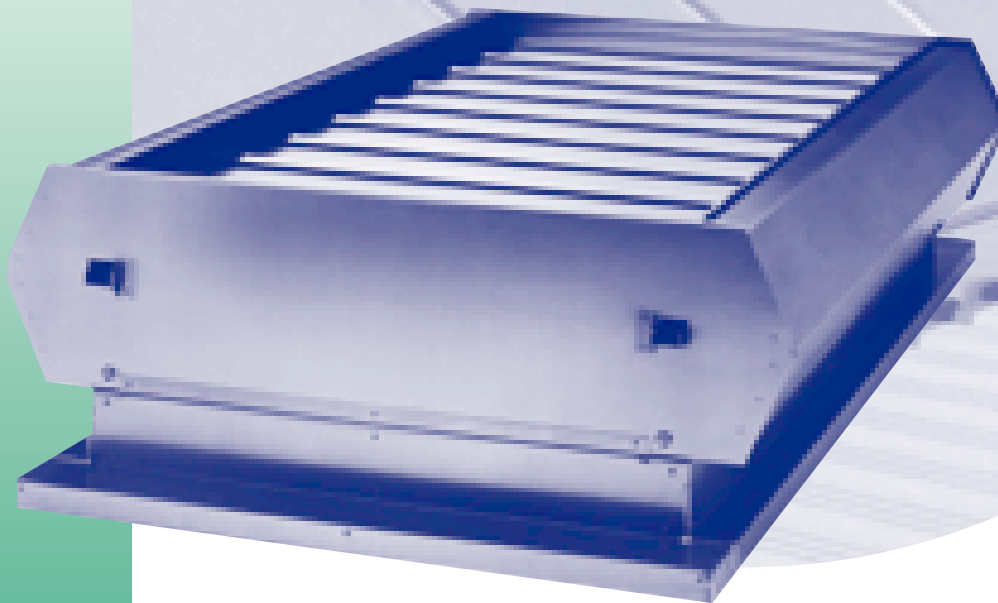


# NKV - RT

## HIGH PERFORMANCE ROOF LOUVRE WITH WEATHERED SIDE VENTILATORS

- Natural ventilation
- Smoke ventilation / Smoke and heat exhaust
- Weather resistant daily ventilation
- Daylighting with double glazed louvres
- Superior insulation and air loss performance

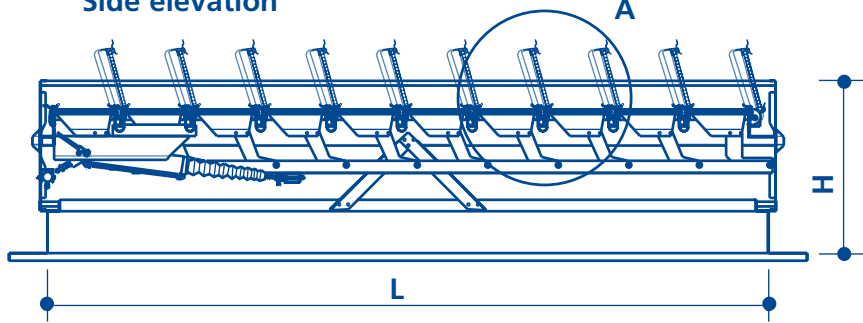


**Bovema**   
*Konstrukties B.V.*

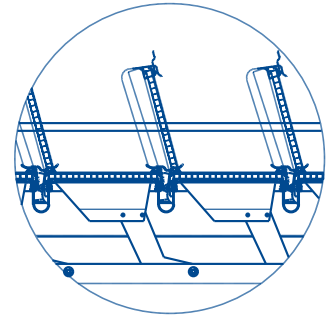
Bovema Konstrukties B.V. is a member of the international Bovema Beheer Group

# TECHNICAL INFORMATION

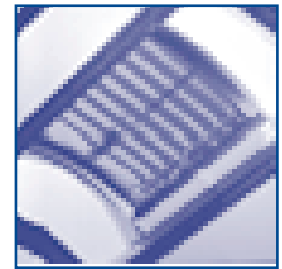
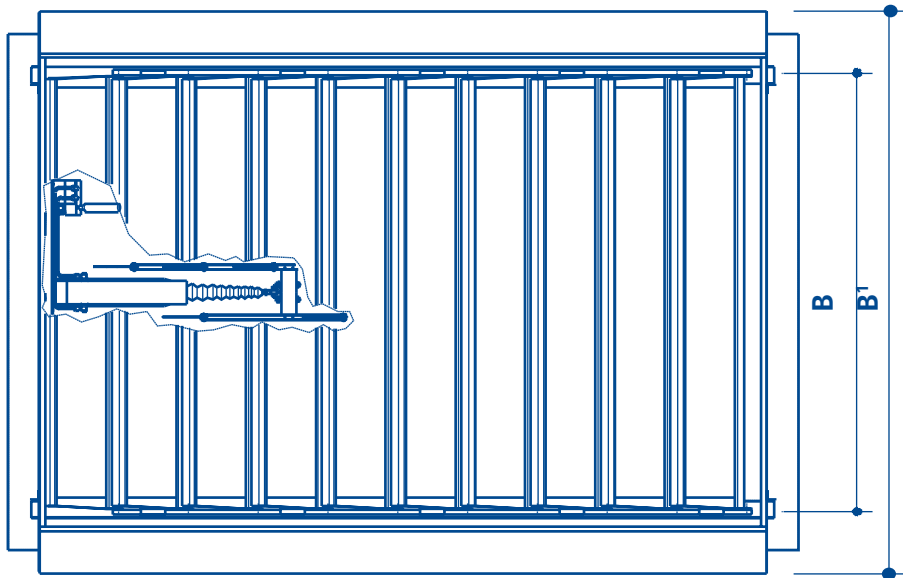
Side elevation



Detail A



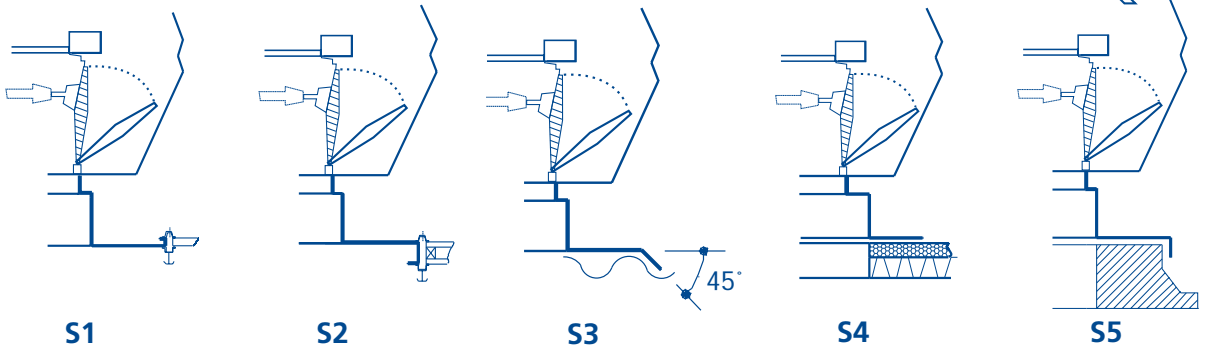
Plan



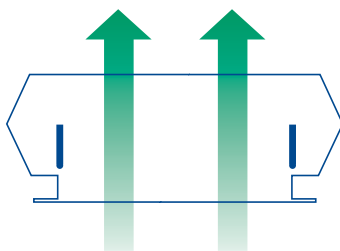
Type 150 :  $B^1 = B + 380 \text{ mm}$

Type 300 :  $B^1 = B + 630 \text{ mm}$

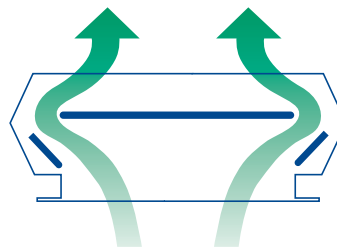
Flange details S1.. S5



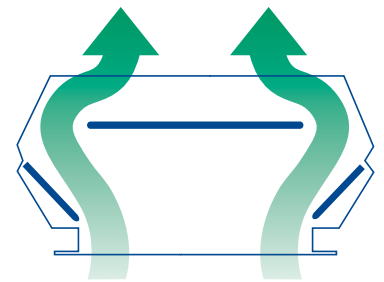
- High base constructions can be made to any roof opening size.



Daily ventilation  
Smoke / fire ventilation



Weathered ventilation  
with type 150 side units



Weathered ventilation  
with type 300 side units

- The top louvre may be replaced with a solid translucent fixed panel and the side ventilator dampers may be omitted.



# TYPE NKV - RT

## Louvred ventilator with damper controlled side sections.

Type NKV-RT (high base) single skin aluminium.

Geometric area (top louvre) Ag.m<sup>2</sup>

nr. of blades →

Type	3	4	5	6	7	8	9	10	11	B (mm)
50	0.41	0.54	0.67	0.79	0.92	1.05	1.18	1.31	1.43	580
75	0.59	0.77	0.95	1.14	1.32	1.50	1.68	1.87	2.05	830
100	0.77	1.00	1.24	1.48	1.72	1.95	2.19	2.43	2.67	1080
130	0.98	1.28	1.59	1.89	2.19	2.50	2.80	3.11	3.41	1380
160	1.19	1.56	1.93	2.30	2.67	3.04	3.41	3.78	4.15	1680
190	1.41	1.84	2.28	2.71	3.15	3.58	4.02	4.46	4.89	1980
L(mm)	710	930	1150	1370	1590	1810	2030	2250	2470	

Type	Geometric area (side ventilators) Ag.m <sup>2</sup>										low base - high base		H in mm	
150	0.21	0.27	0.33	0.39	0.46	0.52	0.58	0.64	0.70			405	605	
300	0.36	0.46	0.57	0.67	0.79	0.89	0.99	1.10	1.20			555	755	

$L \text{ (mm)} = (n \times 220) + 50$      $B \text{ (mm)} = (\text{Type} \times 10) + 80$      $Ag \text{ (m}^2\text{)} = L \text{ (m)} \times B \text{ (m)}$      $n = \text{Nr. of blades}$

### Louvre Blade Specification



Georgian wired, toughened or laminated glass  $K = 5.6 \text{ W/m}^2\text{K}$  (U value)  
± 90 % light transmission



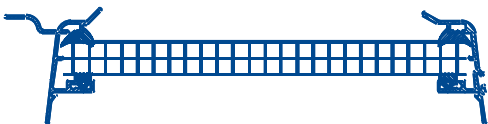
Aluminium sandwich (Alusandwich), with 10 mm thermal insulation  $K = 1.9 \text{ W/m}^2\text{K}$  (U value)



Translucent polycarbonate, clear or opal, with 10mm thermal insulation  $K = 3.0 \text{ W/m}^2\text{K}$  (U value)



Aluminium sandwich (Alusandwich), with 16 mm thermal insulation  $K = 1.4 \text{ W/m}^2\text{K}$  (U value)



Translucent polycarbonate, clear or opal, with 16mm thermal insulation  $K = 2.4 \text{ W/m}^2\text{K}$  (U value)

± 79% - 50%



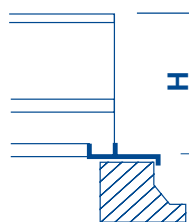
Single skin extruded aluminium 1.8 mm thick  $K = 5.7 \text{ W/m}^2\text{K}$  (U value)



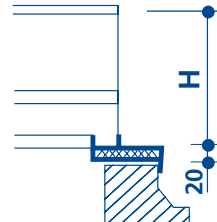
Double glazed, 18 mm / 20 mm / 22 mm, sealed glass units  $K = 1.4 - 3.0 \text{ W/m}^2\text{K}$  (U value)  
± 90% light transmission



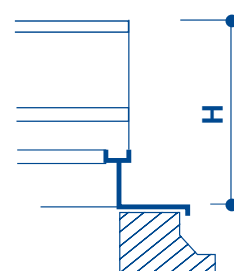
Double skin aluminium, with 20 mm thermal insulation  $K = 1.4 \text{ W/m}^2\text{K}$  (U value)



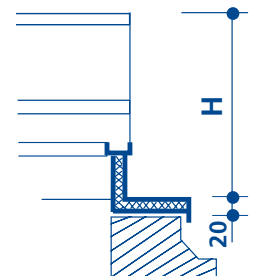
Low base, single skin aluminium



Low base, thermally insulated



High base, single skin aluminium



High base, thermally insulated

minimal Roofopening

Length	L	L	L	L - 50
width	B	B - 24	B	B - 50

## General information

### DESCRIPTION

The **Bovema** NKV-RT louvre, with its weathered side ventilator sections, is designed to provide a high performance, non-powered method for the removal of large quantities of warm air and / or smoke. This ventilator is particularly suitable for use in industrial or commercial buildings where thermal protection is important and high volumes of ventilation, with reduced weathered ventilation are required. The extruded aluminium profiles to the louvre blades ensure the best possible visual appearance. The high performance NKV-RT ventilator has an operable top louvre section, which provides large areas of opening for heat or smoke extract. The blades are fitted with weather resistant EPDM seals to form an airtight unit when closed for energy conservation, and a rainwater gutter at each blade junction sheds water to either side of the louvre for external drainage. This is to ensure a waterproof internal construction. Side ventilators allow continuous weather protected ventilation at a reduced level. The side ventilators are fitted with operable dampers to allow volume control, and two sizes of side ventilators are available to allow for the maximum ventilation capacity, or a lower profile unit as required to meet the Architects and Engineers requirements. Each multi purpose ventilator is manufactured to NEN-EN-ISO 9002 quality standard control, and is designed and tested to various national standard for smoke ventilators, such as BS: 7346:Pt 1:1990 in the UK and DIN 18232 in Germany. The construction is formed using high quality corrosion resistant aluminium to ensure low maintenance. Various methods of operation including pneumatic or electrical systems are available.

### OPERATING PRINCIPLES

Using the natural ventilation principle, the louvre section allows for the removal of large quantities of heat during hot summer conditions, from processes producing heat, from people or solar heat gains, particularly glazed roof constructions. The louvre section may also be opened to provide smoke extract in the event of a fire in the building. During bad weather or in the winter, solar heat gains may not present such a problem, but some reduced level of weather-protected ventilation may well be required for environmental purposes. Under these conditions the louvres would be closed and their high insulation levels will help to minimise condensation problems. The reduced level of ventilation required would be provided by the side ventilators which also have operable dampers to ensure full volume control is available at all times.

### APPLICATIONS

High heat industrial, commercial or public buildings, requiring high levels of insulation and sealing performance. Weather protected ventilation, plus large scale summer heat, or smoke extraction in the event of a fire.

### SPECIFICATION

- Top louvre :
- 1.8 mm thick single skin 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
- Side dampers :
- Single skin aluminium
  - Double skin aluminium, thermal insulation
- Frame / Housing :
- Single skin aluminium
  - Double skin aluminium, thermal insulation

### CONTROLS

NKV-RD units can have Pneumatic or Electric Controls. Pneumatic actuators which lock in both the fully open and fully closed position, using a two pipe pneumatic system, with when required individual one-shot glass bulb/CO<sub>2</sub> emergency fail-safe system actuation, operating at 68, 93, 110, or 140 Deg. C. as required to meet the project requirements. Alternatively 230 V A/C or 24 V D/C electric actuator operation to motor open and closed, with fusible link and spring fire sets. The side damper sections are operated in a similar manner to provide volume control, which is independent of the louvres. Both the electric and pneumatic systems can be provided with remote control panels, with fail-safe battery or compressed air operation, plus complete pipework and wiring as required.

### MATERIALS

Corrosion resistant aluminium with 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

The NKV-RT 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 supplied. Other optional items such as bird screens, insect mesh, sound attenuators, sprinkler shields and open / close location switches are also available. The ventilator base units and fixing flanges are of fully welded construction and the lightweight construction allows the NKV-RT ventilator to be installed on any type of roof or rooflight construction. The final flange sizes are manufactured to customer requirements, to allow simple installation and ensure watertight building interfaces.

### SERVICE

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

