





Composite profiles for systematic energy efficiency, European Technical Approved (ETA)

## Energy efficiency through

#### **Composite profiles**

- In the basic profile and flap frame as a combination of:
- rigid PVC multi-chamber insulation structure inside
- aluminium covering profile for design and protection outside (patented construction: Patent number DE 10 2010 000 018)
- continuous rooflight and rooflight flaps have no thermal bridges

#### Kerb connection profile

- rigid PVC multi-chamber insulation profile for kerb head
- system connection for perfect roof seals

#### Application of heat insulated glazing

- e.g. PC 10 mm + 10 mm ( $U_{g}$  value of glazing: 1.50 W/m<sup>2</sup>K)
- e.g. PC 10 mm + PC 4 + PC 10 mm
- $(U_q \text{ value of glazing: } 1.16 \text{ W/m}^2\text{K})$

## Performance of hail protection glazing

• PC 16 mm seven-skinned + 3 mm air + PC 3 mm (U<sub>g</sub> value of the glazing: 1.58 W/m<sup>2</sup>K) HW5 for water tightness, light transmission and appearance (according to testing regulation no. 24, VKF / Bern VKF classification no. 25036)

#### Energy efficiency equipment

- thermal decoupling and thermal insulation of the eaves area and the kerb head
- transparent, valid European heat insulation certificate
- allows a total heat transmission (U  $_{\rm w}$  value) of 1.02 W/m²K according to European Technical Assessment

## Safety through

#### European Technical Approval (ETA)

- construction tested and approved by all European building authorities
- legally secure proof of placing on the market throughout Europe
- static design according to Eurocode (DIN EN 1991-1-3 and 1991-1-4)
- EC Certificate of Conformity for all NSHEV flaps
- coordinated, BG-certified system accessories with VARIO-PROTECT shading system, LB-DSL and VARIO-SAFEGUARD "fall-through" protection and VARIO-PROTECT 120 VWS traffic route securing
- Environmental Product Declaration Type II according to DIN EN ISO 14021 for use in sustainability certification e.g. DGNB, LEED, BREEAM
- hard roofing according to DIN 4102, part 7 or DIN EN 13501-5
- general type approval no. Z-10.19-739



# SHEV flaps for VARIO-THERM continuous rooflights

Flap type	Opening angle	Upper clear width of the kerb	Width/length	A <sub>g</sub>	A <sub>a</sub>
		ст	cm x cm	m²	m²
Full flap	165°	from 100 to 250	b/100	from 1.000 to 2.500	from 0.700 to 1.998
		from 100 to 250	b/134	from 1.340 to 3.350	from 0.940 to 2.538
Upper clear width Rooflight order		from 100 to 300	b/204	from 2.040 to 6.120	from 1.530 to 4.284
Double flap	95°	from 200 to 600	200/100	2.00	1.48
		from 200 to 600	200/204	4.08	3.05
		from 250 to 600	250/100	2.50	1.88
95° Width of flap – 20 Upper clear	95° 2000/2500/3000 ar width	from 250 to 600	250/204	5.10	3.89
		from 300 to 600	300/100	3.00	2.31
		from 300 to 600	300/204	6.12	4.70
		from 350 to 600	350/100	3.50	2.54
		from 350 to 600	350/204	7.14	5.28
		from 400 to 600	400/100	4.00	2.77
		from 400 to 600	400/204	8.16	5.83
Side flap	130°	from 250 to 350	180/100	1.800	1.158
		from 250 to 350	180/204	3.672	2.387
		from 280 to 410	215/100	2.150	1.384
		from 280 to 410	215/204	4.386	2.851
		from 300 to 480	250/100	2.500	1.609
		from 300 to 480	250/204	5.100	3.315
Beam flap	130° Width of flop 100 Ir width rder width	from 350 to 1090	180/100	1.800	1.158
		from 350 to 1090	180/204	3.672	2.387
		from 400 to 1090	215/100	2.150	1.384
		from 400 to 1090	215/204	4.386	2.851
		from 480 to 1090	250/100	2.500	1.609
		from 480 to 1090	250/204	5.100	3.315

**Note:**  $A_a$  values (aerodynamic effective opening surface) and  $A_g$  values (geometrical surface)

## **Composite profiles**

## Innovative combination of materials for function and design

Basic profile made of rigid PVC and aluminium covering profile

## Advantages of the composite profiles in detail

- high-quality and robust construction
- for secure and easy implementation of the roof sealing
- for prevention against fire flashover according to DIN 18234

## Advantages of the continuous rooflight construction

- type static according to Eurocode (DIN EN 1991-1-3 and DIN EN 1991-1-4)
- complete load distribution of the wind suction forces via the PVC surface without metallic penetration of the insulation level

## Advantages of rooflight accessories

• high-quality plastic flap, thermal separation and heat insulated with glazing analogous to the continuous rooflight



Sectional view of a VARIO-THERM continous rooflight with full flap



## **Energy efficiency**

#### Thermal decoupling and heat insulation of the eaves area

(Basic profile made of rigid PVC and aluminium covering profile) • multi-chamber insulation profile without thermal bridges

## Thermal decoupling and heat insulation of the kerb head

(Kerb connection profile made of rigid PVC supplementing the eave profile)

- multi-chamber insulation profile without thermal bridges
- highly insulating, effective kerb head covering
- lowers the Uw value of the continuous rooflight construction up to an additional 0.2 W/m<sup>2</sup>K

## Enables a total heat transfer (U<sub>w</sub> value) of 1.02 W/m<sup>2</sup>K

(Considerably better than the current EnEV

reference value of  $\leq 2.4 \text{ W/m}^2\text{K}$ )

- $\ensuremath{\cdot}$  ideal for projects with sustainability certification
- ideal for energy efficiency refurbishment

## Isothermal performance for continuous rooflight with heat flow compared with conventional rooflight eave profiles

Perfect interaction: The heat insulating multi-chamber eave and kerb connection profiles result in ideal isothermal performance.



A low heat flow stands for less loss of heat.

## Technical data for glazing variants

Description	Ug value of the glazing [W/m²K]	U <sub>w</sub> value of the rooflight constuction <sup>1</sup> [W/m²K]	Special features
PC 16/7	1.82	146	Optional as variant IR control
PC 20/7	1.61	1.32	Optional as variant IR control green
PC 16/7 + PC 3	1.58	1.29	Hail protection: HW 5 in all categories Sound insulation: 26 dB
PC 10/4 + GFK + PC 10/4	1.54	1.26	Hard roofing: B <sub>Roof</sub> (t1) Sound insulation: 27 dB
PC 10/4 + PC 10/4	1.50	1.24	Fire behaviour: B-s2, d0 Sound insulation: 24 dB
PC 10/4 + non-woven fabric + PC 10/4	1.50	1.24	Hard roofing: B <sub>Roof</sub> (t1) Melting area according to DIN 18230-1
PC 10/4 + PC 10/4 DI	1.31	1.13	Sound insulation: 24 dB
PC 10/4 + GFK + PC 10/4 DI	1.20	1.05	Hard roofing: B <sub>Roof</sub> (t1) Sound insulation: 27 dB
PC 10/4 + PC 4/2 + PC 10/4 DI	1.16	1.02	Sound insulation: 24 dB
PC 16/7 + GFK DI	1.33	1.12	Hard roofing: B <sub>Roof</sub> (t1) meltable area according to DIN 18230-1

Note:

1) Data relates to a continuous rooflight with the dimension 2 x 10 m with insulated kerbs of 50 cm height



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