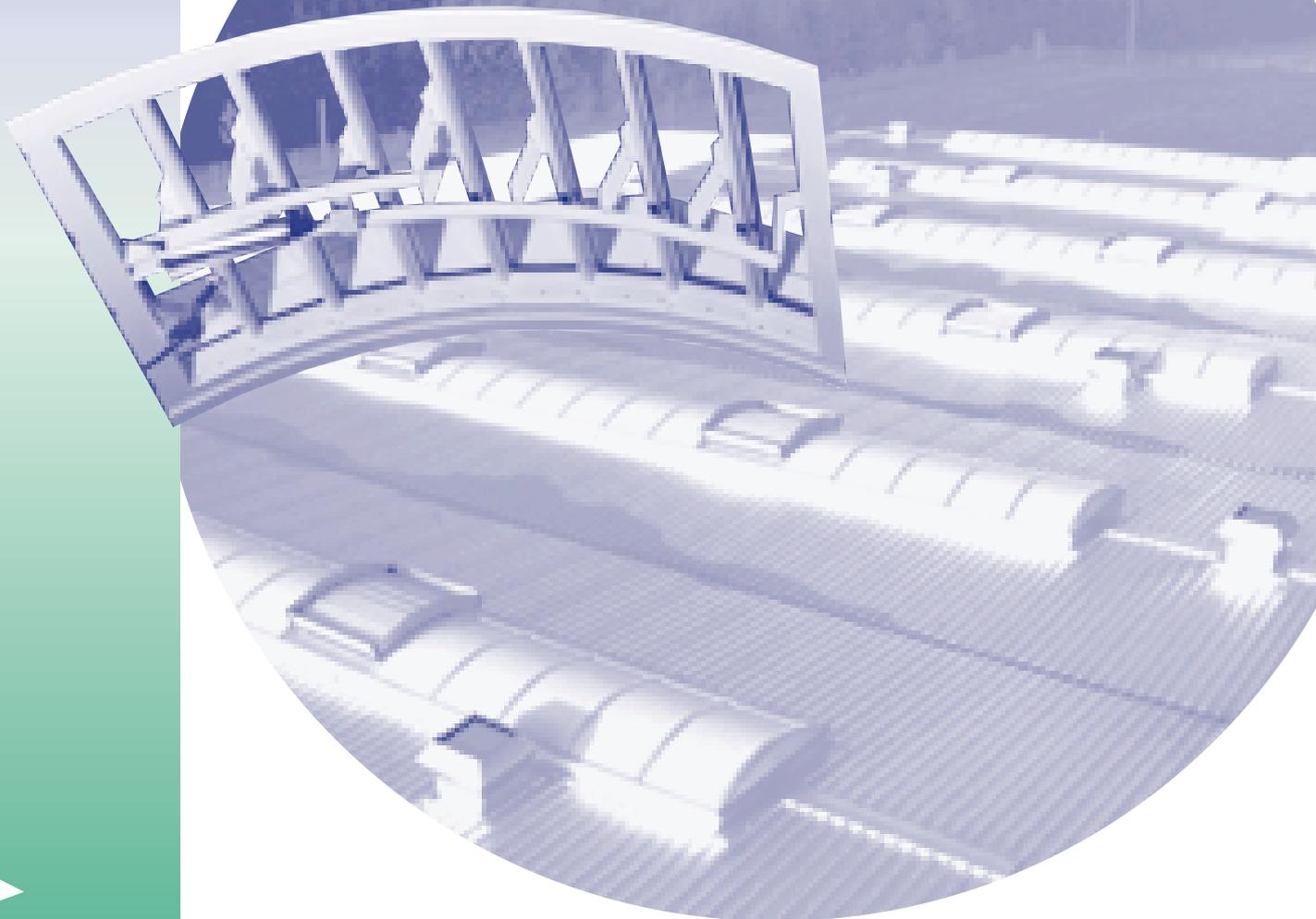


NKV - TB

HIGH PERFORMANCE PROFILED ROOF LOUVRE

- Natural ventilation
- Smoke ventilation
(Smoke and heat exhaust)
- Daylighting, with double glazed louvres
- Designed for installation in Circular Section Roof lights
- Superior acoustic and air loss performance

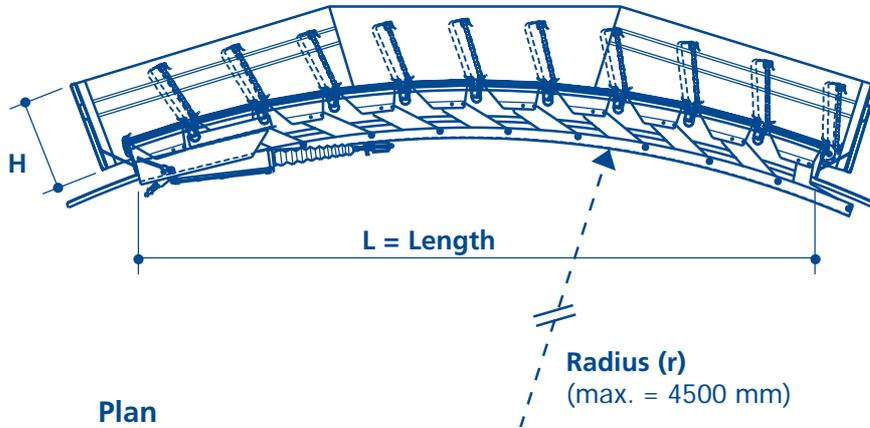


Bovema 
Konstrukties B.V.

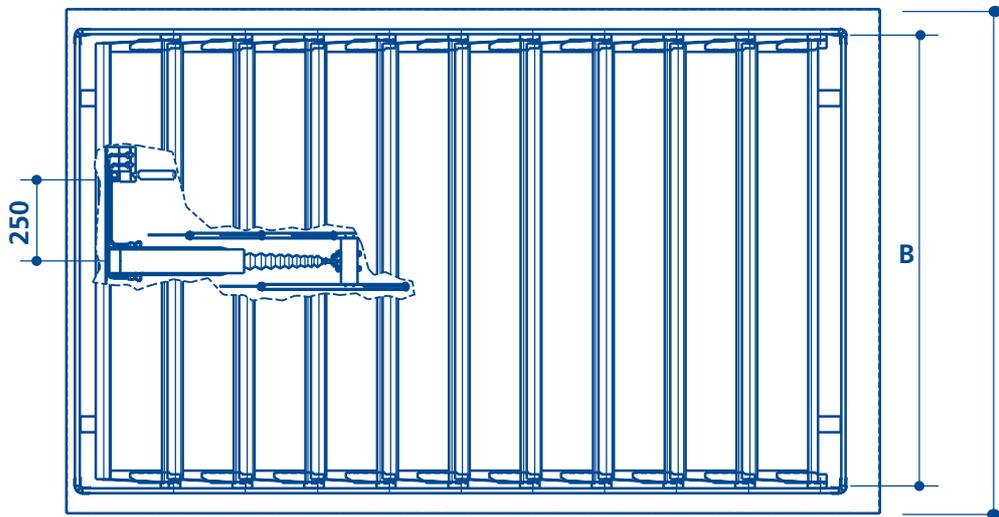
Bovema Konstrukties B.V. is a member of the international Bovema Beheer Group

TECHNICAL INFORMATION

Side elevation



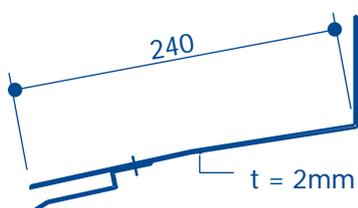
Plan



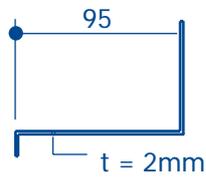
Low base standard design

Single skin aluminium

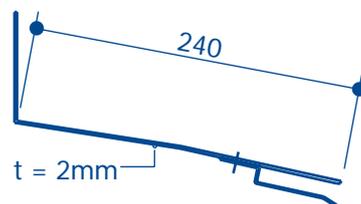
Lower profile



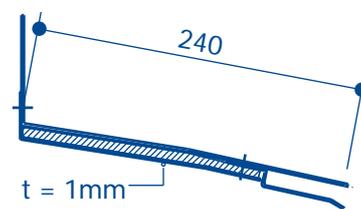
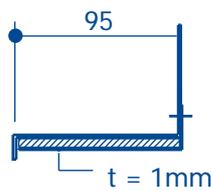
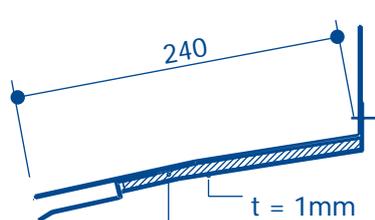
Side profile



Lower



Thermal insulation, double skin aluminium



Insulation thickness = 8mm



Lloyds Quality Assurance audits the production process and management systems twice each year.

TYPE NKV - TB

Louvred ventilator

Type NKV-TB (low base) single skin aluminium

Geometric surface in m², with radius 3000 mm → nr. of blades

Type	4	5	6	7	8	9	10	11	12	B (mm)
100	0.85	1.07	1.29	1.51	1.72	1.93	2.14	2.53	2.55	1010
130	1.11	1.39	1.68	1.96	2.23	2.51	2.78	3.05	3.31	1310
160	1.36	1.71	2.06	2.40	2.75	3.08	3.42	3.75	4.07	1610
190	1.62	2.03	2.44	2.85	3.26	3.66	4.05	4.44	4.83	1910
220	1.87	2.35	2.83	3.30	3.77	4.23	4.69	5.14	5.59	2210
L(mm)	849	1066	1282	1496	1708	1918	2125	2329	2530	

$$L \text{ (mm)} = 2 \times r \times \sin \left\{ \left[\left((nx220) - 28 \text{mm} \right) \times 28.65 \right] / r \right\}$$

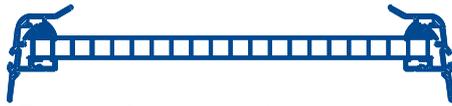
$$B \text{ (mm)} = (\text{Type} \times 10) + 10 \text{mm}$$

$$A_g \text{ (m}^2\text{)} = L \text{ (m)} \times B \text{ (m)}$$

Louvre specification, Blade specifications



Georgian wired, toughened or laminated glass
K = 5.6 W/m²K (U value) ± 90 % light transmission



Translucent polycarbonate clear or opal,
with 10mm thermal insulation
K = 3.0 W/m²K (U value) ± 79% - 50% light transmission



Translucent polycarbonate, clear or opal,
with 16mm thermal insulation
K = 2.4 W/m²K (U value) ± 79% - 50% light transmission



Double Glazed, 18 mm or 20 mm or 22 mm,
sealed glass units
K = 1.4 - 3.0 W/m²K ± 90% light transmission



Aluminium Sandwich (Alusandwich),
with 10 mm thermal insulation
K = 1.9 W/m²K (U value)



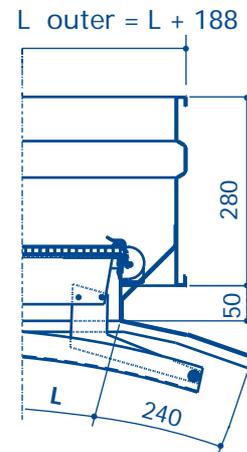
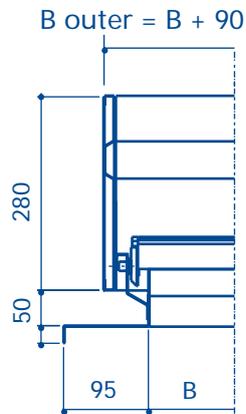
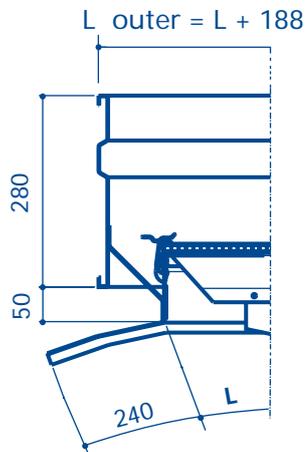
Aluminium Sandwich (Alusandwich),
with 16 mm thermal insulation
K = 1.4 W/m²K (U value)



Single skin aluminium, 1.8mm thick
K = 5.7 W/m²K (U value)



Double skin aluminium, with 20mm thermal insulation
K=1.4 W/m²K (U value)



General information

DESCRIPTION

The **Bovema** NKV-TB louvred ventilator is designed to provide an economic, non-powered method of ventilation, allowing the removal of large quantities of warm air and / or smoke. The NKV-TB ventilator is specifically designed for installation into continuous circular section roof lights, where the unique circular section base profile of the louvre allows the ventilators to follow the curve of the rooflight. Extruded aluminium blades ensure a product which matches the lines of the roof light construction. Each low profile ventilator is manufactured to NEN-EN-ISO 9002 quality control standards and is designed and tested to comply with various national standards for smoke ventilators such as BS: 7346: Pt 1: 1990 in the UK and DIN 18232 in Germany. The construction is formed from high quality, corrosion resistant aluminium to ensure low maintenance, with various methods of operation, including pneumatic or electric, to provide for a wide range project applications.

OPERATING PRINCIPLES

Warm air in a building rises due to thermal convection. Large quantities of warm air and / or smoke can be removed from a building using this natural ventilation principle. The system consumes no electrical power to extract the air and the ventilation effect may be increased by external wind action. NKV-TB ventilators are used to provide daily ventilation and / or smoke and heat evacuation in case of fire. The operating systems may be enhanced by the addition of facilities such as rain or wind sensing systems, which ensure the building is protected even if the outside environmental conditions change. As a high performance operable ventilator, the NKV-TB blades are fitted with weather resistant EPDM seals to form an airtight unit for maximum energy efficiency. A rainwater gutter at each blade junction sheds water to either side of the louvre box, for removal by an external drainage system. This ensures a waterproof internal construction at all times and all the louvre-operating mechanisms are contained within this protected area to minimise maintenance requirements. The overall design, with extruded aluminium profiles plus high thermal or sound reduction performance makes this the ideal product for technically sensitive buildings.

APPLICATION

Buildings with curved rooflight constructions where high performance units are required for thermal insulation, acoustic insulation or protection against condensation. Where daily ventilation or smoke extract in the event of a fire is required. Typical installations include Atria, Shopping Centres, Sports Centres, Offices, Apartment Buildings and Hotels.

SPECIFICATION

Louvres:

- 1.8 mm single skin extruded aluminium
- 10 mm thermal insulation, double skin aluminium
- 20 mm thermal insulation, double skin aluminium
- 6 mm single laminated, toughened or wired glass.
- 18 – 22 mm double glazed units (various constructions)
- 10 mm clear or opal, twin wall polycarbonate
- 16 mm clear or opal, twin wall polycarbonate

Frame/housing; single skin aluminium / Double skin aluminium, thermal insulation

CONTROLS

NKV – TB louvres are normally operated from a remote control panel via: -Pneumatic two pipe systems with actuators, which lock, in the open and closed positions. Individual one-shot glass bulb and CO₂ emergency actuation, operating at a temperature selected to suit the project requirements, 68, 93, 110 or 140 Deg. C. 230 V A/C or 24 V D/C electric actuator operations with fusible link and spring type fire set for emergency operation if required. Control panels with protected mains / battery operated systems plus pipe work / wiring as required may also be provided.

MATERIALS

Corrosion resistant aluminium sheet material from AlMg3 alloy. Extruded aluminium profiles from AlMgSi 0.5 alloy. All fixings are in stainless steel and seals are weather resistant EPDM.

GENERAL

NKV-TB louvre ventilators are supplied fully assembled and each unit is test operated before despatch. The standard unit is manufactured in natural mill finished aluminium but a Polyester Powder Paint finish to any available RAL colour from the Bovema range may be provided. Other optional items such as bird screens, insect mesh, sound attenuators, sprinkler shields and open / close location switches are also available. The Louvre base units and fixing flanges are of fully welded construction with final flange sizes being fabricated to suit individual project requirements. The lightweight construction and wide range of base profiles, allows the NKV-TB louvred ventilator to be installed onto almost any type of circular section roof construction.

SERVICE

The Bovema group offers a comprehensive service covering the specification and installation of our products.

Bovema 