



TECHNICAL DATA SHEET

PHOENIX

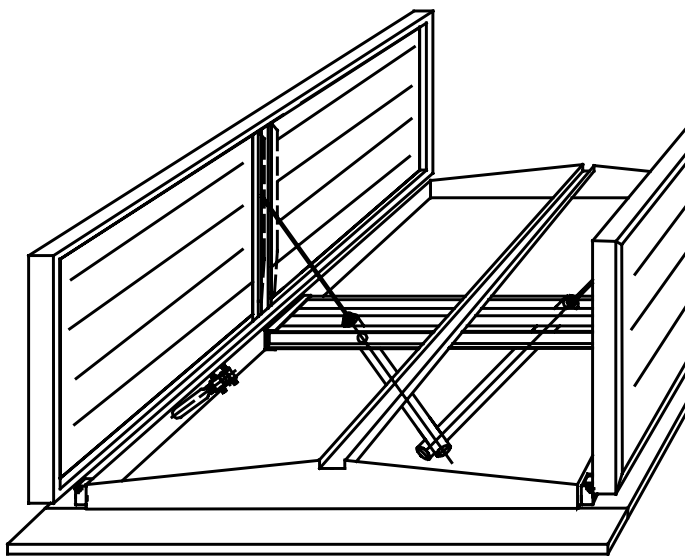
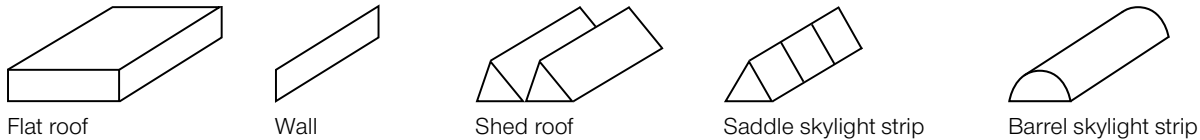
Product description

The PHOENIX double opening vent system is a natural ventilation unit with a ventilation position of 90°, which is also approved as a natural smoke and heat exhaust ventilation unit. The unit has been designed to withstand extreme weather conditions. Durability, quality and stability characterise the PHOENIX double opening vent system ventilator and make it a classic in the roda product family. The hinges of the PHOENIX for repeated daily ventilation are maintenance-free. The variable dimensions as well as the low weight allow easy installation in all roof and wall constructions up to an inclination of 90°.

Construction features

Climate changes and ever higher precipitation rates have pushed conventional ventilation and fire ventilation systems – especially in the flat roof area – to their application limits. Not to mention the damage caused by environmental and weather influences. That's why we set ourselves the task of developing a system that offers optimal protection even in extreme bad weather. Ventilation, fire protection, smoke and heat exhaust ventilation work together effectively here.

Applications



Advantages

- Sound insulation values up to 33 dB can be achieved
- Natural, energy saving daylight illumination
- Glare-free when using PC softlite or Lumira®
- Low U-values and low clearance losses
- Suitable for high snow and wind loads
- Efficient rainwater drainage via a central gutter
- Easy installation in all roof and wall constructions up to an inclination of 90°
- Covers open and close by compressed air from pneumatic cylinders with end position locking in both positions or by a 24 V linear drive
- Waterproofing with vulcanised EPDM profile seals
- Thermal separation is possible
- All hinges are made of cast aluminium parts combined with extruded aluminium profiles and stainless steel bearing bolts
- Drives connected via Teflon-coated bronze bushes (maintenance-free)
- Product is recyclable and comes without harmful materials
- 6° cover incline for optimal water drainage

Mode of operation



Natural ventilation

The PHOENIX single or double opening ventilator is suitable for almost all industrial applications. It can fully utilise its advantages, especially in daily ventilation applications. The ventilation position of 90° enables full ventilation and a special automatic rain sensor provides rain protection. The thermally separated variant reduces condensation and is therefore also suitable for use in high-humidity environments.



Smoke and heat exhaust ventilation

Smoke and heat exhaust ventilation systems are a necessary component of preventive fire protection and are stipulated in the fire protection concept. Their task is to save lives by creating a smoke-free layer above the ground. The PHOENIX double opening vent qualifies as a smoke and heat exhaust ventilation system, e.g. due to the automatic opening in case of fire via a CO₂ tag, the network-independent opening by means of a CO₂ alarm box and good aerodynamic efficiency (Aa value).



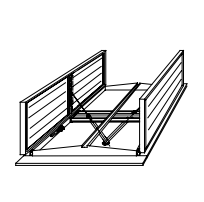
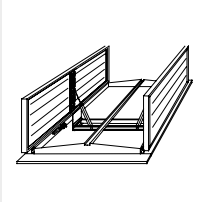
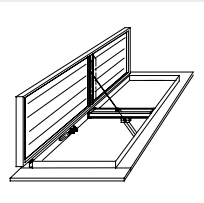
Natural lighting

In addition to the advantages of natural ventilation and smoke and heat exhaust ventilation, the PHOENIX single or double opening vent system also enables natural lighting. This can be an advantage especially in large industrial halls. The PHOENIX double opening vent from roda offers extensive daylight incidence from above, a good U-value due to the use of double-webbed panels and glare-free light incidence due to the use of opal polycarbonate panels.

Design

Since the units are manufactured to customer order, the PHOENIX single or double opening vent can be individually customised to the given requirements on site. The units are available in all lengths and widths up to 2500 x 3000 mm. Depending on the design, they meet the requirements of DIN 18232 and VdS 2159.

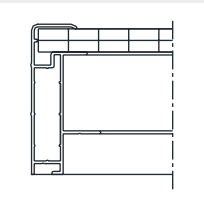
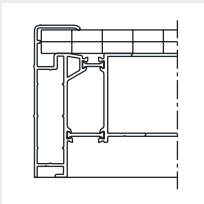
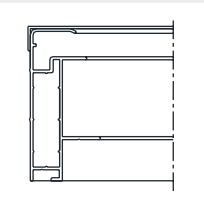
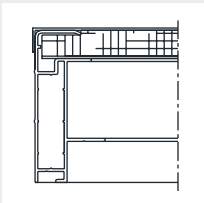
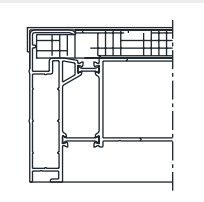
In the individual designs, all length and width dimensions are possible up to the following sizes

	<p>PHOENIX PX2</p> <ul style="list-style-type: none"> • Double opening vent or fixed • Length (mm): 1000 – 3000 • Width (mm): 1000 – 2500 	 <p>PHOENIX PX2 MKII</p> <ul style="list-style-type: none"> • Double opening vent with short cylinders • Length (mm): 1000 – 2500 • Width (mm): 1200 – 2000
	<p>PHOENIX PX1</p> <ul style="list-style-type: none"> • Single opening vent or fixed • Length (mm): 500 – 3000 • Width (mm): 500 – 1250 	<p>Furthermore, depending on the location and requirements, the most suitable variations can be selected. Especially in relation to different:</p> <ul style="list-style-type: none"> • Base connections • Flange designs

In addition, the pneumatically driven units PX1 and PX2 are tested in the corresponding version with regard to explosion protection (ATEX) of the EU Directive 94/9/EC with reference to the standards EN 1127-1, EN 13463-1 and EN 13463-5.

Glazing types

The roda cover frames are made of dimensionally stable corrosion-resistant aluminium profiles with the alloy AlMgSi05. The covers themselves can be fitted in either 16 or 25 mm polycarbonate panels or aluminium sandwich panels. The hoods are opened to a 90° position and closed again either via pneumatic cylinders or 24V linear drives. They also lock in the open and closed position.

	<p>Glazing type K2</p> <ul style="list-style-type: none"> • 16 mm polycarbonate • Clear, opal, opaque or softlite (with Lumira® insulation on request) • Up to hail protection class HR5 	 <p>Glazing type K3</p> <ul style="list-style-type: none"> • 16 mm / 25 mm – polycarbonate • Clear or opal • thermally separated
	<p>Glazing type A1</p> <ul style="list-style-type: none"> • Single-skin aluminium 	 <p>Glazing type A2</p> <ul style="list-style-type: none"> • Double-skin aluminium • insulation, isolation
	<p>Glazing type A3</p> <ul style="list-style-type: none"> • Double-skin aluminium • Thermally separated with 20 or 30 mm insulation 	

Sample applications

The PHOENIX is compatible with all continuous rooflight systems and all on-site substructures



Single unit from base on an industrial roof

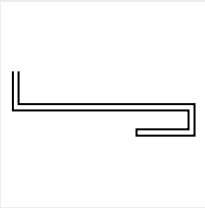


Single cover units in the ridged roof continuous rooflight



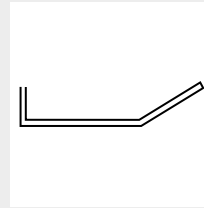
NSHEV type PHOENIX at the end of a EUROLIGHT MKIII continuous rooflight

Flange variations



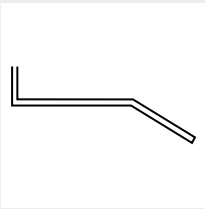
F1

- Use in glazing



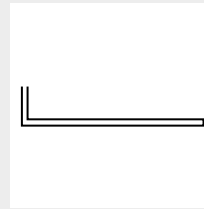
F2

- Use under profiled roof



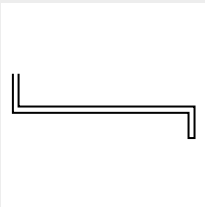
F3

- Use on profiled roof



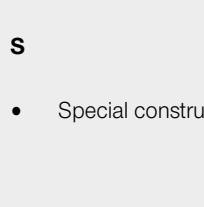
F4

- Direct bonding



F5

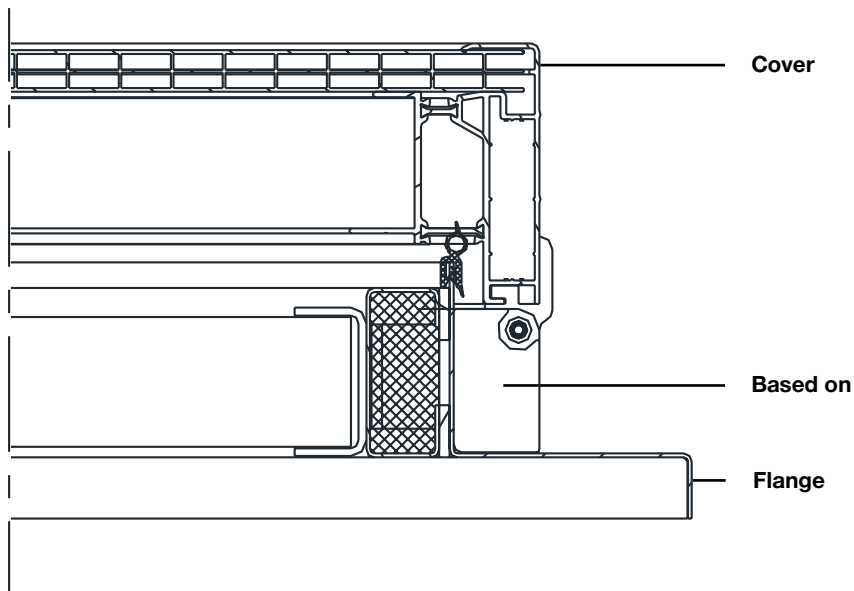
- Use on base



S

- Special construction

Product structure



SHEV designs



(Thermal) Release

Thermal releases, often also called thermal triggering devices or TTDs, are used to trigger a smoke and heat exhaust ventilation unit (SHEV) locally in the event of a fire.



Pneumatic

Pneumatically operated: via a thermal priority valve (TPV) and connected CO₂ cartridge.



Electrical

Electrically operated via a SHEV control panel with buffer accumulators.

Other technical values

U-value calculation for medium-size units without upstand

The differentiated determination of the heat transfer coefficient according to size and design with/without upstand can be determined with a calculation programme.

Based on	Cover infill	Type	Unit design	U value in W/(m ² K)
Non-insulated	Single-skin aluminium	A1	A11	6.0
	Double-skin aluminium	A2	A12	2.6
	Double-skin PC sheet	K2	K12	2.8
Insulated	Double-skin aluminium	A2	A22	2.0
	Double-skin PC sheet	K2	K22	2.3
Thermally separated	Thermally separated aluminium	A3	A33 (16 mm)	1.7
	Thermally separated aluminium	A3	A33 (25 mm)	1.4
	Lumira® double-skin PC sheet	K3	A33 (16 mm)	1.4
	Lumira® double-skin PC sheet	K3	A33 (25 mm)	1.1

Rw = weighted building sound reduction index

The weighted building sound reduction index Rw is a component-related parameter for airborne sound insulation and a characteristic value for sound insulation requirements according to the DIN 4109 standard.

Based on	Cover infill	Type	Unit design	Rw
Non-insulated	Single-skin aluminium	A1	A11	13 dB
	Double skin aluminium <i>Test for version with rock wool insulation</i>	A2	A21	19 dB 29 dB
	Double-skin PC sheet	K2	K21	16 dB
Insulated	Double-skin aluminium	A2	A22	24 dB
	Double-skin PC sheet	K2	K22	20 dB
Thermally separated*	Thermally separated aluminium	A3	A33 (16 mm)	24 dB
	Thermally separated aluminium	A3	A33 (25 mm)	26 dB
	Lumira® double-skin PC sheet	K3	A33 (16 mm)	24 dB
	Lumira® double-skin PC sheet	K3	A33 (25 mm)	24 dB

* Maximum sound insulation values up to 33 dB can be achieved

A_v values* in m²

Height in mm	Length in mm							
	1000	1300	1500	1700	1900	2100	2300	2500
1000	1	1.3	1.5	1.7	1.9	2.1	2.3	2.5
1300	1.3	1.69	1.95	2.21	2.47	2.73	2.99	3.25
1500	1.5	1.95	2.25	2.55	2.85	3.15	3.45	3.75
1700	1.7	2.21	2.55	2.89	3.23	3.57	3.91	4.25
1900	1.9	2.47	2.85	3.23	3.61	3.99	4.37	4.75
2100	2.1	2.73	3.15	3.57	3.99	4.41	4.83	5.25
2300	2.3	2.99	3.45	3.91	4.37	4.83	5.29	5.75
2500	2.5	3.25	3.75	4.25	4.75	5.25	5.75	6.25
2700	2.7	3.51	4.05	4.59	5.13	5.67	6.21	6.75
3000	3	3.9	4.5	5.1	5.7	6.3	6.9	7.5

A_a values* in m²

Height in mm	Length in mm							
	1000	1300	1500	1700	1900	2100	2300	2500
1000	0.65	0.85	0.98	1.11	1.24	1.37	1.5	1.63
1300	0.85	1.1	1.27	1.44	1.61	1.77	1.94	2.11
1500	0.98	1.27	1.46	1.66	1.85	2.05	2.24	2.44
1700	1.11	1.44	1.66	1.88	2.1	2.32	2.54	2.76
1900	1.24	1.61	1.85	2.1	2.35	2.59	2.84	3.09
2100	1.37	1.77	2.05	2.32	2.59	2.87	3.14	3.41
2300	1.5	1.94	2.24	2.54	2.84	3.14	3.44	3.74
2500	1.63	2.11	2.44	2.76	3.09	3.41	3.74	4.06
2700	1.76	2.28	2.63	2.98	3.33	3.69	4.04	4.39
3000	1.95	2.54	2.93	3.32	3.71	4.1	4.49	4.88

*Values may vary with different installation positions



Special version with raised upstand.



K+S MINERALS AND AGRICULTURE GMBH

Project:

The saline air in the building reacts aggressively on the metals of the installed SHEV systems. Therefore, the existing rooflight domes were replaced with roda double opening vent units to prevent eroded parts from failing.

Systems:

- 16 roda PHOENIX double opening vent systems with special duplex coating
- Pneumatic cylinder with hard chrome-plated piston rod and a protective cover over the manual release
- Piping made of an 8 mm thick, plastic-coated copper pipe

DAIMLER AG BERLIN BUILDING 40

Project:

During a roof renovation, the skylights, which had become dilapidated over the years, were to be replaced together with the integrated SHEV systems. It should also be possible to use the new elements for daily ventilation.

Systems:

- A total of 36 EUROLIGHT MKIII barrel skylights with integrated PHOENIX SHEV and ventilation systems (creating a total aerodynamically effective opening surface area of 421 m²)



Smoke and Heat Exhaust Ventilation Systems







Smoke and heat exhaust ventilation systems are a necessary component of preventive fire protection. Their task is to save lives by creating a smoke-free layer above the ground. At the same time, they ensure the protection of material assets and the immediate extinguishing of the fire through the removal of smoke.

SHEV systems contribute to this like no other fire protection measure:

- Keep rescue and firefighting routes clear
- Facilitate firefighting by creating a smoke-free layer
- Avoid flashover and thus the full fire
- Protect facilities
- Reduce consequential fire damage caused by fire gases and thermal Decomposition products
- Avoid exposing components to fire

Temperature parameters according to DIN EN 12101-2 and test results

Our NSHEVs reliably open into the SHEV position in less than 60 seconds...

	...and ensure high smoke discharge volumes	Flow rate coefficient C_v between 0.45 and 0.67 Aerodynamically effective opening area A_w between 0.15 m ² and 4.88 m ²
	...after endurance test – 1,000 times in SHEV position and 10,000 times in ventilation position	RE 1000 Ventilation 10,000
	...under snow load	up to SL 6966
	...down to indoor temperature of -15 °C	T (00), T (-05) and T (-10)
	...after suction loads caused by wind	WL 1500 to WL 3000
	...when exposed to fire	B300



Accessories

The PHOENIX double opening vent system from roda can be equipped with accessories on customer request, which bring further efficient advantages for the operator.



Fall-through protection grating

- Approved fall-through protection according to GS-Bau 18
- No reduction in the aerodynamically effective smoke ventilation area



Insect and bird protection grating

- Optimal protection for hygienic operations
- Made of durable material which is easy to clean
- Easy access, also available as a drawer
- Tested for aerodynamic influence



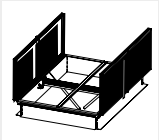
Electric drive

- Available as a 24 V version
- Electric linear drive
- Suitable for daily ventilation
- 2A | 4A single opening
- 4A | 8A double opening



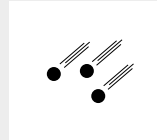
Pneumatic crosshead

- End locking in open and closed positions
- Tested for explosion protection (ATEX) (only PHOENIX)
- Suitable for daily ventilation



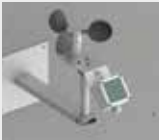
Night flap

- For halls where skylights are not required



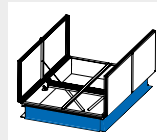
Hail protection

- Composite glazing with hail protection class HR5 available



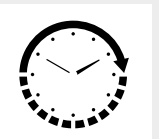
Wind and rain sensors

- For automatic closing in wind and rain
- Operated as a group and individually
- Flaps can open even under high wind speeds



Paint coating in RAL

- Customised powder coating for special requirements



Timer for night cooling

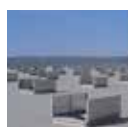
- For energy-efficient building air conditioning

Base

- PHOENIX: made of aluminium alloy AlMg3
- Thermal separation is possible
- Waterproofing with vulcanised EPDM profile seals
- Fastening with tension locks or screw connections + sealing washer



Scan this to discover more about
roda systems!



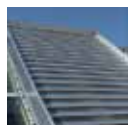
PHOENIX AND MEGAPHOENIX



FIREFIGHTER



VENTURISMOKE VS1/VS2



SMOKEJET AND MULTIJET



SMOKE CURTAINS



LOUVER WINDOWS



DAYLIGHT TECHNOLOGY



NATURAL AND MECHANICAL
VENTILATION



SMOKE AND HEAT
EXHAUST VENTILATION



RENOVATION



MIROTEC GLASS AND
METAL CONSTRUCTIONS



LAMILUX DAYLIGHT SYSTEMS

The technical data listed in this brochure correspond to the current status at the time of printing and are subject to change. Our technical data refer to calculations, supplier information or have been determined by an independent testing institute in the course of a test in accordance with the applicable standards. The heat transfer coefficients for our plastic glazing were calculated using the "method of the finite elements" with reference values according to DIN EN 673 for insulating glass. In doing so, the temperature difference of 15 K between the outer surfaces of the material was defined, taking into account practical experience and the specific characteristics of the plastic. The functional values refer only to test pieces in the dimensions intended for the test. No further guarantee for technical values is given. This applies in particular to changed installation situations or if subsequent measurements are made on the building site.



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