

VENGEN²⁸ NSHEV

Natural Smoke & Heat Exhaust Ventilator



QUICK FACTS

- Dual purpose natural smoke and heat exhaust ventilator
- 0.55 aerodynamic discharge coefficient
- UKCA marked to EN12101-2
- Automatic operation
- Double glazed
- Thermal U value of 2.1w/m²k
- Thermally broken
- Acoustic rating 38dB (Rw)



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Technical description

Design

The VENGEN²⁸ NSHEV is a dual purpose natural smoke & heat exhaust ventilator designed for automatic opening in a vertical external wall. The VENGEN²⁸ NSHEV has been tested and certified to EN-12101-2:2003.

The product may not be used for anything other than its intended use.

The VENGEN²⁸ NSHEV is a vertically mounded aluminium louvre framed window assembly comprising of thermally broken aluminium double glazed louvre window in arrays of three to seven blades. Available in bespoke sizes up to 1.5m (w) x 2.0m (h); supplied in an extensive range of colours and finishes and with a choice of frame border options to fit most applications, such as curtain walling and brick-block structural openings.

The VENGEN²⁸ NSHEV has been designed with slimmer sections and attractive mitre joints that add visual appeal without compromising performance making it the ideal product for façade construction, schools, office buildings, winter gardens and various other applications.

ISO 9001 and ISO 14001 registered.

Materials

Frame and glazing bars

To give a high quality finish, the VENGEN²⁸ NSHEV frame and louvre blade sections are made from extruded aluminium grade 6063T6 alloy, to BS EN 755 standard.

Thermal break material is made from extruded polyamide 6.6 reinforced glass fibre.

To give added air and water tightness, a rubber 'flipper' seal is fitted to the glazing bars, with brush seals for the jamb sections.

Glass

The double glazed thickness of 28mm gives excellent thermal performance.

For safety we provide a range of laminated or toughened glass options as listed below:

Finish

To give you choice and longer life, VENGEN²⁸ NSHEV is available in a wide range of polyester powder coated colours, which includes a range of anodic (anodised effect) powders.

Approved Architectural Applicator of Interpon D Products on Architectural Aluminium Substrates
Conforming to: BS EN 12206:2004 Part 1

Pre-treatment & powder coating is achieved in accordance with the Qualicoat guidelines by a Qualicoat approved applicator.

Architectural aluminium powder ranges available:

- Interpon D1036 Range (Qualicoat Class 1)
- Interpon D1036 Textured Range (Qualicoat Class 1)
- Interpon D2525 Range (Qualicoat Class 2)
- Interpon D2525 Anodic Range (Qualicoat Class 2)
- Dylac Tiger Paints (Qualicoat Class 1)

Others are available on request & technical review

Every powder coated colour is also available with a gloss level.

Some gloss levels form part of a standard range of colours, others are special order colours. The range of gloss levels offers shades such as:

- Matt
- Satin (semi-gloss)
- Gloss

INNER	FILL	OUTER
6.4mm clear laminated	16mm spacer bar air cavity	6.4mm clear laminated
6.4mm clear laminated low "e"	16mm spacer bar air cavity	6.4mm clear laminated
6.4mm clear laminated	16mm spacer bar argon cavity	6mm clear toughened soft coat low "e"
6mm clear toughened low "e"	16mm spacer bar argon cavity	6mm clear toughened
6mm clear toughened low "e"	16mm warm edge argon cavity	6mm clear toughened

Actuator

VENGEN²⁸ NSHEV is provided with a D+H Mechatronic 24V LDN programmable linear actuators.

The drive allows variable opening and closing for daily ventilation, whilst also being suitable for smoke ventilation. (DUAL PURPOSE)

Actuators are compatible with most BMS or fire safety systems or can be used in a with our own in-house controls.

Power supply	24 V DC / $\pm 15\%$ / 0,8 A
Nominal force	Nominal force 900 N
Nominal stroke	28 mm
Running time (OPEN)	≤ 35 sec.
Ingress protection	IP 50
Duty cycle	30 %, With cycle time 10 minutes
Housing Stainless steel	Housing Stainless steel
Temperature range	-5 ... +75°C
Fire stability	30 min / 300°C
Emission sound pressure level	LpA ≤ 70 dB(A)
Additional functions	Closing edge protection activated, 3 stroke repeating



Planning

The VENGEN²⁸ NSHEV is a Dual purpose natural smoke & heat exhaust ventilator designed for automatic opening in a vertical external wall. Tested and certified to EN-12101-2:2003. Dual purpose means the product has been tested for day to day ventilation in addition to natural smoke & heat exhaust ventilation.

It is important to note this product is not suitable for:

- Smoke shaft application
- Horizontal roof mounted application
- Sloping roof application.

VENGEN²⁸ NSHEV is delivered fully assembled, with the glass supplied separately. This allows for ease of handling and installation. Glazing gasket is used to fit the glass and makes for easier 'mastic free' replacement should breakages occur. The technical benefits of VENGEN²⁸ NSHEV mean that considerably smaller openings are required than for traditional bottom hung/side hung windows, giving design and architectural flexibility. For full installation information please reference the installation, operation and maintenance manual available on our website.

Installation & Maintenance

When you need the security of a fully contracted solution we can provide our dedicated installation team. This service provides a competitive fixed cost and risk free supply and installation service. With a strong focus on communication and superb customer service, we are able to work in all possible site environments, diligently undertaking all risk assessments, method statements and health and safety considerations are a routine part of our working culture.

For full Installation & Maintenance information please reference the installation, operation and maintenance manual available on our website.

Environment

Our standard powder coating process is suitable for environments up to C4 external classification ISO 12944-2

Upon request. Swegon can offer guarantees of up to 25 years on coatings.

Technical data

Air Leakage at 50 Pa	Area of louvre 0.6m ³ /h/m ² Class 4 length of joint 0.1m ³ /h/m Class 4
Water Leakage	Zero leakage up to 150pa
Thermal value U	Up to 2.1w/m ² k
Maximum acoustic rating	Up to 38dB (Rw)
Impact test	Class 5 to BS EN 13049:2003 (c/w toughened laminated glass & restrictor bars)
Barrier test	Horizontal UDL - Pass point load - Pass to BS 6180 : 2011 and BS 6399 - 1: 1996 (with restrictor bars)

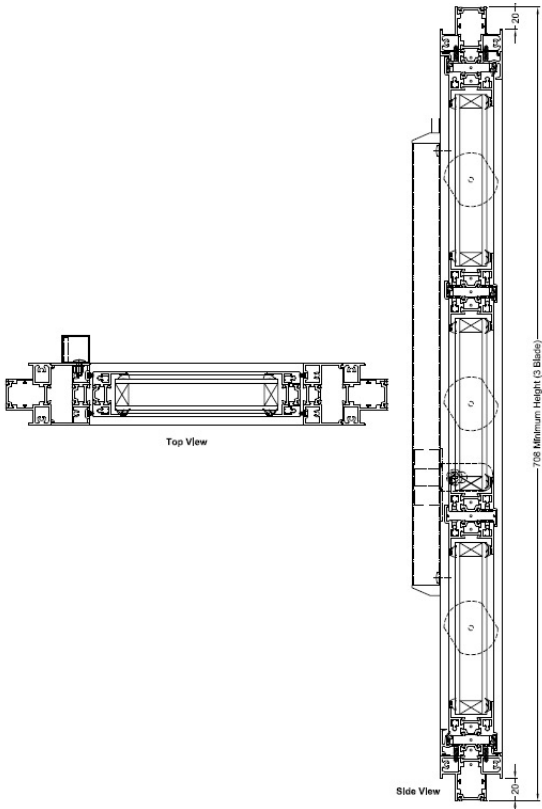
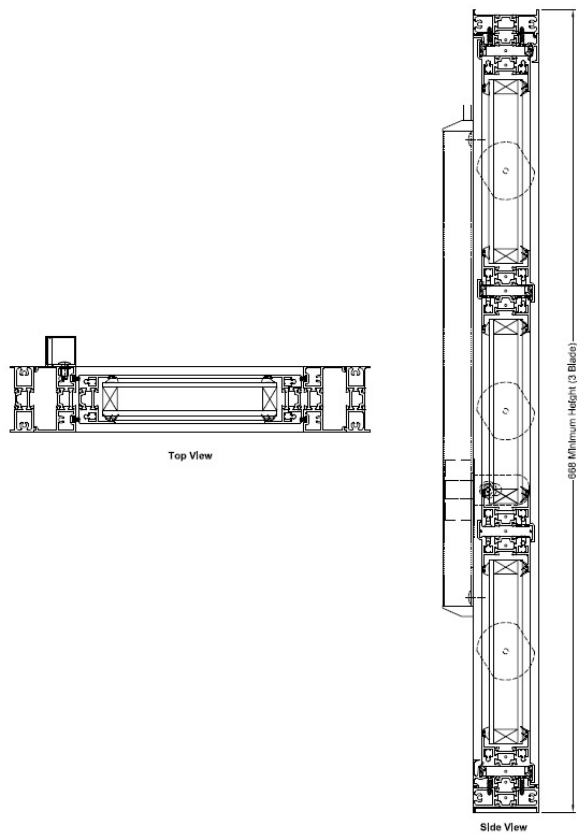
Sizing, Dimensions & Weights

- Geometric free area is defined for VENGEN²⁸ NSHEV as 'the unobstructed area measured in the plane of the flow where the area is at a minimum and at a right angle to the direction of flow.
- The aerodynamic discharge coefficient (without side wind), has been determined by testing in accordance with EN12101-2 Annex B.
- The aerodynamic discharge coefficient (Cv0) as defined by EN12101-2 is 0.55.
- The calculations do not make for allowances for bulkheads or other structural obstructions. Please take into consideration any obstructions in regards to free area.
- The VENGEN²⁸ NSHEV is available in many other sizes. Please consult our technical office
- for further geometric & aerodynamic free areas
- The calculations exclude restrictor bars. For calculations with restrictor bars, please contact our office.
- Calculations are based on vents being opened fully.

EQ Frame		28CH Glazing Frame		Blades	GEOMETRIC FREE AREA (m ²)	AERODYNAMIC FREE AREA (m ²) Aa	Weight (Kg) Frame only	Weight (Kg) Glazed
W	H	W	H					
240	668	280	708	3	0.05	0.04	7.2	8.8
500	668	540	708	3	0.17	0.13	10.7	15.6
500	967	540	1007	3	0.28	0.19	14.1	22.4
500	968	540	1008	4	0.27	0.19	14.1	21.9
500	1000	540	1040	4	0.28	0.20	14.2	22.7
500	1267	540	1307	4	0.38	0.26	14.5	25.4
500	1268	540	1308	5	0.36	0.26	14.5	24.8
500	1500	540	1540	5	0.45	0.31	16.1	29.5
500	1567	540	1607	5	0.48	0.32	16.7	30.9
500	1568	540	1608	6	0.46	0.32	17.5	31.1
500	1750	540	1790	6	0.53	0.36	21.3	37.1
500	1867	540	1907	6	0.57	0.38	22.3	39.4
500	1868	540	1908	7	0.56	0.38	22.3	38.9
500	2000	540	2040	7	0.60	0.41	23.6	41.7
1000	668	1040	708	3	0.39	0.29	14.7	25.9
1000	967	1040	1007	3	0.65	0.44	19.9	39.0
1000	968	1040	1008	4	0.61	0.44	19.9	37.8
1000	1000	1040	1040	4	0.64	0.45	20.5	39.2
1000	1267	1040	1307	4	0.88	0.58	22.0	47.8
1000	1268	1040	1308	5	0.84	0.58	22.0	46.6
1000	1500	1040	1540	5	1.04	0.70	25.5	56.3
1000	1567	1040	1607	5	1.10	0.73	26.5	59.1
1000	1568	1040	1608	6	1.06	0.73	29.5	60.1
1000	1750	1040	1790	6	1.20	0.82	32.3	68.4
1000	1867	1040	1907	6	1.30	0.88	34.0	73.3
1000	1868	1040	1908	7	1.28	0.88	34.0	72.1
1000	2000	1040	2040	7	1.40	0.94	36.0	77.6
1250	668	1290	708	3	0.50	0.37	17.6	31.9
1250	967	1290	1007	3	0.84	0.56	21.1	45.6
1250	968	1290	1008	4	0.79	0.56	21.2	44.1
1250	1000	1290	1040	4	0.82	0.58	21.8	45.8
1250	1267	1290	1307	4	1.12	0.75	26.8	59.9
1250	1268	1290	1308	5	1.07	0.75	26.8	58.3
1250	1500	1290	1540	5	1.33	0.89	31.1	70.6
1250	1567	1290	1607	5	1.41	0.94	32.4	74.1
1250	1568	1290	1608	6	1.36	0.94	35.4	75.6
1250	1750	1290	1790	6	1.56	1.05	36.6	83.0
1250	1867	1290	1907	6	1.70	1.12	38.7	89.0
1250	1868	1290	1908	7	1.64	1.12	38.7	87.5
1250	2000	1290	2040	7	1.79	1.21	41.0	94.3
1500	668	1540	708	3	0.61	0.45	18.0	35.5
1500	967	1540	1007	3	1.02	0.68	24.8	54.7
1500	968	1540	1008	4	0.96	0.68	24.8	52.8
1500	1000	1540	1040	4	1.00	0.71	25.5	54.8
1500	1267	1540	1307	4	1.37	0.91	31.5	71.9
1500	1268	1540	1308	5	1.31	0.91	31.5	70.0
1500	1500	1540	1540	5	1.63	1.09	34.5	82.6
1500	1567	1540	1607	5	1.72	1.14	35.9	86.8
1500	1568	1540	1608	6	1.66	1.14	38.9	88.0
1500	1750	1540	1790	6	1.91	1.28	42.8	99.3
1500	1867	1540	1907	6	2.07	1.37	45.2	106.7
1500	1868	1540	1908	7	2.01	1.37	45.2	104.8
1500	2000	1540	2040	7	2.19	1.47	48.0	113.0

Equal Frame

28CH Glazing Frame



Order key

Composite Reference: VENGEN28 NSHEV/EQ/L21/RH/STD/DH/DGU/N/1000/1800/PPC/7016/MATT/PPC/7016/MATT

Diffuser order Key													DUAL COLOUR			
Order example : VENGEN 28 NSHEV													13	14	15	
Frame Type:																
EQ																
28CH																
32CH																
Fixing type:																
DF																
L21																
FL1																
FL2																
Handling:																
RH																
LH																
Blade Qty:																
STD																
Drive Option:																
DH																
Blade Type:																
DGU																
Restrictor Bars:																
Y																
N																
Overall Width:																
240mm																
1500mm																
Overall Height:																
668mm																
2000mm																
Finish:																
M																
PPC																
SPC																
NA																
Colour:																
RAL 7015																
RAL 7016																
RAL 7021																
RAL 7037																
RAL 7042																
RAL 5011																
RAL 9005																
RAL 9010																
RAL 9016																
For other standard colour please consult our office																
Gloss level:																
MATT																
SATIN																
GLOSS																
D U A L C O L O U R	Internal Finish:															
	M															
	PPC															
	SPC															
	NA															
	Internal Colour:															
	RAL 7015															
	RAL 7016															
	RAL 7021															
	RAL 7037															
	RAL 7042															
	RAL 5011															
	RAL 9005															
	RAL 9010															
	RAL 9016															
	For other standard colour please consult our office															
	Internal Gloss level:															
MATT																
SATIN																
GLOSS																

Specification example

Dual Purpose Natural Smoke and Heat Exhaust Ventilator for use in the external façade of a building

0.55 Aerodynamic discharge coefficient (Cv0) as defined by EN12101-2

Zero water leakage up to 150 pa

Thermal U value of 2.1w/m²k

Thermally broken frame and louvre blades

Acoustic rating of 38dB (Rw)

Class 5 impact test to BS EN 13049: 2003 with toughened glass & restrictor bars

Horizontal UDL – Pass, Point load – Pass to BS 6180: 2011 and BS 6399 – 1: 1996

Declared Performance to BS EN12101-2:2003 Smoke and Heat Exhaust Ventilators Part 2, Specification for Natural Smoke and Heat Exhaust Ventilator

Nominal activation conditions	
Initiation device	Present
Opening Mechanism	
Inputs & outputs	
Response delay	
Reliability	<60 seconds
Low ambient temperature	
Opening under heat	
Operational reliability	
Reliability	Re 1000, plus 10,000 cycles to meet requirements of dual purpose ventilator
Effectiveness of smoke / hot gas extraction	
Aerodynamic free area	Aa = ____ m ²
Performance parameters under fire conditions	
Resistance to heat	B ₃₀₀ 30
Mechanical stability	$\Delta A_{thrust} < 10\%$
Reaction to fire	E
Performance parameters under Environmental conditions	
Low ambient temperature	T (-0.5)
Stability under wind load	WL 1500
Resistance to heat: B ₃₀₀ 30	B ₃₀₀ 30
Durability	
Response delay	<60 seconds
Operational reliability	Re1000
Performance parameters under fire conditions	<60 s; $\Delta A_{thrust} < 10\%$

Technical file at: Swegon Ltd, Unit D, Vantage Point, Snodland, Kent, ME6 5SL

Specification example

Powder coat Finish

The powder coating will be a: Polyester Powder Interpon D to EN12206-1 or Qualicoat Class 1 and Manufactured by Akzo Nobel to ISO 9001 (9002)
The colour shall be [RAL_____] from the Interpon D_____ range.

Applicator Requirements: The powder coating application shall be carried out by an Interpon D Approved Applicator only in accordance with EN12206-1 or Qualicoat. Only one coating plant shall be used for the Works along with one batch of powder, unless otherwise accepted by the Client.

Reaction to Fire: The Powder Coating, when tested to EN 13501-1;2018 shall achieve an A2, s1-d0 rating.