Pressure control unit for roof arrangement with dark flap

Type DEK-V-DK5

The pressure control unit consists of an insulated roof base, the integrated pressure control damper and an insulated dark damper. The pressure control damper regulates the overpressure in the stairwell completely automatically without auxiliary energy by means of a spring system. The roof base is made of galvanised sheet steel and is insulated on the inside with non-combustible mineral wool.
The air is discharged via a dark flap equipped with a rollover drive system so that an opening angle of approx. 160° is realised to ensure extensive wind independence. The electrical connection is made via the terminal box mounted on the outside of the roof base.
In the DEKA-V-LK5 version, an additional spring return motor is mounted on the pressure control damper, which can raise the damper by motor. This allows the unit to be used to ventilate the stairwell by opening the dark damper.

Technical data

Standard time	< 3 seconds (according to EN 12101-6)
Control pressure	30 ... 70 Pa (control pressure is preset at the factory)
Functional safety DEK	Re 10,000 (10,000 load cycles)
Power supply dome drive	24 V DC ± 15% / 48 V DC ± 15%, maximum 4 A / 2 A
Permissible residual ripple	Maximum 2Vpp (at full load of the motor)
Functional safety DK	Re 1000 (EN 12010-2:2003-09)
Wind load classification DK	WL 1500 (EN 12010-2:2003-09)
Lowest ambient temperature DK	T (-15) (EN 12010-2:2003-09)
Heat resistance DK	B 300 (EN 12010-2:2003-09)
Material dark flap	Aluminium with internal mineral wool WD40
U_n -value*	0.88 W/m²K (*calculated according to EN ISO 6946)
Building material class dark flap	A1 (according to DIN 4102-1) A1 (class of reaction to fire according to DIN EN 13501-1)
Snow load class S_L	Depending on dimensions and rated voltage (see table)
Rated sound reduction index	34dB

Alfred Eichelberger GmbH & Co KG - Marientaler Straße 41 - D 12359 Berlin
Phone: +49 (0)30 6007 0 - Email: Anfrage@Alfred-Eichelberger.de - www.Alfred-Eichelberger.de

Proof of suitability

Reliability in operation and compliance with the control time requirements (3 seconds) in accordance with DIN EN 12101-6 have been proven and certified by the Institute for Industrial Aerodynamics (I.F.I.) in Aachen through functional testing, stability and resonance testing after 10,000 load cycles.

Snow load class

Nominal size	Certified snow load class S_L at maximum dimensions (2500 mm wide dome)		Maximum calculated snow load S_L taking into account the actual flap size	
	24 V	48 V	24 V	48 V
1200 x 1200	1100	1200	2200	2400
1200 x 1500	1100	1200	1830	2000
1500 x 1500	650	750	1080	1250
1500 x 1800	650	750	900	1040

Selection table

Size	Maximum controllable volume flow **			Free area
	at 30Pa [m³/h]	at 40Pa [m³/h]	at 50Pa [m³/h]	[m²]
DEK-V 900/800-DK5 1200/1200	9.800	12.200	14.000	0,55
DEK-V 900/900-DK5 1200/1200 *	11.100	13.700	16.000	-
DEK-V 900/1100-DK5 1200/1500	13.500	16.800	19.500	0,76
DEK-V 1200/1100-DK5 1500/1500	18.100	22.300	26.000	1,02
DEK-V 1200/1400-DK5 1500/1800	23.000	28.400	33.000	1,29

Size is only available in the DEK version (without drive) and not as DEKA. The drive system of the skylight dome must be completely dismantled for inspection.

** The maximum controllable volume flow depends on the setting of the pressure control damper.

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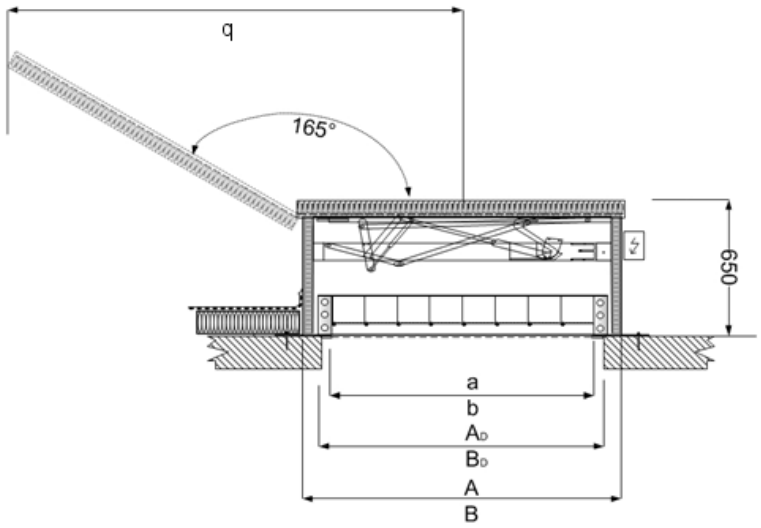
Main dimensions



Size	A x B [mm]	a x b [mm]	q [mm]	Weight [kg]	Break-through** AD x B D [mm]
DEK-V 900/800-DK5 1200/1200	1150 x 1150	900 x 800	1800	190	950 x 950
DEK-V 900/900-DK5 1200/1200 *	1150 x 1150	900 x 900	1800	190	950 x 950
DEK-V 900/1100-DK5 1200/1500	1150 x 1450	900 x 1100	1800	220	1150 x 1150
DEK-V 1200/1100-DK5 1500/1500	1450 x 1450	1200 x 1100	2300	250	1250 x 1250
DEK-V 1200/1400-DK5 1500/1800	1450 x 1750	1200 x 1400	2300	300	1450 x 1450

Size is only available in the DEK version (without drive) and not as DEKA. The drive system of the skylight dome must be completely dismantled for inspection.

** The minimum size in the final construction must correspond to the dimension a x b.
A square opening is recommended in order to be flexible in the alignment of the unit, if necessary.
We recommend making the opening approx. 50 mm larger to allow for subsequent drywall finishing if necessary.

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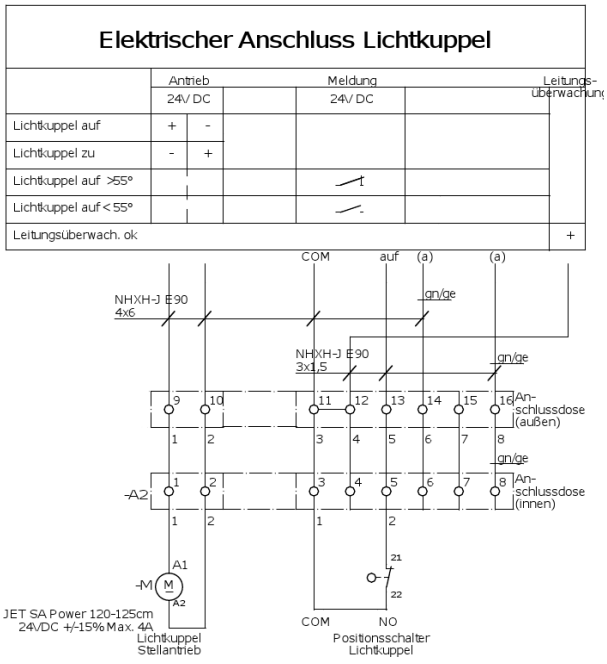
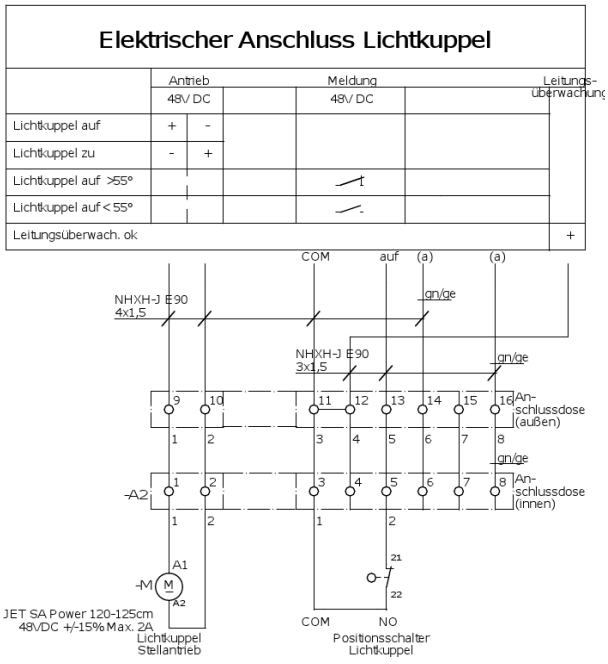
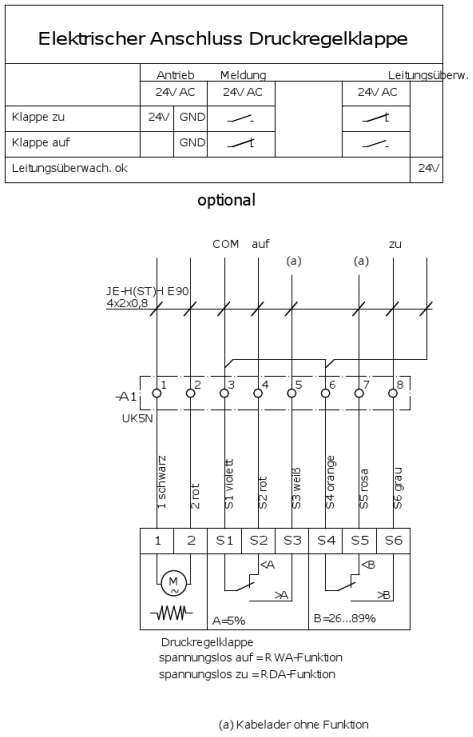
Wiring diagram



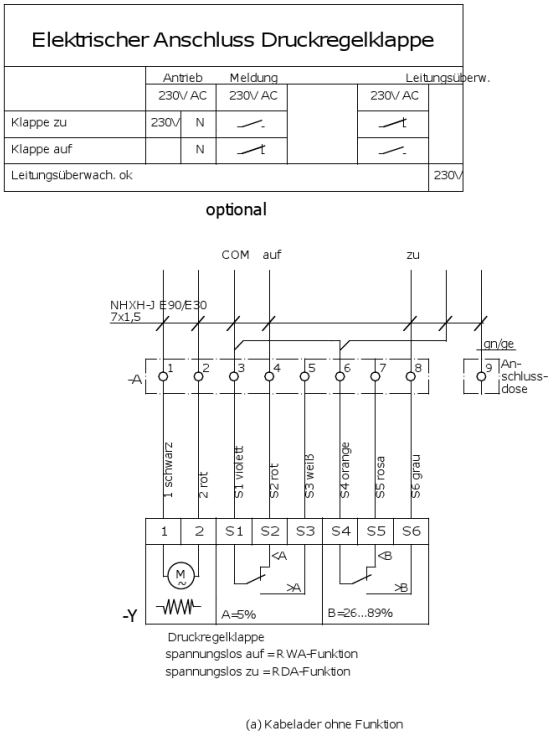
Dark flap actuator 24 V DC



Dark flap drive 48 V DC



Option DEKA 24 V



Option DEKA 230 V

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Operating

When the system is triggered, the control unit opens the dark flap. After reaching the open position (position switch), the supply air fan can be started. The pressure is controlled via the spring-loaded pressure control damper.

In the DEKA-V-DK5 version, the pressure control damper can be kept open with the additional actuator during operational readiness. This allows the unit to be used to ventilate the stairwell by opening the dark damper.

In case of fire, this comfort function is overridden: the dark damper is fully opened and the actuator moves to the position that enables the automatic function of the control damper.

This means that, if required, requirements for smoke dissipation surfaces can also be implemented. This function can be triggered automatically in the event of a malfunction or, if necessary, switched manually, for example from the fire brigade control panel.

Accessories

Option DEKA

Motorised version of the pressure regulating damper for the realisation of ventilation or smoke removal functions (A)

The pressure control damper is equipped with an actuator (FR 24V) that can hold the damper open when the system is at a standstill (operational standby position). When the pressure ventilation is triggered, the actuator must be moved to a position that enables the automatic control function of the dampers (operating position pressure control). In the event of a malfunction or interruption of the power supply in the triggered state, the actuator can move the dampers completely open (operating position smoke discharge).

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