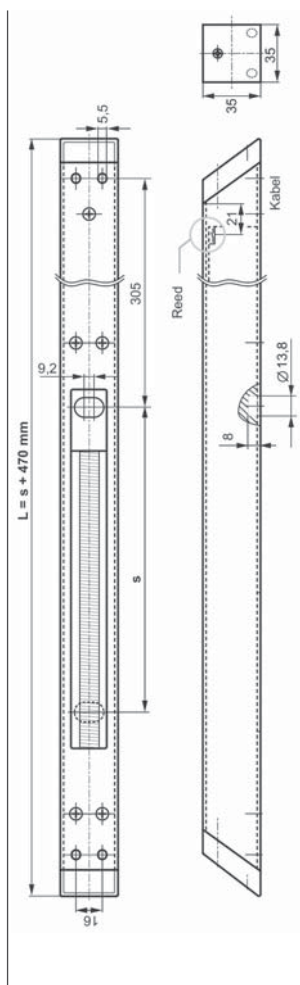
Typical applications






- Application: natural ventilation, SHEV, ferralux®-NSHEV
- 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

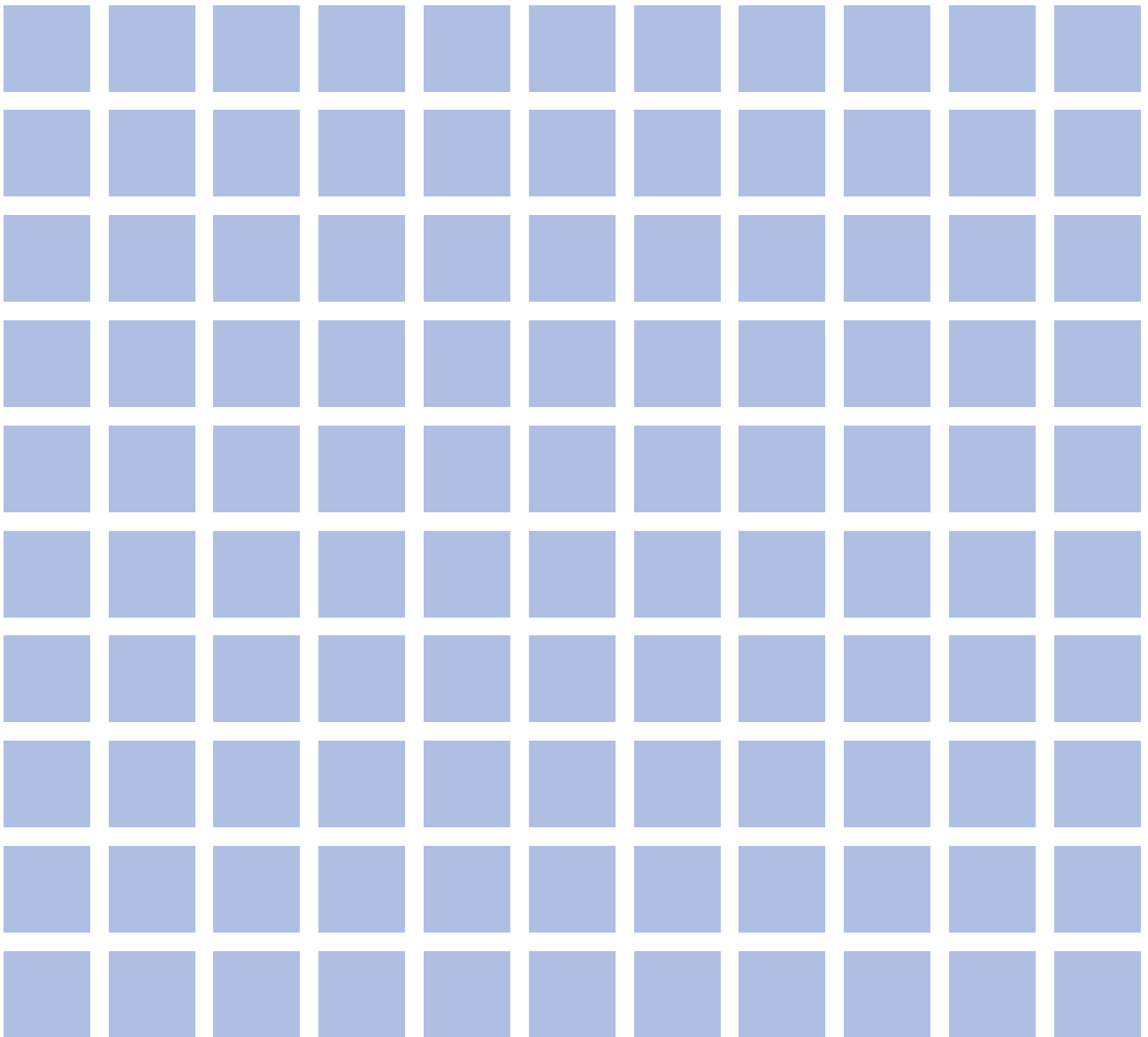
U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	LLA10: 0,6 A LLA16: 0,9 A
I_A	Cut-off current	LLA10: 1,0 A LLA16: 1,2 A
P_N	Rated power	LLA10: 15 W LLA16: 22 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 40
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	LLA10: 1000 N LLA16: 1600 N
F_A	Pushing force	LLA10: 1000 N LLA16: 1600 N
F_H	Pullout force	5000 N (fastening depended)
	Coupling adapter	Polyamid PA6 with groove $\varnothing 13,8 \times 19,2 \times 8$ mm
	Connecting cable	non-halogen, grey 3 x 1,0 mm ² , ~ 3 m
v	Speed	 4,0 mm/s  4,0 mm/s
S	Stroke	60 – 200 mm ($\pm 5\%$)
L	Length	s + 470 mm see order data
	Sound pressure level A	≤ 70 dB (A)

ORDER DATA

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

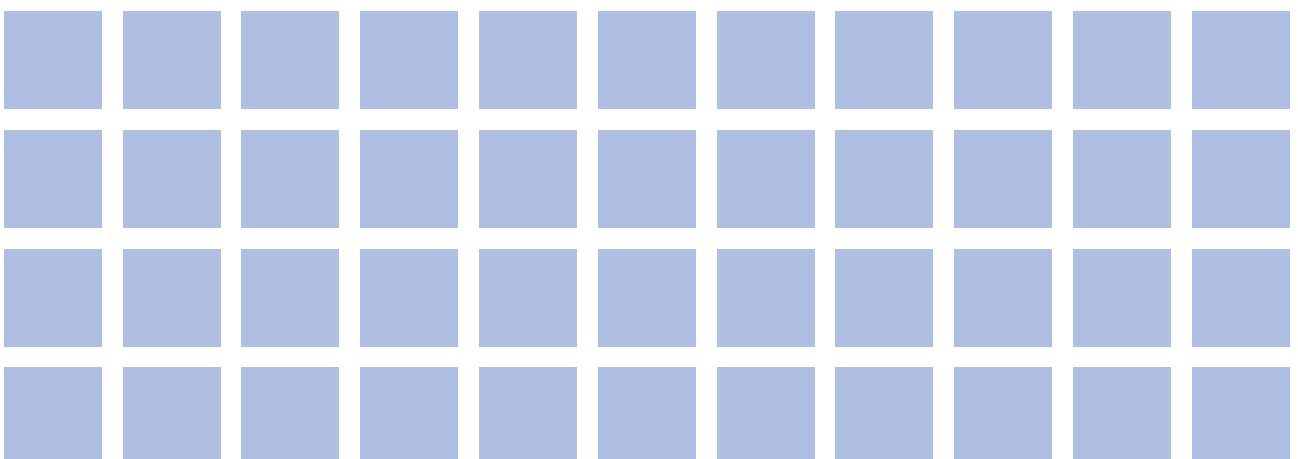
OPTIONS

Special model	PU/pcs.	Part.-No.			
Drive housing painted/powder coated in other RAL colours					
Lump sum for coating		516030			
Specify at order stage:	1 – 20	516004			
	21 – 50	516004			
	51 – 100	516004			
	up 101	516004			
Extra length connecting cable:					
5 m – non-halogen, grey – grey 3 x 1,0 mm ²		501037			
10 m – non-halogen, grey – grey 3 x 1,0 mm ²		501039			
Microprocessor programming S12					
Programming drives 24V / 230V S12	1	524180			
Electronic stroke reduction 24V S12	1	524190			
Programming synchronised multi-drive systems 24V S3 / S12	1	524182			



6

Locking drives



OVERVIEW OF LOCKING DRIVES FV																	
Type	Form	Rated voltage	Locking stroke	Force		Runtime	Cut-off current	Opening drives		Use			Location		Functions		
				Pulling/Pushing force	Initial force			Type	Breaking current	Natural ventilation	SHEV	NSHEV	Facade	Roof	Run monitoring	Synchronised run	Sequence control
		[V]	[mm]	[N]	[N]	[s]	[A]		[A]								
FV	FV1	24		600	1000	5,0	0,3	○	○	●	●	●	●	■			●
	FV3							S1	0,8	●	●	●	●	■			●
	FV4							S2/S3/S12		●	●	●	●	■		●	●
FVR	FVR3	24	18	600	1000	5,0	0,3	S1	0,8	●	●	●	●	■			●
	FVR4							S2/S3/S12		●	●	●	●	■		●	●
FVB	FVB3	24	18	600	1000	5,0	0,3	S1	0,8	●	●	●	●	■			●
	FVB4							S2/S3/S12		●	●	●	●	■		●	●
FVM	FVM2	24	17 + 36	600	1000	9,0 / 19,0	0,3	S3/S12	0,4	●	●	●	●	■		●	●
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



FV



FV

FV LOCKING DRIVES

- Model 24V DC
- Force 600 N
- Stroke 15 mm
- Runtime 5 s
- Housing (WxH) 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



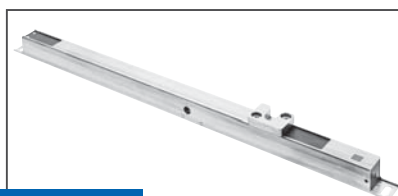
FVR



FVB

FVR / FVB LOCKING DRIVES

- Model 24V DC, S3, suitable for operation with M-COM software
- Force 600 N
- Stroke 16 – 22 mm
- Runtime 5 s
- Housing (WxH) aluminium 35 x 35 x 420 mm
- Coupling adapter For multi-point locking systems
- Versions FVR3 / FVB3, FVR4 / FVB4
- Protection rating IP32



FV mini

FVM LOCKING DRIVES

- Model 24V DC, suitable for operation with M-COM software
- Force 600 N
- Stroke 17 – 36 mm
- Runtime 9 – 19 s
- Housing (WxH) stainless steel 25 x 25 x 473 mm, for concealed installation
- Coupling adapter for multi-point locking systems
- Protection rating IP32



OFV

OFV LOCKING DRIVES

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



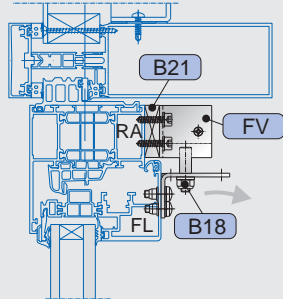
SPECIAL FEATURES FV1 / FV3 / FV4

- For natural ventilation, smoke and heat exhausting and ferralux® NSHEV (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 SW-V2 (software) 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.

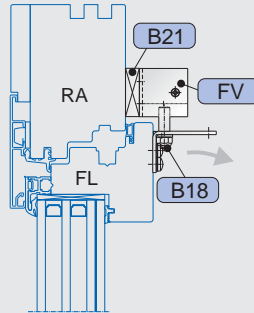
TYPICAL APPLICATIONS

1 RM, inward opening window



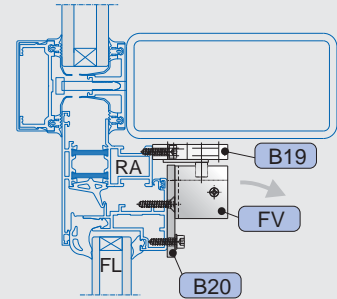
View on aluminium window

2 RM, inward opening window



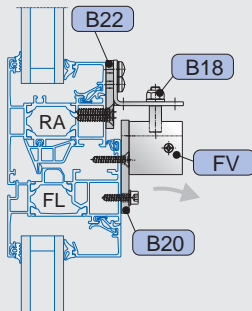
View on wooden window

3 RM, inward opening window



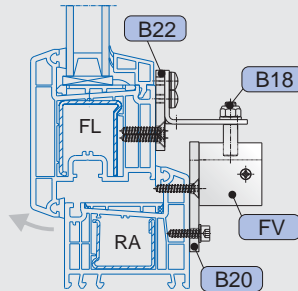
View on aluminium window

4 FM, inward opening window



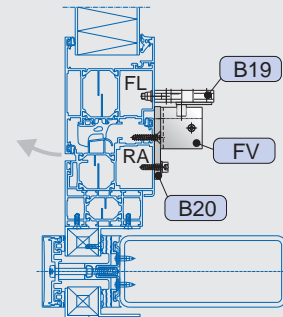
View on aluminium window

5 RM, outward opening window



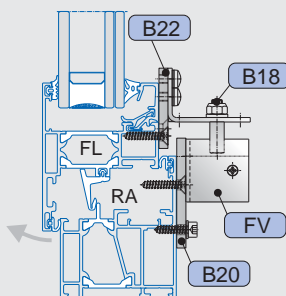
View on PVC-window

6 RM, outward opening window

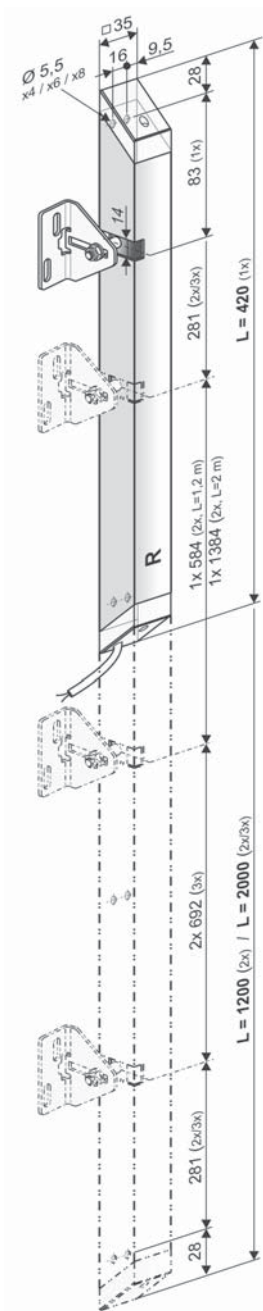


View on aluminium window

7 RM, outward opening window



View on aluminium window



- Application: natural ventilation, SHEV, ferralux®-NSHEV
- 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 15 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

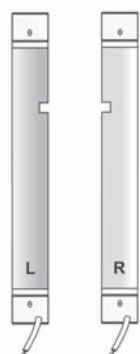
- With internal load dependent cut-off switch and sequence control for drives PL6 S1 / PL10 S1 (I = 0.8A)

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	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,6 A
I_0	Cut-off current	~ 30 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
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... + 75 °C
F	Pushing / Pulling force max.	~ 600 N
t	Runtime	~ 5,0 s
	Connecting cable	FV1: non-halogen, grey 2 x 0,75 mm ² , ~ 3 m FV3: non-halogen, grey 2 x 0,75 mm ² , ~ 3 m FV4: non-halogen, grey 3 x 0,50 mm ² , ~ 3 m
	Housing	aluminium 35 x 35 mm
L	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 A	≤ 70 dB (A)



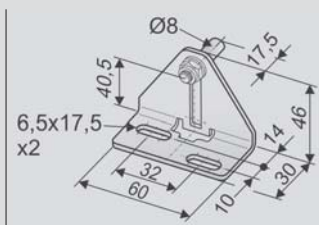
ORDER DATA							
Type	L [mm]	Version	Finish	PU/pcs.	Part.-No.		
Single right hand	420	FV1 R (1x)	E6/C-0	1	515103		
		FV3 R (1x)		1	515102		
		FV4 R (1x)		1	515129		
Single left hand	420	FV1 L (1x)	E6/C-0	1	515106		
		FV3 L (1x)		1	515105		
		FV4 L (1x)		1	515130		
Double right hand	1200	FV1 R (2x)	E6/C-0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

Special model	PU/pcs.	Part.-No.		
Drive housing painted/powder coated in other RAL colours				
Lump sum for coating		516030		
Specify at order stage:	1 – 20	516004		
	21 – 50	516004		
	51 – 100	516004		
	up 101	516004		
Extra length connecting cable:				
5 m –non-halogen grey – 2 x 0,75 mm ²		501024		
10 m –non-halogen, grey – 2 x 0,75 mm ²		501026		
5 m –non-halogen, grey – 3 x 0,50 mm ²		501034		
10 m –non-halogen, grey – 3 x 0,50 mm ²		501036		
Microprocessor programming S12				
Programming drives 24V / 230V S12		524180		
Optional accessories				
M-COM Configuration module for synchronised multi-drive systems (for FV4)	1	524177		

ACCESSORIES

Locking angle

B18



Application

Surface mounting on the **main/side closing edge** of window frame profiles/case-ment profiles of **in-/outward opening** windows. Adjustable locking bolt for compensation of the profile overlap **FÜ<10 mm**. Required mounting space **35 mm**

Part.-No. 301595

Material/Finish
stainless steel (1.4301)
Feature/Equipment
1x locking pin Ø 8x30,
1x nut M6,
1x washer A6,4

Accessories

B21-1 base plate for
FÜ>10 mm FV L = 420

Part.-No. 515181

B21-2 base plate for for
FÜ>10 mm FV L = 1200

Part.-No. 515183

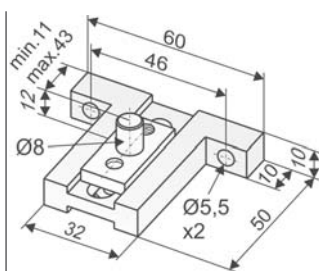
B21-3 base plate for for
FÜ>10 mm FV L = 2000

Part.-No. 515185

B22 base plate for glazing bead

Part.-No. 301599

B19



Application

Surface mounting on the **main/side closing edge** of window frame profiles/case-ment profiles of **in-/outward opening** windows. Adjustable locking bolt for compensation of the profile overlap **FÜ<10 mm**. Required mounting space **15 mm**

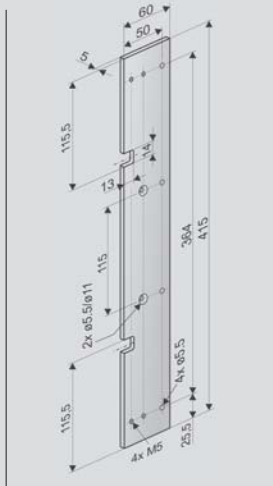
Part.-No. 301597

Material/Finish
aluminium
Feature/Equipment
1x locking pin Ø 8x10,
1x hex head screw M6x10,
1x washer A6,4

ACCESSORIES

Mounting plate

B20-1



Application

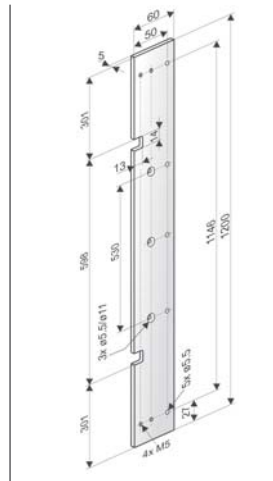
Mounting of FV1/FV3/FV4

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

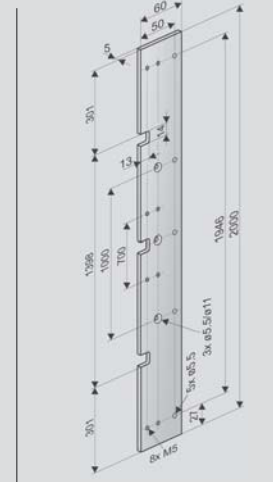
Mounting of FV1/FV3/FV4

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

Base plate

Technical drawing showing three vertical rectangular profiles with dimensions and hole patterns:

- Profile 1 (Left):**
 - Width: 35
 - Height: 10
 - Top hole offset from left edge: 9.5
 - Top hole offset from right edge: 16
 - Bottom hole offset from left edge: 29.4
 - Bottom hole offset from right edge: 4.5
 - Bottom hole diameter: $\varnothing 5.5$
 - Bottom hole spacing: 25.5
- Profile 2 (Middle):**
 - Width: 35
 - Height: 10
 - Top hole offset from left edge: 11.6
 - Top hole offset from right edge: 12.9
 - Bottom hole offset from left edge: 100
 - Bottom hole offset from right edge: 19.6
 - Bottom hole diameter: $\varnothing 5.5$
 - Bottom hole spacing: 20.9
- Profile 3 (Right):**
 - Width: 35
 - Height: 10
 - Top hole offset from left edge: 11.6
 - Top hole offset from right edge: 12.9
 - Bottom hole offset from left edge: 100
 - Bottom hole offset from right edge: 19.6
 - Bottom hole diameter: $\varnothing 5.5$
 - Bottom hole spacing: 20.9

B21-3 FV L = 2000

Application

**Compensation of the profile
overlapp $FÜ > 10$ mm** for
FV1/FV3/FV4 mounted on the
window frame profiles (RM) of
inward opening windows
1x for $FÜ > 10$ mm
2x for $FÜ > 20$ mm

Part.-No. 515185

Material/Finish

aluminium

Feature/Equipment

L x 35 x 10 mm

(L = 415, 1200, 2000) mm

Application

Adapter plate for relocation of the mounting holes of the locking bracket **B18** outside the glazing bead of **outward opening** windows

Part.-No. 301599

Material/Finish

Material/Finish
aluminium (E6/C-0)

Feature/Equipment
for locking angle B18

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



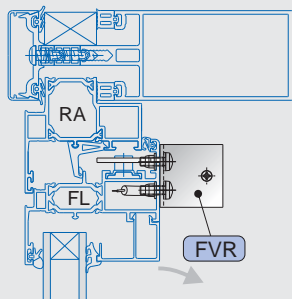
SPECIAL FEATURES FVR3 / FVR4

- For natural ventilation, smoke and heat exhausting and ferralux® NSHEV (EN12101-2)
- Versions:
 - FVR3 – with internal load dependent cut-off switch and sequence control for drives PL6 S1 / PL10 S1
 - FVR4 – Version SW-V2 (software) 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 FVR4, sequence control via communication wire)
- Mounting on the window frame profiles of outward opening or on the casement profiles of inward opening windows
- Locking plate activates the multi-point locking systems of the windows via additional locking roller
- Robust corrosion-resistant design in a slim aluminium housing (420x35x35 mm) or optionally in RAL colors
- Easy installation due to concealed holes below the oblique end caps
- Cable connection terminals and DIP-switches for setting the moving direction below the end cap

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.aumüller-gmbh.de.

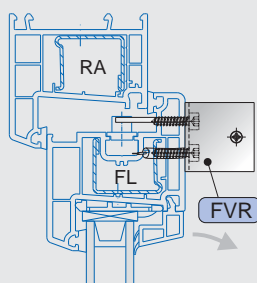
TYPICAL APPLICATIONS

1 FM, inward opening window



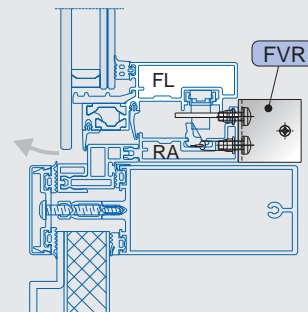
View on aluminium window

2 FM, inward opening window



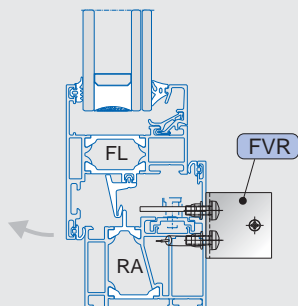
View on PVC-window

3 RM, friction hinged window



View on aluminium window

4 RM, outward opening window



View on aluminium window

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
16	420	FVR3 16	E6/C-0	1	514003	
16	420	FVR4 16	E6/C-0	1	514029	
Special model				PU/pcs.	Part.-No.	
Drive housing painted/powder coated in other RAL colours						
Lump sum for coating					516030	
Specify at order stage:				1 – 20	516004	
				21 – 50	516004	
				51 – 100	516004	
				up 101	516004	
Extra length connecting cable:						
5 m –non-halogen grey – 2 x 0,75 mm ²					501024	
10 m –non-halogen, grey – 2 x 0,75 mm ²					501026	
5 m –non-halogen, grey – 3 x 0,50 mm ²					501034	
10 m –non-halogen, grey – 3 x 0,50 mm ²					501036	
Microprocessor programming S12						
Programming drives 24V / 230V S12					524180	
Optional accessories				PU/pcs.	Part.-No.	
M-COM Configuration module for synchronised multi-drive systems (for FV4)				1	524177	



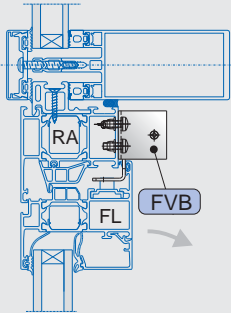
SPECIAL FEATURES FVB

- For natural ventilation, smoke and heat exhausting and ferralux® NSHEV (EN12101-2)
- Versions:
 - ■ FVB3 – with internal load dependent cut-off switch and sequence control for drives PL6 S1 / PL10 S1
 - ■ FVB4 – Version SW-V2 (software) 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 FVB4, sequence control via communication wire)
- Mounting on the window frame profiles of inward opening windows
- Locking plate activates the multi-point locking systems of the windows via additional locking roller
- Robust corrosion-resistant design in a slim aluminium housing (420x35x35 mm) or optionally in RAL colors
- Easy installation due to concealed holes below the oblique end caps
- Cable connection terminals and DIP-switches for setting the moving direction below the end cap

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.

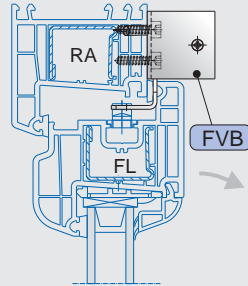
TYPICAL APPLICATIONS

1 RM, inward opening window



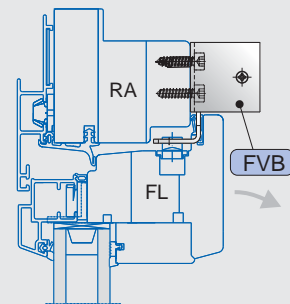
View on aluminium window

2 RM, inward opening window

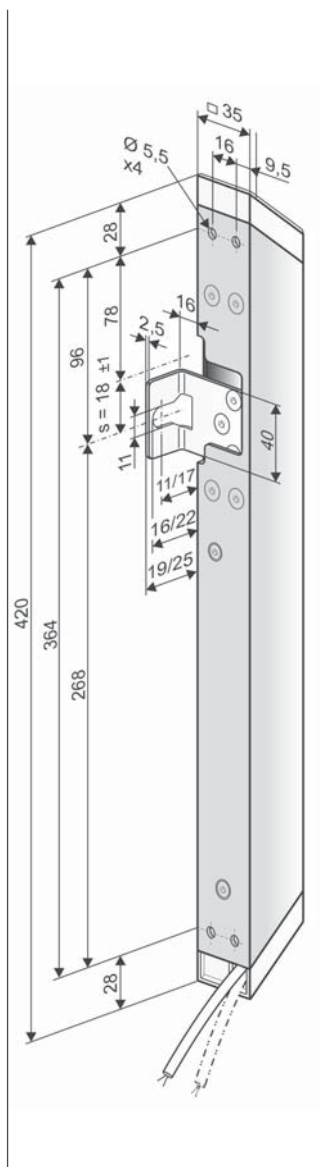


View on PVC-window

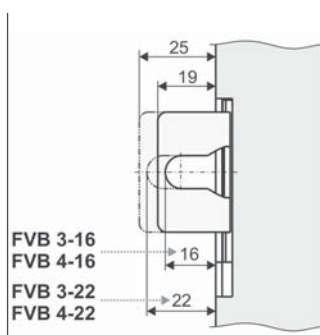
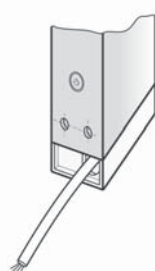
3 RM, inward opening window



View on wooden window



FVB 4



- Application: natural ventilation, SHEV, ferralux®-NSHEV
- Surface mounting on the on the main/side closing edge of the window frame profiles (RM) of inward opening windows
- Required mounting space 35 mm
- Locking drives for existing locking bar

Options

- Locking plate customizable for project-/profile-specific demands


FVB3

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

FVB4

- 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 FVB4
- Sequence control via communication wire

TECHNICAL DATA

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,6 A
I_0	Cut-off current	~ 30 mA
P_N	Rated power	20 W
I_D	Current of opening drives	FVB3: 0,8 A (PL 6/10 S1) FVB4: 3 A, S3 / S12 non relevant
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... +75 °C
F	Pushing / Pulling force max.	~ 600 N
t	Runtime	$\sim 5,0$ s
s	Stroke	~ 18 mm (± 1)
	Connecting cable	FVB3: non-halogen, grey 2 x 0,75 mm ² , ~ 3 m FVB4: non-halogen, grey 3 x 0,50 mm ² , ~ 3 m
	Coupling adapter	stainless steel
	Housing	aluminium (E6/C-O), 420 x 35 x 35 mm
L	Length	420 mm
	Versions	FVR/FVB 3/4 – 16: Coupling adapter length 19 mm FVR/FVB 3/4 – 22: Coupling adapter length 25 mm
	Sound pressure level A	≤ 70 dB (A)

ORDER DATA						
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.	
16	420	FVB3 16	E6/C-0	1	513921	
22	420	FVB3 22	E6/C-0	1	513923	
16	420	FVB4 16	E6/C-0	1	513930	
22	420	FVB4 22	E6/C-0	1	513934	

Special model	PU/pcs.	Part.-No.	
Drive housing painted/powder coated in other RAL colours			
Lump sum for coating		516030	
Specify at order stage:	1 – 20	516004	
	21 – 50	516004	
	51 – 100	516004	
	up 101	516004	
Extra length connecting cable:			
5 m –non-halogen grey – 2 x 0,75 mm ²		501024	
10 m –non-halogen, grey – 2 x 0,75 mm ²		501026	
5 m –non-halogen, grey – 3 x 0,50 mm ²		501034	
10 m –non-halogen, grey – 3 x 0,50 mm ²		501036	
Microprocessor programming S12			
Programming drives 24V / 230V S12		524180	
Optional accessories	PU/pcs.	Part.-No.	
M-COM Configuration module for synchronised multi-drive systems (for FV4)	1	524177	



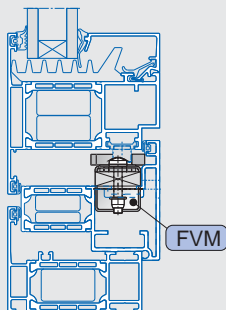
SPECIAL FEATURES FVM2

- For natural ventilation, smoke and heat exhausting and ferralux® NSHEV (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 FVM2, sequence control via communication wire)
- Suitable for concealed mounting inside profiles
- Locking plate activates the window multi-point locking systems 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 slim stainless steel housing (473x25x25 mm)
- Hidden cable connection terminals and DIP-switches for setting the moving direction and the locking stroke

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.

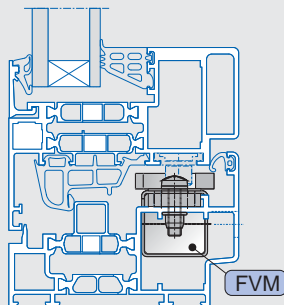
TYPICAL APPLICATIONS

- 1 Concealed mounting,
outward opening



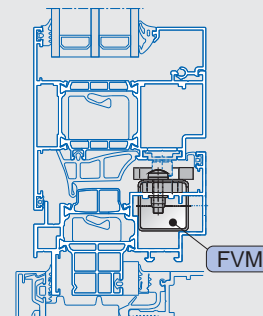
View on aluminium window

- 2 Concealed mounting,
outward opening



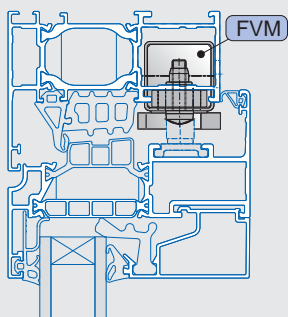
View on aluminium window

- 3 Concealed mounting,
outward opening



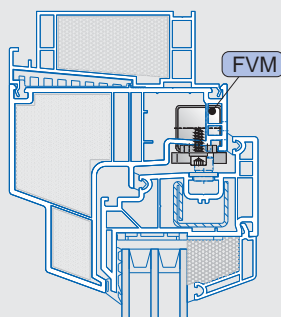
View on aluminium window

- 4 Concealed mounting,
inward opening



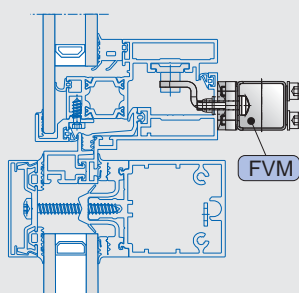
View on aluminium window

- 5 Concealed mounting,
inward opening



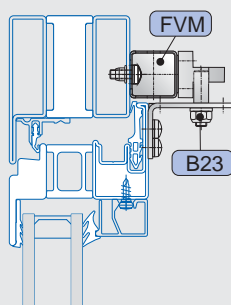
View on PVC window

- 6 RM, friction hinged,
outward opening



View on aluminium window

- 7 RM, side-/bottom-/top-hung,
inward opening



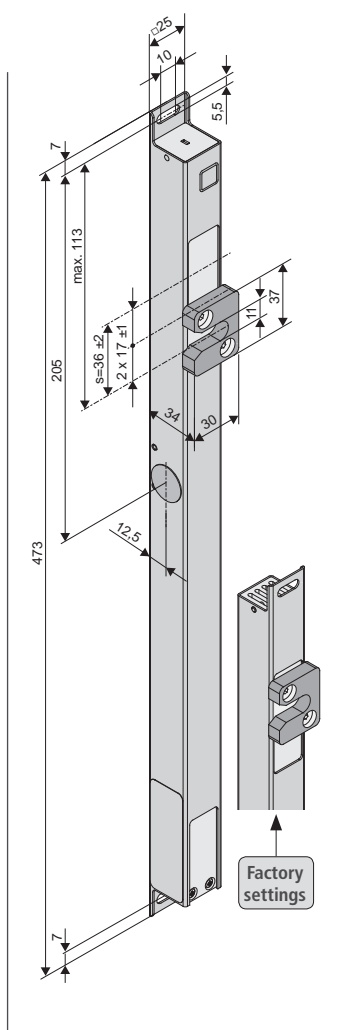
View on steel window

- Application: natural ventilation, SHEV, ferralux®-NSHEV
- Surface or concealed mounting inside profiles
- Locking plate (8 mm) on top or bottom mountable
- Locking position selectable: right / left
- Locking stroke selectable: $s = 36 \text{ mm}$ or 17 mm
- Manual unlocking mechanism


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 FVM2
- Sequence control via communication wire



TECHNICAL DATA

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_A	Cut-off current	$\sim 0,4 \text{ A}$
P_N	Rated power	10 W
I_D	Current of opening drives	non relevant
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	$-5 \text{ °C} \dots +75 \text{ °C}$
F_A	Pushing / Pulling force max.	$\sim 600 \text{ N}$
F_L	Breaking fore max.	$\sim 1000 \text{ N}$
t	Housing/Locking plate	stainless steel
	Connecting cable	non-halogen, grey $3 \times 0,5 \text{ mm}^2$, $\sim 3 \text{ m}$
	Speed	1,9 mm/s
s	Stroke	$\sim 36 \text{ mm} (\pm 2)$ oder $17 \text{ mm} (\pm 1)$
L	Dimensions	$473 \times 25 \times 25 \text{ mm}$
	Sound pressure level A	$\leq 70 \text{ dB (A)}$

ORDER DATA

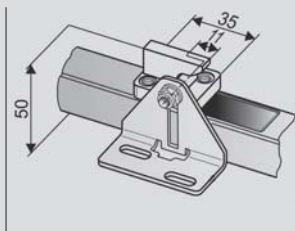
s [mm]	L [mm]	Version	Finish	PU/pcs.	Part.-No.			
17 – 36	473	FVM2	E6/C-0	1	514062			

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

ACCESSORIES

Hardware set

B23



Application

Surface mounting on the main/side closing edge of the window frame profile of **inward opening** windows. Adjustable locking bolt for compensation of the **profile overlap**
FÜ 0 - 25 mm

NOTE: Only one locking point!

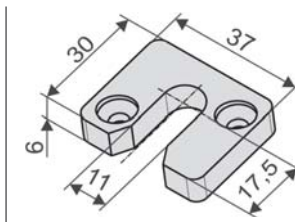
Part.-No. 514081

Material/Finish
T-locking plate (aluminium)
Locking bracket VW (stainless steel)

Feature/Equipment
1x T-locking plate
1x locking bracket B18

Locking plate

B24



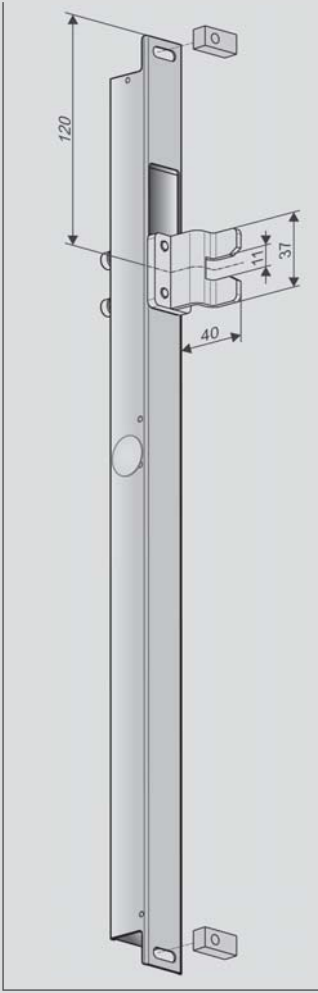
Application

Locking plate 6 mm alternative to the locking plate 8 mm due to limited rebate space


Part.-No. 514066

Material/Finish
stainless steel
Feature/Equipment
37 x 30 x 6 mm

SPECIFIC APPLICATIONS

FRICTION HINGED WINDOW SCHÜCO AWS 102			
FVM2	Part.-No. 514063		
<div><div></div><div><ul style="list-style-type: none">■ With M-COM suitable Internal Intelligent Control Electronics and sequence control for drives S3 / S12 (star wiring, drive current does not run over FVM2, sequence control via communication wire)■ Concealed mounting inside profile■ Pre-assembled T-form coupling adapter■ Locking position selectable: right / left■ Locking stroke selectable: s = 36 mm or 17 mm■ Manual unlocking mechanism</div></div>			
Fixing accessories		2x spacer plate 25x12x10 mm, aluminium	
T-Locking plate		stainless steel	
Connecting cable		non-halogen, grey 3 x 0,5 mm², ~ 3 m	

OPTIONAL ACCESSORIES

Main control unit					
M-COM		Application Configuration module for automatic configuration and surveillance of max. 6 opening or locking drives version S12 / S3 in synchronised multi-drive systems Rated voltage: 24 V DC +/- 20%, (max. 2 Vss) Current consumption: <12 mA Drive type: S12	Part.-No. 524177 Protection rating IP30 rubber coated Ambient temperature range 0 °C ... + 70 °C Dimensions 45 x 17 x 6 mm Connecting wires 3 wires 0,5 mm² x 50 mm Feature/Equipment Printed circuit board with components and connection wires to be installed in connection box to be supplied on site		

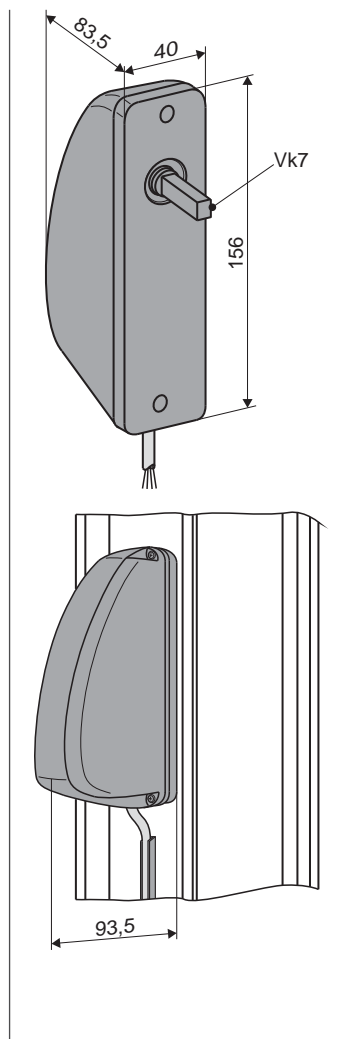
Special model	PU/pcs.	Part.-No.			
Casement brackets painted / powder coated in other RAL colours					
Lump sum for coating		516030			
Specify at order stage:	1 – 20	516032			
	21 – 50	516032			
	51 – 100	516032			
	up 101	516032			
Frame brackets painted / powder coated in other RAL colours					
Lump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



SPECIAL FEATURES OFV1 / OFV1 M-COM

- For natural ventilation, smoke and heat exhausting and ferralux® NSHEV (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

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- 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 OFV1 – undercurrent detection)
- Two adjustable rotation angles: 90° / 180°
- Opening direction selectable: right / left turning
- Square shaft adapter 7x55 mm

ORDER DATA

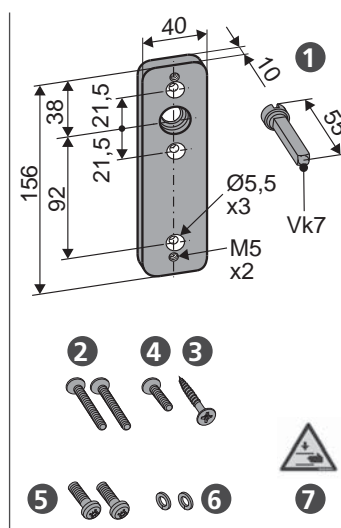
Version	PU/pcs.	Part.-No.			
OFV1	1	513850			

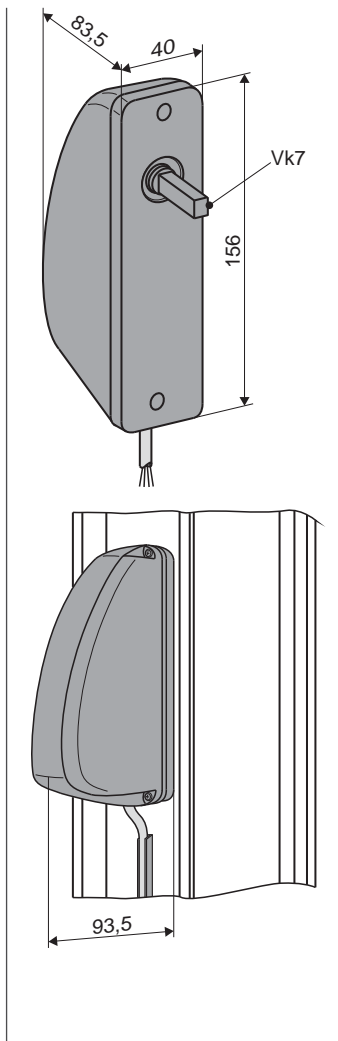
TECHNICAL DATA

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,8 A
I_A	Cut-off current	1,1 A
I_0	Closed circuit current	< 28 mA (10 Nm)
I_D	Current of connected drives	S1: max. 0,9 A S3, S12: max. 3,0 A
P_N	Rated power	19 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... + 75 °C
M	Torque max.	10 Nm
F_H	Initial torque	22 Nm
	Rotating angle direction	yes (self-learning)
	Rotating angle	90 ° / 180° (right / left)
t	Runtime	90° - 4,5 s; 180° - 9,0 s
s	Connecting cable	non-halogen, grey 4 x 0,75 mm ² , ~ 3 m
	Housing	ABS, greywhite
L	Dimensions (B x H x T)	40 x 156 x 83,5 mm

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





- With Internal Intelligent Control Electronics and sequence control for drives PL6 S1 / PL10 S1 as well as for drives type S3 / S12 (I max. 3 A, drive current runs over OFV1 – undercurrent detection)
- 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

ORDER DATA

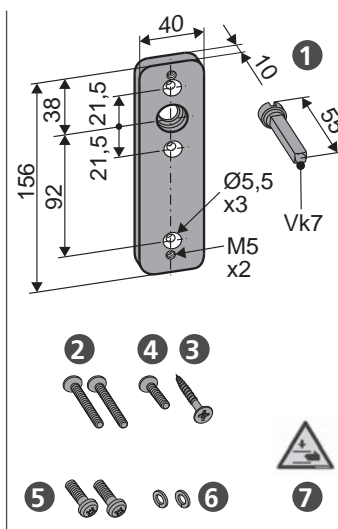
Version	PU/pcs.	Part.-No.			
OFV1 M-COM	1	513860			

TECHNICAL DATA


U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,8 A
I_A	Cut-off current	1,1 A
I_0	Closed circuit current	< 28 mA (10 Nm)
	Connected drives (Opener drive)	with S3 / S12
P_N	Rated power	19 W
ED	Duty cycle	30 % (ON: 3 min. / OFF: 7 min.)
	Protection rating	IP 32
	Ambient temperature range	-5 °C ... + 75 °C
M	Torque max.	10 Nm
F_H	Initial torque	22 Nm
	Rotating angle direction	yes (self-learning)
	Rotating angle	90 ° / 180° (right / left)
t	Runtime	90° - 4,5 s; 180° - 9,0 s
s	Connecting cable	non-halogen, grey 3 x 0,5 mm², ~ 3 m
	Housing	ABS, greywhite
L	Dimensions (B x H x T)	40 x 156 x 83,5 mm
	Sound pressure level A	≤ 70 dB (A)

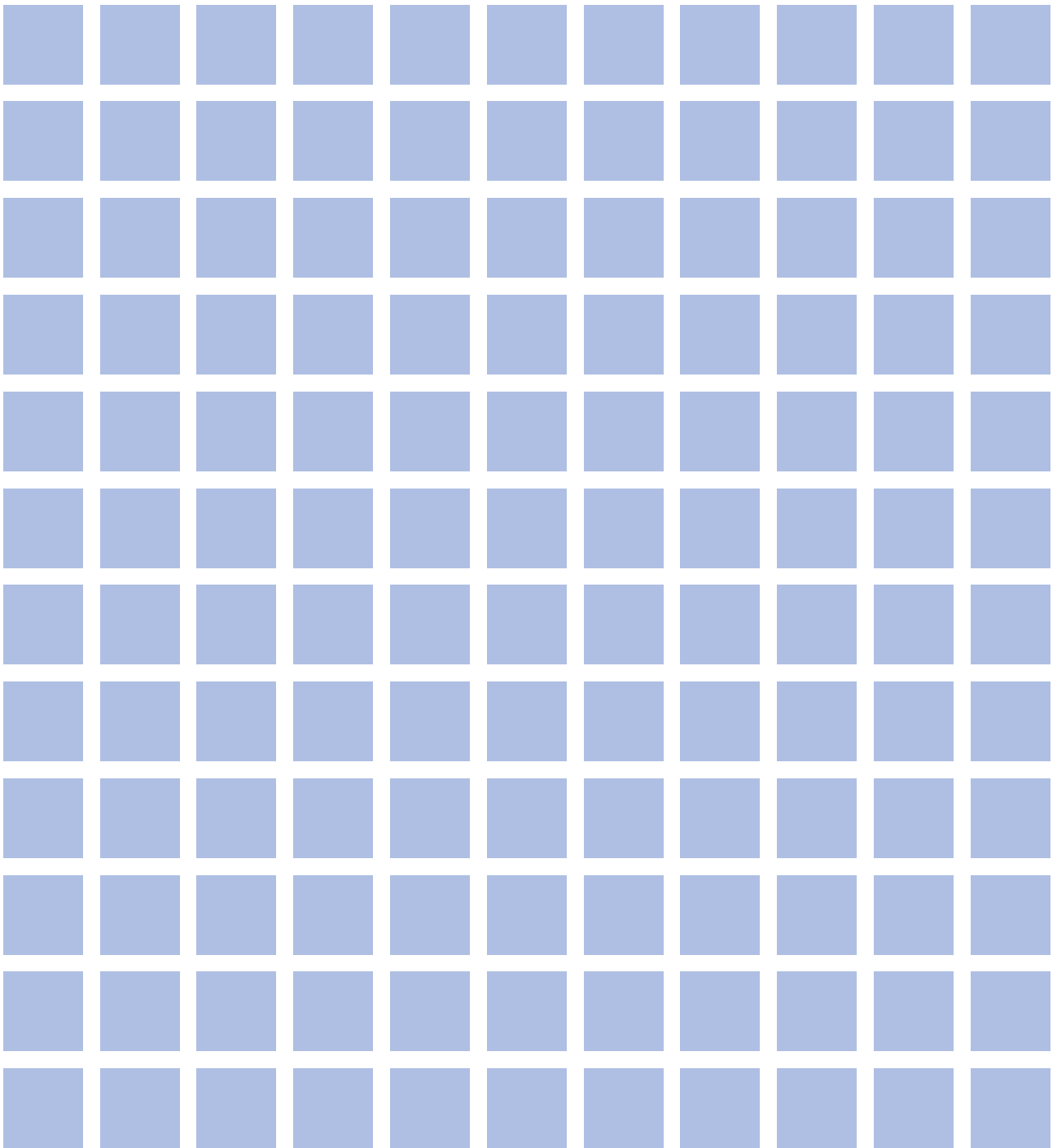
In delivery

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



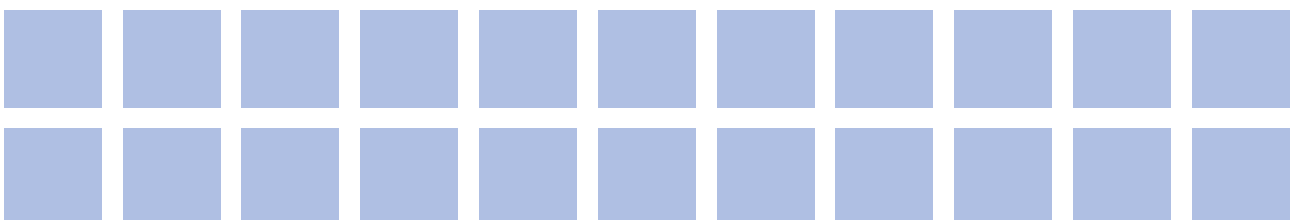
OPTIONAL ACCESSORIES

Main control unit			
M-COM		Application	Part.-No. 524177
		Configuration module for automatic configuration and surveillance of max. 6 opening or locking drives version S12 / S3 in synchronised multi-drive systems Rated voltage: 24 V DC +/- 20%, (max. 2 Vss) Current consumption: <12 mA Drive type: S12	Protection rating IP30 rubber coated Ambient temperature range 0 °C ... + 70 °C Dimensions 45 x 17 x 6 mm Connecting wires 3 wires 0,5 mm ² x 50 mm Feature/Equipment Printed circuit board with components and connection wires to be installed in connection box to be supplied on site



7

Hardware sets



OVERVIEW OF RWA HARDWARE SYSTEMS																									
RWA hardware system	Rated voltage	Locking drive			Opening drives	Accessories			Casement dimensions						Required mounting space	Use			Location						
		Type	Number of VP	Lenght		Control modules Accessories	Frame bracket	Casement bracket	Bottom-/top-hung			Side-hung				Natural ventilation	RWA	NSHEV	Facade		Roof				
									FAB	FAH	max. weight	FAB	FAH	max. weight					inward	outward					
	[VDC]			[mm]		[A]		[mm]	[mm]	[Kg]	[mm]	[mm]	[Kg]	[mm]											
1000	24	FV3	1 (*1)	450	PL6 PL10	(B20-1)	K15	F11	500 – 1200	600 – 1500	50	600	500 – 2400	90	40	●	●	●	●	■	■				
		OFV (*3)	(*2)		PL6 PL10						90	– 1500		150		●	●	●	●	■	■				
											50	500		90		●	●	●	●	■	■				
											90	– 1500		150		●	●	●	●	■	■				
1000-TE	24	FV1	2; 3	1200	2x PL6 2x PL10	USKM	2x K15	2x F11	1250 – 2400	600 – 2000	90	600 – 2400	1250	130	40	●	●	●	●	■	■				
			3	2000	2x PL6 2x PL10				USKM		2050 – 2400		90	– 1500		2050	130	●	●	●	●	■	■		
					160	– 2400					200	●	●	●		●	■	■							
					OFV (*4)	(*2)					2x PL6 2x PL10	USKM	500 – 1200	600 – 1500		50	500	500	90	●	●	●	●	■	■
		90	– 1500							– 2400			150	●		●	●	●	■	■					
		1100	24		FV3 (*3 (*2)	1 (*1)			450	PL6 PL10	B21-1	K15 (K37)	F11	500 – 1200		800 – 1600	70	600	500	90	40	●	●	●	■
				120	– 1500	– 2400	150	●	●	●					■		●	■							
1100-TE	24	FV1 (*4 (*2)	2; 3	1200	2x PL6 2x PL10	USKM (B20-2)	2x K15 (2x K37)	2x F11	1250 – 2400	800 – 2000	130	600 – 1500	1250	130	40	●	●	●	■	●	■				
			3	2000	2x PL6 2x PL10				USKM (B20-3)		2050 – 2400		130	– 2400		200	2050 – 2400	130	200	●	●	●	■	●	■
1050	24	FV3 (*3 (*2)				PL6		K97 (re/li)	F11				550 – 1250	500 – 1500	90	20	●	●	●	●	■	■			
						PL10									130		●	●	●	●	■	■			
		OFV (*3)	(*2)		PL6												130	●	●	●	●	■	■		
					PL10													130	●	●	●	●	■	■	
1050-TE	24	FV1	(*1)		2x PL6	USKM	K97 re+li	2x F11				550 – 1500	500 – 2400	130	20	●	●	●	●	■	■				
					2x PL10									150		●	●	●	●	■	■				
		OFV (*4)	(*2)		2x PL6	USKM										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

(*3) Use of FVR3 / FVB3 possible

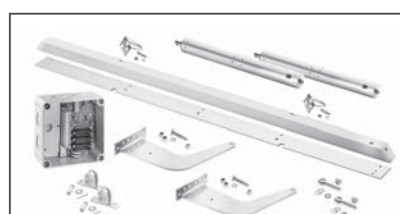
(*4) Use of FVR4 / FVB4 possible



RWA 1000

RWA 1000

- Model 24 V DC
- Application Bottom-/Top-/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 / FVR3 / FVB3 / (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 1100

RWA 1100

- Model 24 V DC
- Application Bottom-/Top-/Side-hung outward opening windows
- Opening drives PL6 S1 (600 N) / PL10 S1 (1000 N)
on the side closing edeg (NSK)
- Locking drives FV3 / FVR3 / (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 1050

RWA 1050

- Model 24 V 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

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	SHEV	NSHEV	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					
	[mm]	[VDC]	[N]	[N]	[s]	[A]		[A]					
FV1		24	600	1000	5,0	0,3	○	○	●	●	●	●	○
FV3		24	600	1000	5,0	0,3	S1	0,8	●	●	●	●	●
FVR3	18	24	600	1000	5,0	0,3	S1	0,8	●	●	●	●	●
FVB3	16/22	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

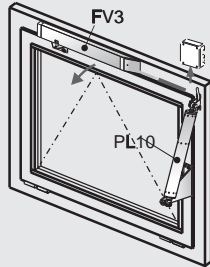
● suitable ■ not recommended

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

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

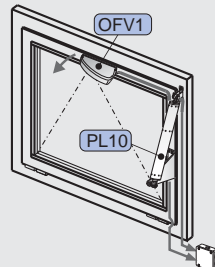
TYPICAL APPLICATION

RWA1000 – inward opening



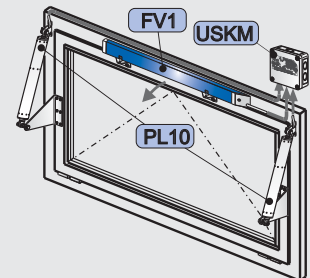
View on bottom-hung window

RWA1000 – inward opening



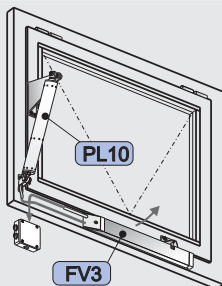
View on bottom-hung window

RWA1000 TE – inward opening



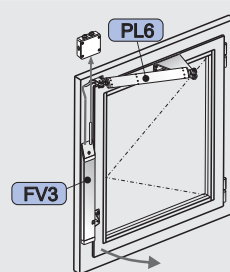
View on bottom-hung window

RWA1000 – inward opening



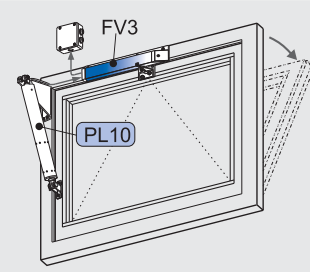
View on top-hung window

RWA1000 – inward opening



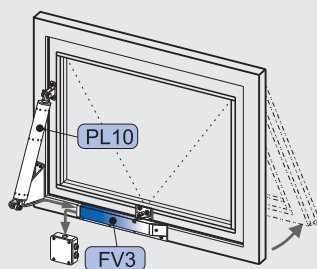
View on side-hung window

RWA1100 – outward opening



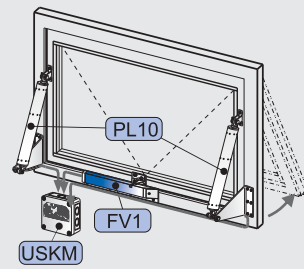
View on bottom-hung window

RWA1100 – outward opening



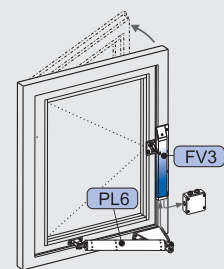
View on top-hung window

RWA1100 TE – outward opening



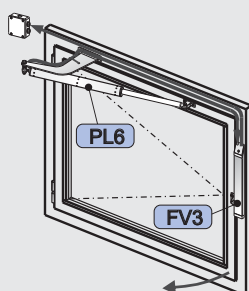
View on top-hung window

RWA1100 – outward opening



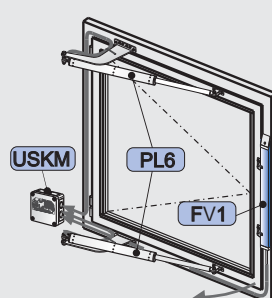
View on side-hung window

RWA1050 – inward opening



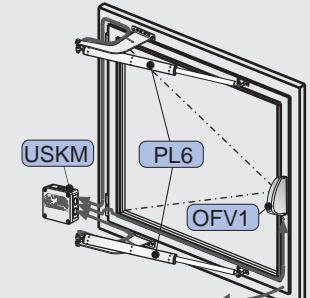
View on side-hung window

RWA1050 TE – inward opening

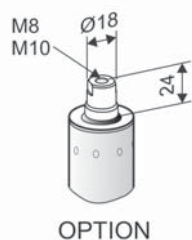


View on side-hung window

RWA1050 TE – inward opening



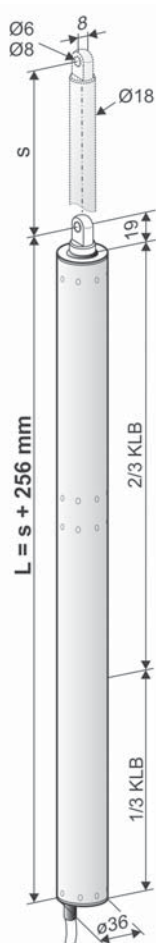
View on side-hung window



- Application: natural ventilation, SHEV, ferralux®-NSHEV
- Force: PL6 = 600 N / PL10 = 1000 N
- Without internal cutt-off switch – external cutt-off switch required!
(control module USKM or locking drive FV3 / FVR3 / FVB3 / OFV1)

Options

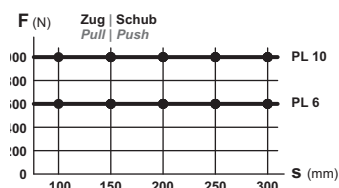
- Rear eye bolt, spindle tube with interior thread for clevis



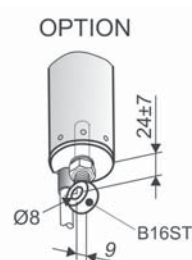
TECHNICAL DATA

U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	0,6 A
I_A	Cut-off current	0,8 A
P_N	Rated power	15 W
ED	Duty cycle	20 % (ON: 2 min. / OFF: 8 min.)
	Protection rating	IP 65
	Ambient temperature range	-5 °C ... +75 °C
F_Z	Pulling force max.	PL6 = 600 N PL10 = 1000 N

F_A Pushing force



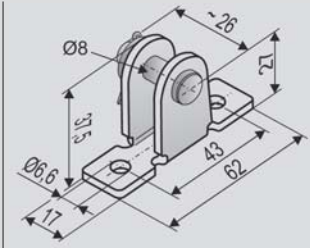
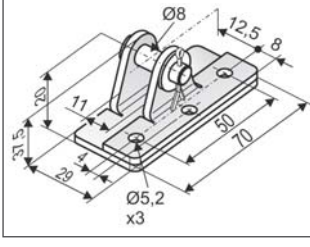
F_H	Pullout force	5000 N (fastening depended)
	Spindle tube	stainless steel
	Connecting cable	non-halogen, grey 2 x 0,75 mm ² , ~ 3 m
v	Speed	PL6 5,8 mm/s 5,8 mm/s PL10 2,6 mm/s 2,6 mm/s
s	Stroke	100 – 300 mm ($\pm 5\%$)
L	Length	s + 256 mm see order data
	Sound pressure level A	≤ 70 dB (A)



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

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

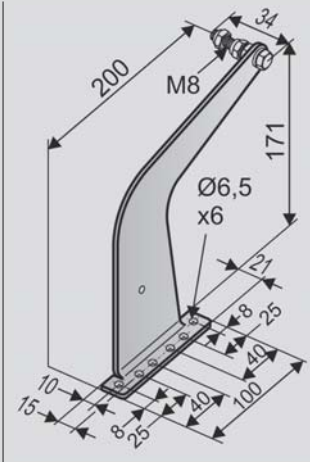
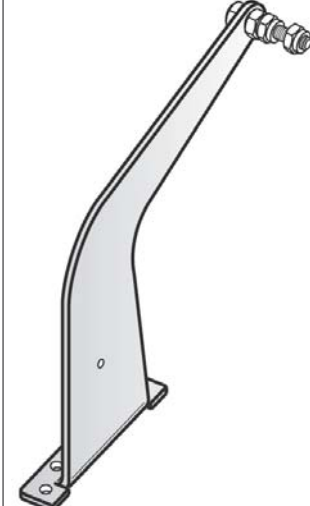

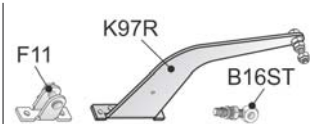
FRAME BRACKETS

<p>F11ST</p> 	<p>Application</p> <p>Surface mounting on the side closing edge of case-ment/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</p>	<p>Part.-No. 151400</p> <p>Material/Finish steel galvanized</p> <p>Feature/Equipment 1x bolt Ø8 mm, washer, cotter pin</p> <p>Load max. 3000 N</p>		
<p>F11VA</p>		<p>Part.-No. 151401</p> <p>Material/Finish stainless steel</p>		
<p>F13</p> 	<p>Application</p> <p>Surface mounting on the side closing edge of case-ment/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</p>	<p>Part.-No. 151405</p> <p>Material/Finish steel galvanized</p> <p>Feature/Equipment 1x bolt Ø8 mm, washer, cotter pin</p> <p>Load max. 1600 N</p>		

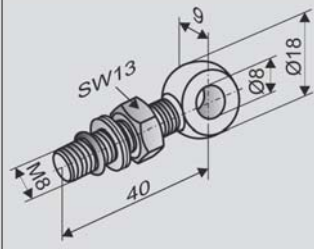
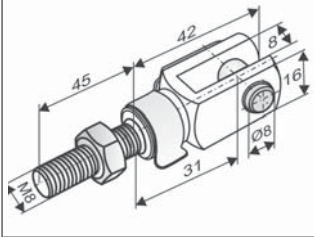
CASEMENT BRACKETS

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

CASEMENT BRACKETS

K97L		<p>Application</p> <p>Surface mounting on the side closing edge of window frame profiles of inward opening side hung windows, by obliquely arranged drives with rear suspension with bore Ø8 mm. Required space on the frame 20 mm</p>	<p>Part.-No. 160938</p> <p>Material/Finish stainless steel, vibratory grinding</p> <p>Feature/Equipment left hand</p>			
Optional accessories						
		<p>B16ST Eyebolt (Ø8 x 40 mm ST)</p>	<p>Part.-No. 100044</p>			
		<p>B16VA Eye bolt (Ø8 x 40 mm VA)</p>	<p>Part.-No. 100144</p>			
K97R		<p>Application</p> <p>Surface mounting on the side closing edge of window frame profiles of inward opening side hung windows, by obliquely arranged drives with rear suspension with bore Ø8 mm. Required space on the frame 20 mm</p>	<p>Part.-No. 160939</p> <p>Material/Finish stainless steel, vibratory grinding</p> <p>Feature/Equipment right hand</p>			
Accessories						
		<p>B16ST Eyebolt (Ø 8 x 40 mm ST)</p>	<p>Part.-No. 100044</p>			
		<p>B16VA Eyebolt (Ø 8 x 40 mm VA)</p>	<p>Part.-No. 100144</p>			
K1050-L		<p>Application</p> <p>Surface mounting of drives on the side closing edge like RWA-1050 hardware system</p>	<p>Part.-No. 307050</p> <p>Feature/Equipment Set: 1x K97L 1x F11 1x B16ST</p>			
K1050-R		<p>Application</p> <p>Surface mounting of drives on the side closing edge like RWA-1050 hardware system</p>	<p>Part.-No. 307051</p> <p>Feature/Equipment Set: 1x K97R 1x F11 1x B16ST</p>			

ACCESSORIES

B16ST		Application Rear or front suspension of spindle drives with M8 thread in the rear base piece or in the spindle tube	Part.-No. 100044 Material/Finish steel, galvanized Feature/Equipment M8x40 (Eye Ø8 mm), 1x 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)			
B27ST		Application 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 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 FEATURES RWA1000

- For natural ventilation, smoke and heat exhausting and ferralux® NSHEV (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

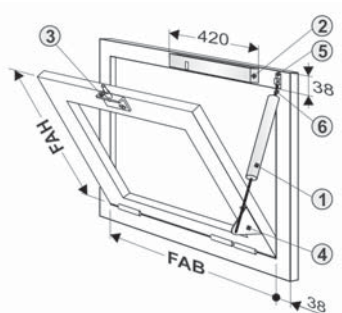
For this product series, a Type III Environmental Product Declaration (EPD) was issued according to ISO 14025 and EN 15804. The LCA results of the different product types are listed at the end of this product catalogue. The EPD documents can be viewed or downloaded from our homepage www.aumueller-gmbh.de.

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“	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						PL6	PL10					
			[DEG]	[N]	[N]	[mm]	[mm]	[DEG]	[mm]	[DEG]	[N]	[N]	[Kg]	[Kg]	[mm]	[mm]	
RWA 1000 (*1)	K15	100	19	195	326	200	600	25	260	48	447	745	30	50	40	40	Depends of the used locking drive (*2)
							800	17	236	46	430	717	43	72			
						250	750	22	286	47	442	736	29	49			
							1000	15	261	45	426	710	43	71			
						300	900	20	313	47	437	729	29	49			
							1200	13	272	45	422	703	42	70			
		150	16	165	276	225	675	34	395	57	503	838	34	56	40	40	
							900	23	359	52	474	790	47	79			
						275	825	30	427	55	490	817	33	54			
							1100	20	382	51	467	778	47	78			
						325	975	28	472	54	487	811	32	54			
							1300	18	407	50	462	769	46	77			
		200	15	155	259	250	750	42	538	64	541	902	36	60	40	40	
							1000	27	467	57	503	839	50	84			
						300	900	38	586	62	531	885	35	59			
							1200	24	499	56	497	829	50	83			
						350	1050	35	631	61	523	872	35	58			
							1400	22	534	55	491	818	49	82			
						400	1200	32	662	59	516	861	34	57			
							1600	20	556	54	486	810	49	81			
		250	13	135	225	275	825	50	697	71	567	945	38	63	40	40	
							1100	31	588	62	528	880	53	88			
						325	975	45	746	68	557	928	37	62			
							1300	28	629	60	519	865	52	87			
						375	1125	41	788	66	549	915	37	61			
							1500	25	649	59	513	854	51	85			
						425	1275	38	830	65	544	906	36	60			
							1700	23	678	58	507	844	51	84			
		300	12	125	208	300	900	56	845	77	584	973	39	65	40	40	
							1200	35	722	65	544	907	54	91			
						350	1050	51	904	74	576	959	38	64			
							1400	31	748	63	536	893	54	89			
						400	1200	46	938	71	569	948	38	63			
							1600	28	774	62	529	882	53	88			
						450	1350	43	990	69	561	935	37	62			
							1800	26	810	61	523	872	52	87			
						500	1500	40	1026	68	555	925	37	62			
							2000	24	832	60	519	864	52	86			

(*1) For the tandem sets RWA1000TE the drive forces and the max. window weights will be correspondingly higher

(*2) FV1 – 1x = 450 mm
FV1 – 2x = 1200 oder 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.			
Components				
1x PL10 S1				
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			
1x FV3-R L= 420 mm				
FV3-R (1x) FAB min. 450 mm	515102			
1x Frame bracket set				
K15 Set	517590			

Special model

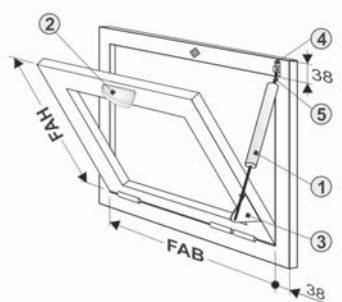
Set painted / powder coated in other RAL colours	516022			
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Optional accessories

B21-1 base plate FV L = 420; FU > 10 mm	515181			
B22 base plate for B18 glazing bead	301599			

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 ²
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24V DC, 2 Vpp
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)

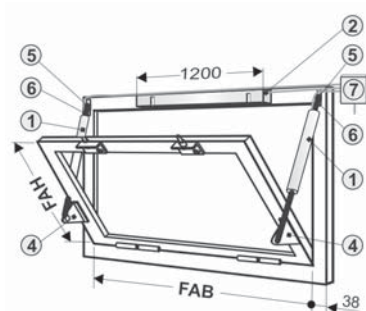


ORDER DATA

	Part.-No.			
Components				
1x PL10 S1				
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			
1x OFV1				
OFV1 (FAB min. 450 mm)	513850			
1x Frame bracket set				
K15 Set	517590			

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. 38 mm
Weight of the casement	max. 30 kg/m ²
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24V DC, 2 Vpp
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**

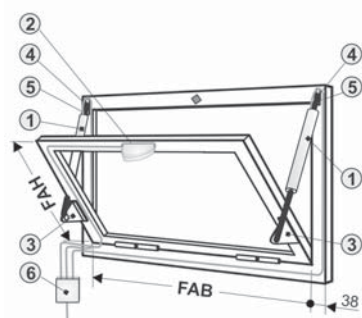


ORDER DATA

	Part.-No.			
Components				
2x PL10 S1 (price per drive)				
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			
1x FV1-R L= 1200 mm				
FV1-R (2x) (FAB min. 1200 mm)	515111			
2x Frame bracket set (price per frame bracket set)				
K15 Set	517590			
1x Control module				
USKM	512140			
Special model				
Set painted / powder coated in other RAL colours	516022			
Optional accessories				
B21-2 base plate FV L = 1200; FU>10 mm	515183			
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 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 ²
Width of the casement (FAB)	1200 – 2500 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24V DC, 2 Vpp
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.			
Components				
2x PL10 S1 (price per drive)				
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			
1x OFV1				
OFV1 (FAB min. 450 mm)	513850			
2x Frame bracket set (price per frame bracket set)				
K15 Set	517590			
1x Control module				
USKM	512140			
Special model				
Set painted / powder coated in other RAL colours	516022			

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. 38 mm
Weight of the casement	max. 30 kg/m ²
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24V DC, 2 Vpp
Cut-off current	1,6 A
Rated power	30 W



SPECIAL FEATURES RWA1100

- For natural ventilation, smoke and heat exhausting and ferralux® NSHEV (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

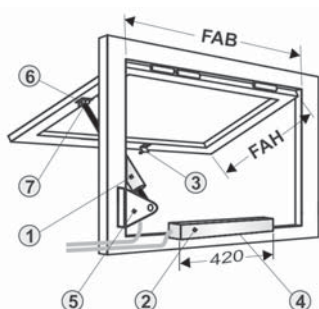
Hardware set	Frame bracket	Stroke of the opening drive	CASEMENT CLOSED			Mounting dimension „X“	FAH (NSK) (side closing edge)	Opening angle	Opening width	CASEMENT OPEN			Weight of the casement (max.)		Required space on the window frame		FAB (HSK)
			Angle of the drive force application	Applied force at the drive fixing point	Angle of the drive force application					Applied force at the drive fixing point							
											PL6	PL10	PL6	PL10	PL6	PL10	
			[DEG]	[N]	[N]	[mm]	[mm]	[DEG]	[mm]	[DEG]	[N]	[N]	[Kg]	[Kg]	[mm]	[mm]	[mm]
RWA 1100 (*1)	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			
						1050	1600	23	638	67	552	921	72	121			
		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			
						1200	1800	24	742	68	557	928	74	124			
	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 (*2)

Depends of the used locking drive (*2)

(*1) 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.

(*2) FV1 – 1x = 450 mm
FV1 – 2x = 1200 oder 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)**

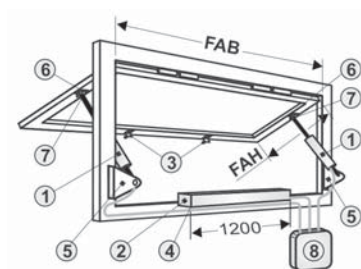


ORDER DATA

	Part.-No.			
Components				
1x PL10 S1				
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			
1x FV3-R L= 420 mm				
FV3-R (1x) (FAB min. 450 mm)	515102			
1x Mounting plate				
B20-1 L = 420 mm	515191			
1x Frame bracket set				
K15 Set	517590			
Optional 1x				
1x K37	307500			
1x F11	151400			
1x B16ST	100044			
Special model				
Set painted / powder coated in other RAL colours	516022			
Optional accessories				
B22 base plate for B18 glazing bead	301599			

Installation requirements

Opening direction	outward
Drive lenght (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 ²
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24V DC, 2 Vpp
Cut-off current	0,8 A
Rated power	15 W



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



2 1x FV1 (2x) L = 1200 mm



3 incl. 2x B18



4 1x B20-2 (1200 mm)



2 x K15-Set

5 2x K15



6 2x F11



7 2x B16ST (8x40)



8 1x USKM



ORDER DATA

	Part.-No.			
Components				
2x PL10 S1 (price per drive)				
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			
1x FV1-R L = 1200 mm				
FV1-R (2x) (FAB min. 1200 mm)	515111			
1x Mounting plate				
B20-2 L = 1200 mm	515193			
2x Frame bracket set (price per frame bracket set)				
K15 Set	517590			
Optional 2x				
K37	307500			
F11	151400			
B16ST	100044			
1x Control module				
USKM	512140			
Special model				
Set painted / powder coated in other RAL colours	516022			
Optional accessories				
B22 base plate for B18 glazing bead	301599			

Installation requirements

Opening direction	outward
Drive lenght (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 ²
Width of the casement (FAB)	1200 – 2500 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24V DC, 2 Vpp
Cut-off current	1,6 A
Rated power	30 W



SPECIAL FEATURES RWA1050

- For natural ventilation, smoke and heat exhausting and ferralux® NSHEV (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

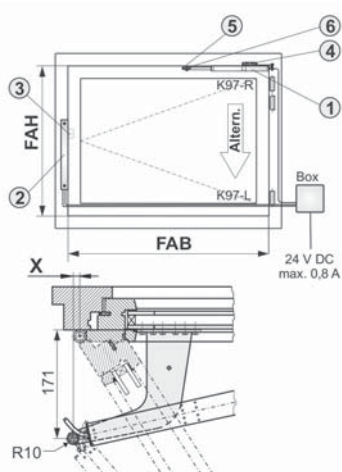
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MOUNTING DIMENSION OF RWA1050 FOR SIDE-HUNG INWARD OPENING WINDOWS

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]	[mm]	[mm]	[mm]
RWA 1050 (*1)	K97	100	19	167	279	0	510	35	(*2)	16	163	272	90	130	10	20	500 – 1500
		150	13	139	232	20	600	55		11	112	187	90	130	30	20	
		200	11	119	198	40	680	75		6	60	100	90	130	50	20	
		250	10	103	172	80	740	85		6	60	100	90	130	90	20	

(*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

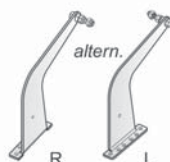


- ③ inkl. **B18**



1x **K1050-R** altern. **K1050-L**

- ④ 1x **K97**



- ⑤ 1x **F11**



- ⑥ 1x **B16ST** (8x40)

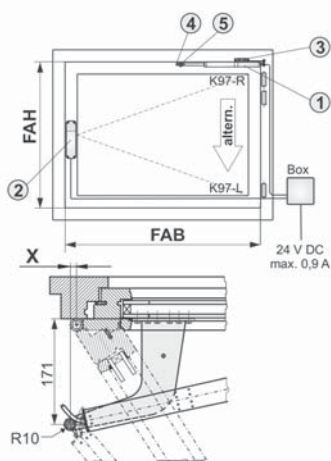


ORDER DATA

	Part.-No.			
Components				
1x PL6 S1				
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			
1x FV3-R L= 420 mm				
FV3-R (1x) (FAB min. 450 mm)	515102			
1x Frame bracket set				
K1050-R Set	307051			
Alternativ 1x				
K1050-L Set	307050			
Special model				
Set painted / powder coated in other RAL colours	516022			
Optional accessories				
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 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/m²
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24V DC, 2 Vpp
Cut-off current	0,8 A
Rated power	15 W



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

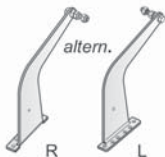


② 1x **OFV1**



1x **K1050-R** altern. **K1050-L**

③ 1x **K97**



④ 1x **F11**



⑤ 1x **B16ST** (8x40)

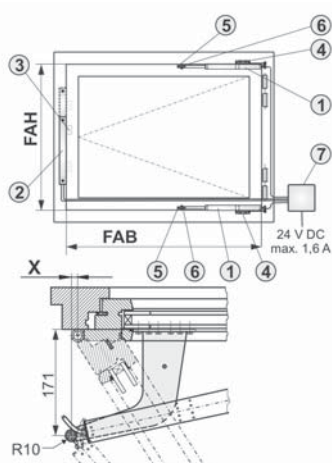


ORDER DATA

	Part.-No.			
Components				
1x PL6 S1				
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			
1x OFV1				
OFV1 (FAH min. 450 mm)	513850			
1x Frame bracket set				
K1050-R Set	307051			
Alternativ 1x				
K1050-L Set	307050			
Special model				
Set painted / powder coated in other RAL colours	516022			
Optional accessories				
B22 base plate for B18 glazing bead	301599			

Installation requirements

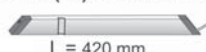
Opening direction	inward
Drive lenght (eye bolt – eye bolt)	280 ± 7 mm + Stroke
Required mounting space OFV (on the casemnet profile)	min. 40 mm
Required mounting space PL (on the window frame profile)	min. 20 mm
Weight of the casement	max. 30 kg/m ²
Width of the casement (FAB)	1200 – 2500 mm
Min. height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



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



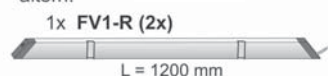
② 1x **FV1-R (1x)** altern. **FV1-L (1x)**



1x **B20-1 (420)**



altern.

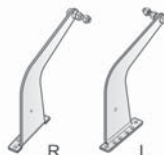


③ incl. **B18**



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

④ 2x **K97**



⑤ 2x **F11**



⑥ 2x **B16ST (8x40)**



⑦ 1x **USKM**

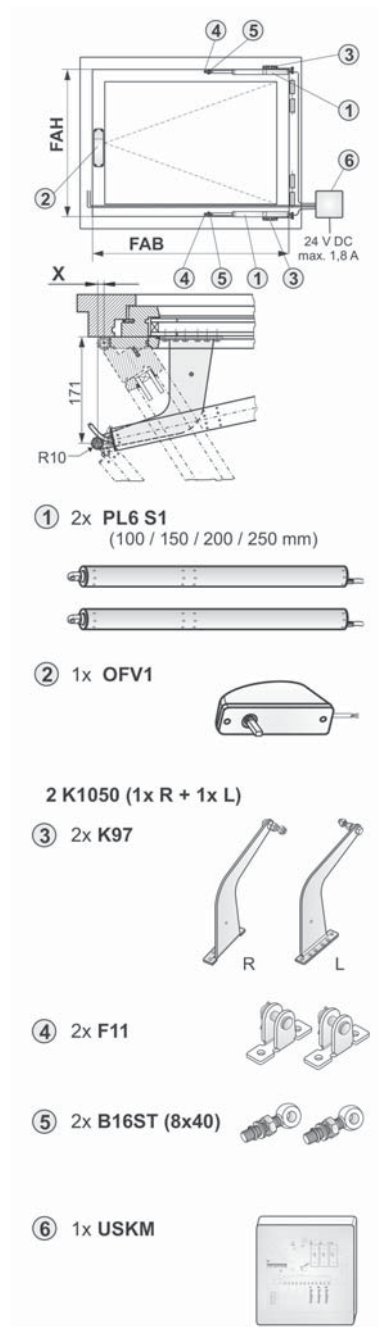


ORDER DATA

	Part.-No.			
Components				
2x PL6 S1 (price per drive)				
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			
1x FV1-R L= 420 mm				
FV1-R (1x) (FAB min. 450 mm)	515103			
1x Mounting plate				
B21-1 base plate FV L = 420; FU>10 mm	515181			
B21-2 base plate FV L = 1200; FU>10 mm	515183			
2x Frame bracket set				
K1050-R Set	307051			
K1050-L Set	307050			
1x Control module				
USKM	512140			
Optional accessories				
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 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 ²
Width of the casement (FAB)	450 – 1300 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24V DC, 2 Vpp
Cut-off current	0,8 A
Rated power	15 W

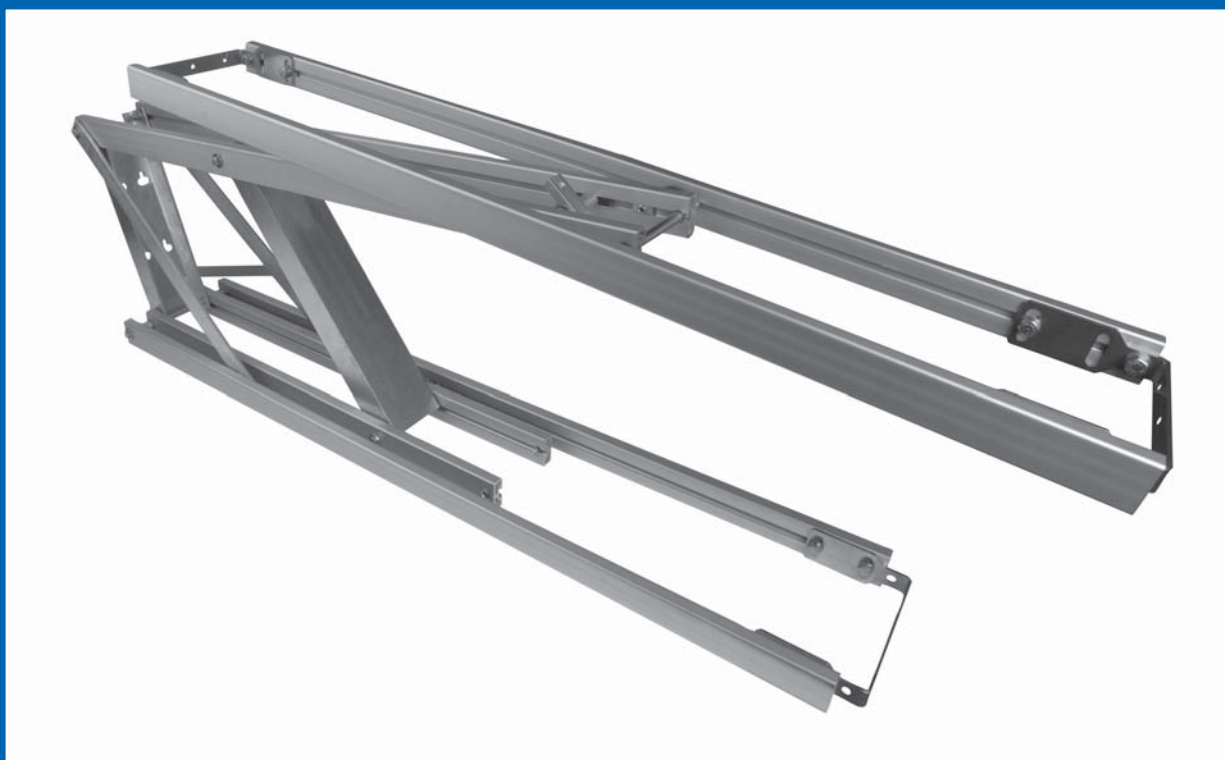


ORDER DATA

	Part.-No.			
Components				
2x PL6 S1 (price per drive)				
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			
1x OFV1				
OFV1 (FAH min. 450 mm)	513850			
2x Frame bracket set				
K1050-R Set	307051			
K1050-L Set	307050			
1x Control module				
USKM	512140			
Optional accessories				
B22 base plate for B18 glazing bead	301599			

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 ²
Width of the casement (FAB)	1200 – 2500 mm
Min. height of the casement (FAH)	see mounting dimensions
Rated voltage	24V DC, 2 Vpp
Cut-off current	1,6 A
Rated power	30 W



SPECIAL FEATURES

- For natural ventilation, smoke and heat exhausting and ferralux® NSHEV (EN12101-2)
- Use for skylights type Eternit Fumilux4000
- Opening angle app. 160°
- Use for other skylights on request

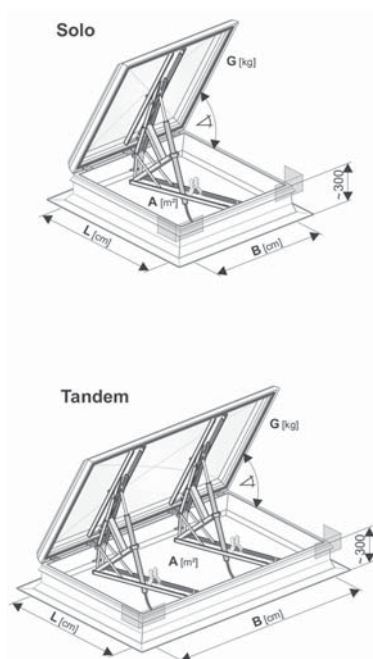
TECHNICAL DATA

		PLA16-400 S12 A	PLS30-400 S3 A
U_N	Rated voltage	24V DC ($\pm 20\%$), max. 2 Vpp	24V DC ($\pm 20\%$), max. 2 Vpp
I_N	Rated current	1,85 A	3,75 A
I_A	Cut-off current	2,5 A	5,0 A (10 A/10 ms)
P_N	Rated power	45 W	90 W
ED	Duty cycle	30 % (ON: 2 min. / OFF: 8 min.)	30 % (ON: 2 min. / OFF: 8 min.)
	Protection rating	IP 65	IP 54
	Ambient temperature range	-5 °C ... + 75 °C	-5 °C ... + 75 °C
F	Pulling / Pushing force	1600 N	3000 N
F_H	Pullout force	5000 N	25000 N
	Connecting cable	non-halogen 3 x 1,0 mm ² , ~ 5 m	non-halogen 3 x 1,0 mm ² , ~ 5 m
t	Opening time	< 60 s	< 60 s

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.aumüller-gmbh.de.



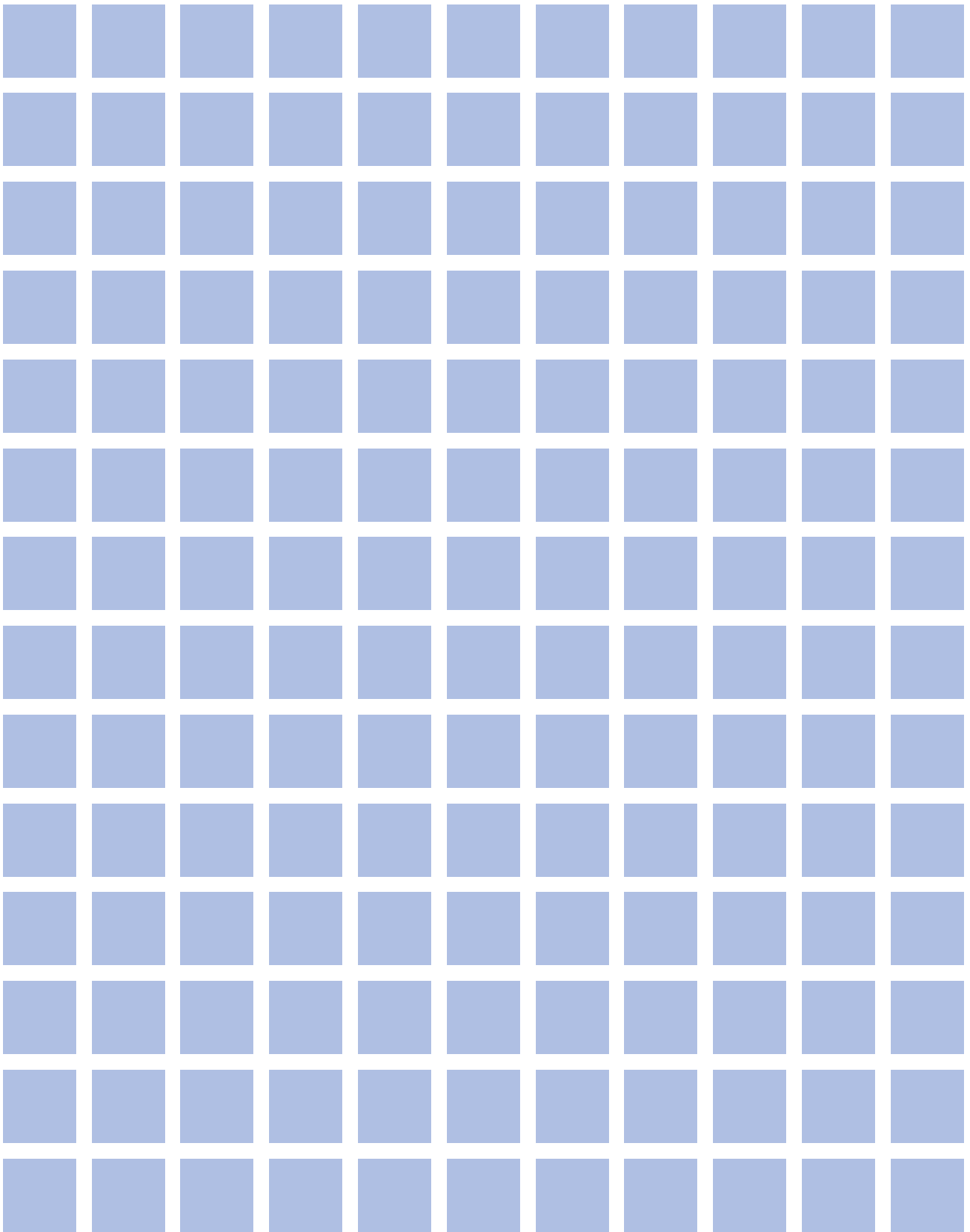
ORDER DATA

		Part.-No.			
Components					
Hardware w/o drives (price per piece)					
L = 100 cm Solo	B < 120 cm	1 x 578080			
L = 100 cm Tandem	B < 250 cm	2 x 578080			
L = 120 cm Solo	B < 120 cm	1 x 578090			
L = 120 cm Tandem	B < 250 cm	2 x 578090			
L = 125 cm Solo	B < 120 cm	1 x 578100			
L = 125 cm Tandem	B < 250 cm	2 x 578100			
L = 150 cm Solo	B < 120 cm	1 x 578110			
L = 150 cm Tandem	B < 250 cm	2 x 578110			
Drives with clamp ring					
PLA16-400 S12 A, s = 360 mm / L = 100 cm		565742			
PLA16-500 S12 A, s = 420 mm / L > 100 cm		565752			
PLA16-400 S12 A Set Sync2, s = 360 mm / L = 100 cm		1020565742			
PLA16-500 S12 A Set Sync2, s = 420 mm / L > 100 cm		1020565752			
PLS30-400 S12 A, s = 350 mm / L = 100 cm		577532			
PLS30-400 S12 A, s = 420 mm / L > 100 cm		577542			
PLS30-400 S12 A Set Sync2, s = 350 mm / L = 100 cm		1020577532			
PLS30-400 S12 A Set Sync2, s = 420 mm / L > 100 cm		1020577542			

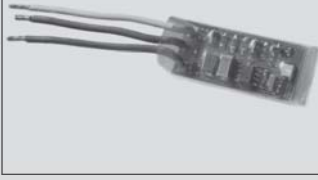
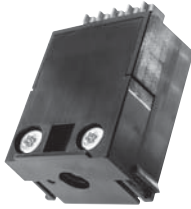

APPLICATIONS ON SKYLIGHT ETERNIT FUMILUX4000

Nominal size of skylight						Drive and max. snow load [N/m²]				with (☞) w/o (0) Locking
L	B	G	A	A _a w/ Sp. (*1)	A _a w/o Sp. (*1)	PLA16		PLS30		
[cm]	[cm]	[Kg]	[m²]	[m²]	[m²]	Solo	Tandem	Solo	Tandem	
100	100	16	1,00	0,750	0,650	600	–	1200	–	0
100	150	22	1,50	1,125	0,900	350	–	800	1700	0
100	200	33	2,00	1,500	1,200	–	600	–	1200	0
100	240	42	2,40	1,800	1,440	–	450	–	1000	0
100	250	44	2,50	1,875	1,500	–	400	–	950	0
120	120	21	1,44	1,080	0,864	350	–	800	–	0
120	150	25	1,80	1,350	1,080	250	700	650	1400	0
120	180	34	2,16	1,620	1,296	–	500	–	1100	0
120	240	46	2,88	2,160	1,584	–	–	–	800	0
120	250	55	3,00	2,250	1,650	–	–	–	750	0
125	125	23	1,56	1,170	0,936	300	–	750	–	☞
125	250	56	3,13	2,348	1,690	–	300	–	700	☞
150	150	28	2,25	1,688	1,350	–	–	450	1050	☞
150	180	41	2,70	2,025	1,620	–	–	–	850	☞
150	210	46	3,15	2,363	1,890	–	–	–	700	☞
150	240	57	3,60	2,700	1,980	–	–	–	550	☞
150	250	60	3,75	2,813	2,063	–	–	–	550	☞

(*1) w/ Sp. = with Spoiler (wind deflectors)
w/o Sp. = without Spoiler (wind deflectors)



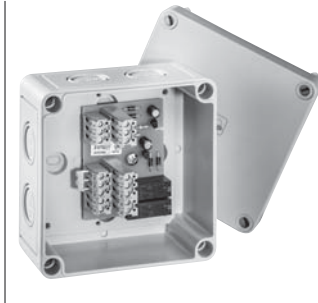
ACCESSORIES

Main control unit			
M-COM 	Application Configuration module for automatic configuration and surveillance of max. 6 opening or locking drives version S12/ S3 in synchronised multi-drive systems Rated voltage: 24 V DC +/- 20%, (max. 2 Vpp) Current consumption: <12 mA Drive type: S12	Part.-No. 524177 Protection rating IP30 rubber envelope Ambient temperature range 0 °C ... + 70 °C Dimensions 45 x 17 x 6 mm Connecting wires 3 wires 0,5 mm² x 50 mm Feature/Equipment Printed circuit board with 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. 6 opening or locking drives version S12/ S3 in synchronised multi-drive systems Rated voltage: 24 V DC +/- 20%, (max. 2 Vpp) Current consumption: <12 mA Drive type: S12	Part.-No. 524167 Protection rating IP30 rubber envelope Ambient temperature range: -5 °C ... +70 °C Dimensions: 40 x 26 x 15 mm Connection: for AUMÜLLER chain drives with AUMÜLLER-Click plug solution Equipment Tongs for removing the M-COM® Click	
Plug solution			
Aumüller-Click plug solution 	Aumüller-Click plug solution: Unified plug solution for all AUMÜLLER chain drives and AUMÜLLER folding arm drives. Rated voltage: 24 V DC +/- 20 %, (max. 2 Vss) Connecting cable: non-halogen, grey 5 x 0,5 mm² Terminal: to 1,5 mm²	Feature/Equipment <ul style="list-style-type: none"> 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 	
	VARIANTS:		
	1 m cable length - 24 V DC	Part.-No. 501250	
	2 m cable length - 24 V DC	Part.-No. 501258	
	3 m cable length - 24 V DC	Part.-No. 501251	
	5 m cable length - 24 V DC	Part.-No. 501252	
	10 m cable length - 24 V DC	Part.-No. 501253	

ACCESSORIES

Feedback module

RM-E



Application

Control module 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

Rated voltage:

24V DC +/- 20%, (max. 2 Vpp)

Current consumption: < 5 mA

Drive type: S3, S12

Part.-No. 500158

Protection rating

IP 54

Ambient temperature range

0 °C ... + 70 °C

Surf. mount. plastic housing

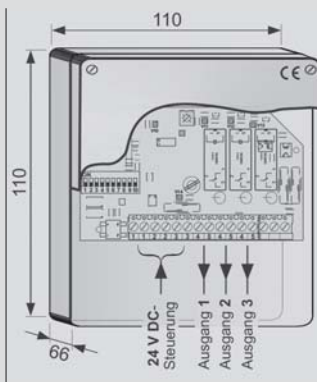
94 x 94 x 42 mm

Feature/Equipment

Evaluation of end positions due to the communication wire of drives type S3/S12

Control module

USKM



Application

Control module with 3 outputs and individual settuble cut-off current, monitored motion run, delayed sequence control.

Functions: Motion-monitoring up to 3 drives, 2 sequential controls

Rated voltage:

24V DC +/- 20%, (max. 2 Vpp)

Close circiut current : < 50 mA

Connections:

max. 3 drives; s < 300 mm

Part.-No. 512140

Rated current per drive
max. 2,5 A

Drive type

S1, S2, S3, S12, FV1, OFV1

Protection rating

IP 54

Ambient temperature range

0 °C ... + 70 °C



Surf. mount. plastic housing

110 x 110 x 66 mm

Feature/Equipment

DIP-Switches for settings, connection terminals: 2,5 mm²

ACCESSORIES

Relay Interface			
TRM		<p>Application</p> <p>Really interface for connection of 230 V AC drives to a 24 V DC motor line. Control by changing the polarity of the 24 V DC power supply</p> <p>Rated voltage: 24V DC +/- 20%, (max. 2 Vpp)</p> <p>Close circuit current: < 100 mA</p> <p>Connections: 1 drive group</p>	<p>Part.-No. 670071</p> <p>Current per drive group 230V AC max. 3,0 A</p> <p>Drive type S2, S3, S12, MP</p> <p>Protection rating IP 54</p> <p>Ambient temperature range 0 °C ... + 70 °C</p> <p>Surf. mount. plastic housing 98 x 98 x 58 mm</p> <p>Feature/Equipment Connection terminals 4 mm²</p>
UniPC		<p>Application</p> <p>Hard- and software for the configuration of drives produced by Aumüller Aumatic GmbH</p> <p>Rated voltage: 24V DC +/- 20%</p> <p>Configurable drives: 24 V DC: S3, S12, S12 V.2 230 V AC: S12, S12 V.2</p> <p>Package contents: Software UniPC (Download link) Interface "ParInt" USB cable Connection cable</p> <p>Connections: 3x Pluggable screw terminals 1,0 mm² USB Port</p>	<p>Part.-No. 524178</p> <p>System requirements CPU 1 GHz or faster OS Microsoft Windows 2000 Server (SP4) Windows 2000 Professional (SP4) Windows XP (SP2) Windows Server 2003 SE, EE, DE Windows Small Business Server 2003 Windows Vista Windows Server 2008 Windows 7 RAM min. 512 MB / min. 100 MB frei HDD Partition „C“ / min. 100 MB empty Graphic card: Super VGA (1024 x 768)</p> <p>Feature/Equipment Power supply 24 V DC not included! Software licence for extended settings required!</p>

ACCESSORIES

Test kit for drives

PK

**Application**

Test kit to check running direction and communication of drives 24 VDC or 230 VA C drives (including batteries)

Supply voltage:
230V AC

Drive types:
24V DC / 230V AC

Drive current:
max. 3 A

Part.-No. 533981**Display**

drive current,
battery charging

Ambient temperature range

-5 °C ... + 75 °C

Plastic housing

250 x 220 x 210 mm

Weight

ca. 3,6 kg

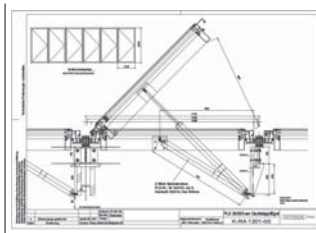
Feature/Equipment

Control elements:

2 switches + 1 push button

Wiring diagramm

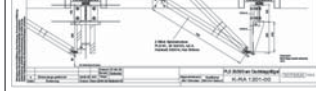
DL240

**Application**

Providing of customized installation and wiring diagrams. Price per ventilation/SHEV line

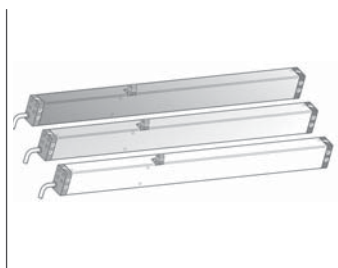
Part.-No. 240

DL241

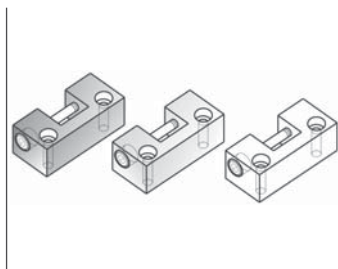
**Application**

Providing of customized installation drawings for drives – Draw in of drives in customers' drawings

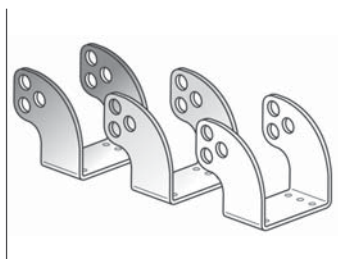
Part.-No. 241



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



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



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



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

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

NRWG OVERVIEW																	
Profile system (* 3)	Certification Name ITT CE-Certification	Use	Profile series	Casement (*1								NSHEV Performance class (*2					
				Bott.-hung		Top-hung		Side-hung		Area	weight	A _a	R _e	SL	T ₍₋₎	WL	B
				FAB	FAH	FAB	FAH	FAB	FAH								
				[m]	[m]	[m]	[m]	[m]	[m]	[m²]	[Kg]	[m²]	[n]	[Pa]	[°C]	[Pa]	[°C]
Schüco	Ferralux NRWG-011	Facade	AWS 50														
	AWS 60																
	838-38751-1-01		AWS 65	0,45	0,45	0,45	0,45	0,45	0,45	3,0	130	0,1	1000	0	-5	1500	300-E
			AWS 70	2,50	2,50	2,50	2,50	1,70	2,50			2,0					
	0757-CPD-288-09-009R1	Roof	AWS 75														
			AWS AWS57RO	0,60	0,60	0,60	0,60	-	-	2,88	132	0,1	1000	125	-5 (SL)	106	300-E
				2,40	2,40	2,40	2,40					1,6					
Forster	Ferralux NRWG-050	Facade	Unico														
	838-41172-1-00			0,52	0,35	-	-	0,33	0,52	4,35 (Side 3,84)	150	0,1	1000	0	00	1200	300-E
	0757-CPD-288-09-010R1			2,90	2,90			1,60	2,40			2,2					
Raico	Ferralux NRWG-070	Roof	Wing 105D														
	838-41174-1-0.1			0,35	0,35	0,35	0,50	-	-	4,05	195	0,1	1000	125	-5 (SL)	2000	300-E
	0757-CPD-288-09-011R1			2,70	2,70	2,70	2,70					2,2					

LEGEND

ITT Product pass (ift-Rosenheim)

FAB Overall width of casement

FAH Overall height of casement

A_a Aerodynamic free area (in accordance with EN12101-2:2003 annex B)R_e Reliability classification / dual purpose ventilator for natural ventilation and SHEV testet 10.000 cycles (acc. EN12101-2:2003 annex C)

SL Snow snow load classification (acc. EN12101-2:2003 annex D)

T₍₋₎ Low ambient temperature classification (acc. EN12101-2:2003 annex E)

WL Wind load classification (acc. EN12101-2:2003 annex E)

B Resistance to heat for 30 min. (acc. EN12101-2:2003 annex G)

E Reaction to fire - Euroclass „E“ (acc. EN12101-2:2003 annex G)

(*1) For the casement dimensioning the allowed area and total weight are to be respected!

(*2) NSHEVs are single manufactured with object-specific dimensions. The performances are disclosed in the declaration of performance (DoP) in accordance with the Construction Products Regulation (CPR). The showed figures are minimum values – higher values can be classified in accordance with ITT.

(*3) Other profile systems on request.

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 NSHEVs 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.

NSHEVs 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. Die 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 NSHEV 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 NSHEV as component of a smoke and heat exhaust system not as a part of the facade or roof.

As a result, NSHEV 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.

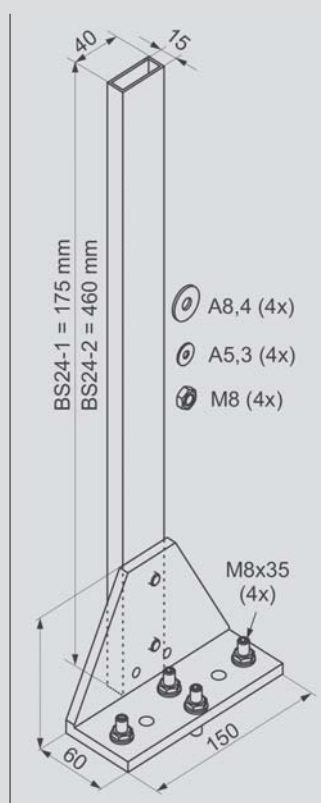
AUMÜLLER has tested various representative samples, has established a factory production control system and has got the Declarations of Conformity in accordance with annex ZA to EN 12101-2:2003 from the notified product certification body ift-Rosenheim. Therefore AUMÜLLER is a system provider as well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

Prices for licenses, manufacturing and project-specific design of NSHEVs on request.

ACCESSORIES FOR CUSTOMERS ON SITE WIND DEFLECTORS

Angle bracket

BS24



BS24-1 H = 175 mm

Part.-No. 151605

BS24-2 H = 460 mm

Part.-No. 151600

Application

Angle bracket with vertical holder for fastening of metal sheet wind deflectors on profile-specific, on-site provided stay bolts (2 pcs / bracket). **Suitable for** system-specific, visible screwed **pressure profiles without cover strips**. The load transfer of vertical and horizontal forces to the top level of the glazing system is via a **pressure plate (BS24-3, -4, -5)**. The angle bracket is to be horizontally and vertically aligned via 4 adjustment screws

Material/Finish

aluminium

Feature/Equipment

incl. adjustment screws with accessories

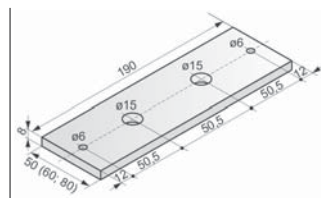
Height of wind deflectors:

BS24-1 100 – 200 mm

BS24-1 200 – 500 mm

Pressure plate

BS24



BS24-3 B = 50 mm

Part.-No. 151612

BS24-4 B = 60 mm

Part.-No. 151610

BS24-5 B = 80 mm

Part.-No. 151611

Application

Pressure plate for visible screwed pressure profiles without cover strips

Material/Finish

aluminium

Feature/Equipment

Width (W) according to basic profile depth and the plate profile

The wind deflectors must be provided by the customer in accordance with NSHEV product passports.

Drives	Primary energy not renewable	Primary energy renewable	GWP (green-house potential)	Ozone depletion potential	Acidification potential	Eutrophication potential	Photo-chemical oxidation potential	Abiotic depletion - elements	Abiotic depletion - fossil	Water consumption
KS2 S2 24	1,47E+2	3,35E+1	1,10E+1	1,56E-7	4,23E-2	3,50E-3	2,21E-3	5,68E-5	1,50E+2	4,74E+1
KS2 230	3,66E+2	8,38E+1	2,74E+1	3,89E-7	1,06E-1	8,76E-3	5,51E-3	1,42E-4	3,74E+2	1,19E+2
KS2 S12 24	2,08E+2	4,75E+1	1,55E+1	2,20E-7	5,99E-2	4,96E-3	3,12E-3	8,05E-5	2,12E+2	6,72E+1
KS2 T	4,15E+2	9,50E+1	3,11E+1	4,41E-7	1,20E-1	9,93E-3	6,25E-3	1,61E-4	4,24E+2	1,34E+2
KS2 Set	4,27E+2	9,78E+1	3,20E+1	4,54E-7	1,23E-1	1,02E-2	6,43E-3	1,66E-4	4,37E+2	1,38E+2
KSA 24	2,69E+2	6,15E+1	2,01E+1	2,85E-7	7,75E-2	6,42E-3	4,04E-3	1,04E-4	2,75E+2	8,69E+1
KSA 230	5,62E+2	1,28E+2	4,21E+1	5,96E-7	1,62E-1	1,34E-2	8,46E-3	2,18E-4	5,74E+2	1,82E+2
KSA T - D	5,25E+2	1,20E+2	3,93E+1	5,57E-7	1,51E-1	1,26E-2	7,90E-3	2,04E-4	5,37E+2	1,70E+2
PLA6	1,83E+2	4,19E+1	1,37E+1	1,94E-7	5,28E-2	4,38E-3	2,76E-3	7,10E-5	1,87E+2	5,93E+1
PLA8	2,93E+2	6,70E+1	2,19E+1	3,11E-7	8,46E-2	7,01E-3	4,41E-3	1,14E-4	3,00E+2	9,48E+1
PLA101	2,32E+2	5,31E+1	1,74E+1	2,46E-7	6,69E-2	5,55E-3	3,49E-3	9,00E-5	2,37E+2	7,51E+1
PLA116	2,93E+2	6,70E+1	2,19E+1	3,11E-7	8,46E-2	7,01E-3	4,41E-3	1,14E-4	3,00E+2	9,48E+1
PLA10	5,49E+2	1,26E+2	4,11E+1	5,83E-7	1,59E-1	1,31E-2	8,27E-3	2,13E-4	5,62E+2	1,78E+2
PLA16	5,49E+2	1,26E+2	4,11E+1	5,83E-7	1,59E-1	1,31E-2	8,27E-3	2,13E-4	5,62E+2	1,78E+2
PLS15	8,79E+2	2,01E+2	6,58E+1	9,33E-7	2,54E-1	2,10E-2	1,32E-2	3,41E-4	8,99E+2	2,84E+2
PLS30	1,11E+3	2,54E+2	8,32E+1	1,18E-6	3,21E-1	2,66E-2	1,67E-2	4,31E-4	1,14E+3	3,59E+2
PLS30SP	2,05E+3	4,69E+2	1,54E+2	2,18E-6	5,92E-1	4,91E-2	3,09E-2	7,96E-4	2,10E+3	6,64E+2
PLS35Sp	2,64E+3	6,03E+2	1,97E+2	2,80E-6	7,61E-1	6,31E-2	3,97E-2	1,02E-3	2,70E+3	8,53E+2
PLS50	8,79E+2	2,01E+2	6,58E+1	9,33E-7	2,54E-1	2,10E-2	1,32E-2	3,41E-4	8,99E+2	2,84E+2
SP8 24	2,44E+2	5,59E+1	1,83E+1	2,59E-7	7,05E-2	5,84E-3	3,68E-3	9,47E-5	2,50E+2	7,90E+1
SP8 230	6,11E+1	1,40E+1	4,57E+0	6,48E-8	1,76E-2	1,46E-3	9,19E-4	2,37E-5	6,24E+1	1,98E+1
LKS	1,83E+2	4,19E+1	1,37E+1	1,94E-7	5,28E-2	4,38E-3	2,76E-3	7,10E-5	1,87E+2	5,93E+1
LKS-TV	3,66E+2	8,38E+1	2,74E+1	3,89E-7	1,06E-1	8,76E-3	5,51E-3	1,42E-4	3,74E+2	1,19E+2
FTA	2,93E+2	6,70E+1	2,19E+1	3,11E-7	8,46E-2	7,01E-3	4,41E-3	1,14E-4	3,00E+2	9,48E+1
LLA10	1,83E+2	4,19E+1	1,37E+1	1,94E-7	5,28E-2	4,38E-3	2,76E-3	7,10E-5	1,87E+2	5,93E+1
LLA16	2,69E+2	6,15E+1	2,01E+1	2,85E-7	7,75E-2	6,42E-3	4,04E-3	1,04E-4	2,75E+2	8,69E+1
FV-FVR-FVB	2,44E+2	5,59E+1	1,83E+1	2,59E-7	7,05E-2	5,84E-3	3,68E-3	9,47E-5	2,50E+2	7,90E+1
FVM	1,22E+2	2,79E+1	9,14E+0	1,30E-7	3,52E-2	2,92E-3	1,84E-3	4,74E-5	1,25E+2	3,95E+1
OFV	2,32E+2	5,31E+1	1,74E+1	2,46E-7	6,69E-2	5,55E-3	3,49E-3	9,00E-5	2,37E+2	7,51E+1
PL6-10	1,83E+2	4,19E+1	1,37E+1	1,94E-7	5,28E-2	4,38E-3	2,76E-3	7,10E-5	1,87E+2	5,93E+1

Declaration code: **M-EPD-AZR-001**

Programme operator: **ift Rosenheim GmbH**

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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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