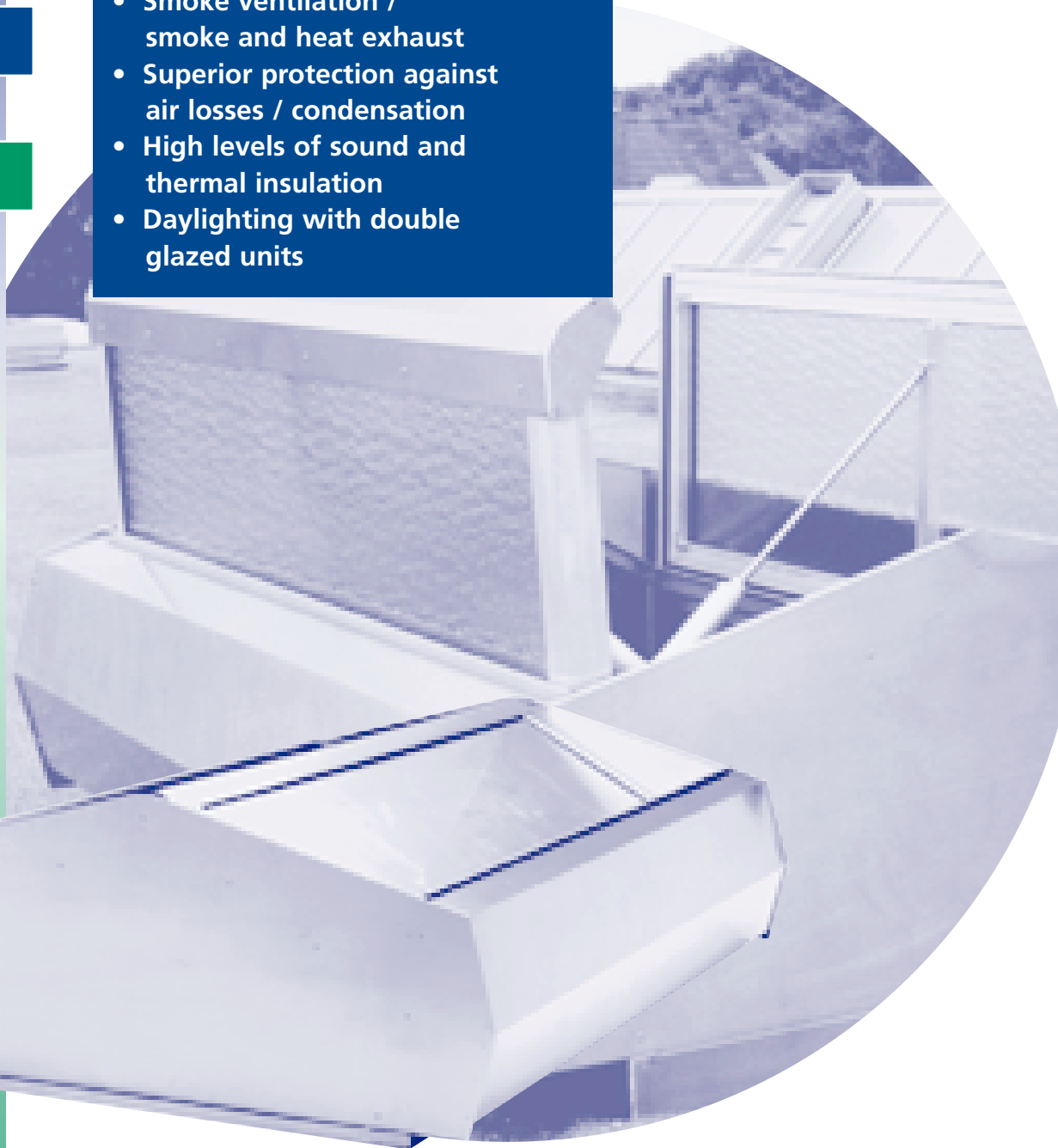


NKV - RD

TWIN FLAP ROOF VENTILATOR WITH WEATHERED SIDE VENTILATORS

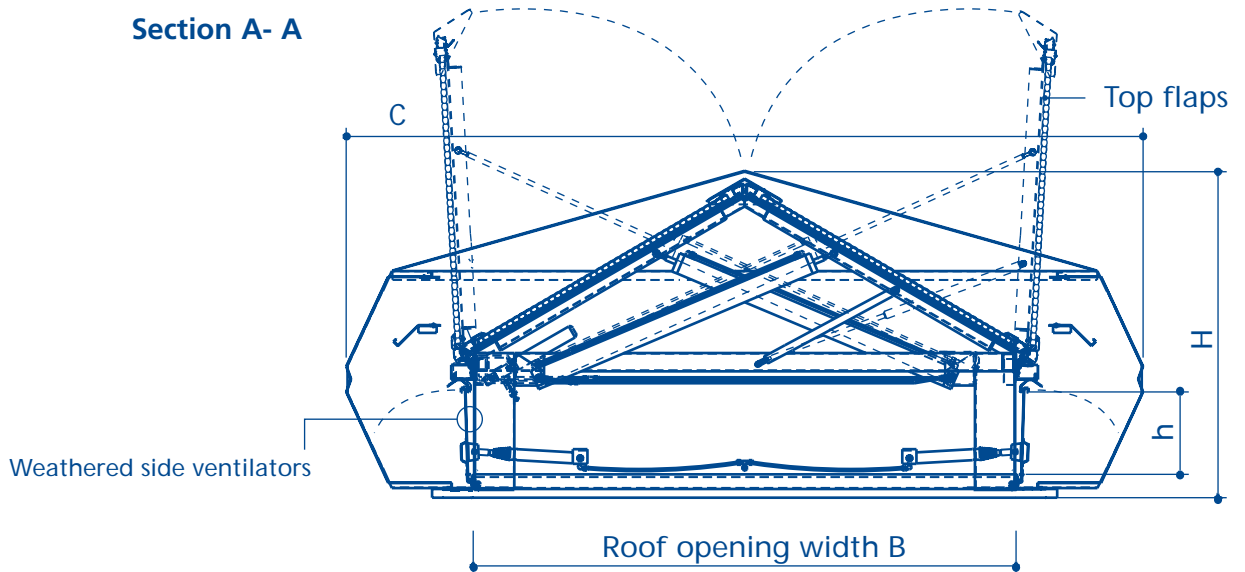
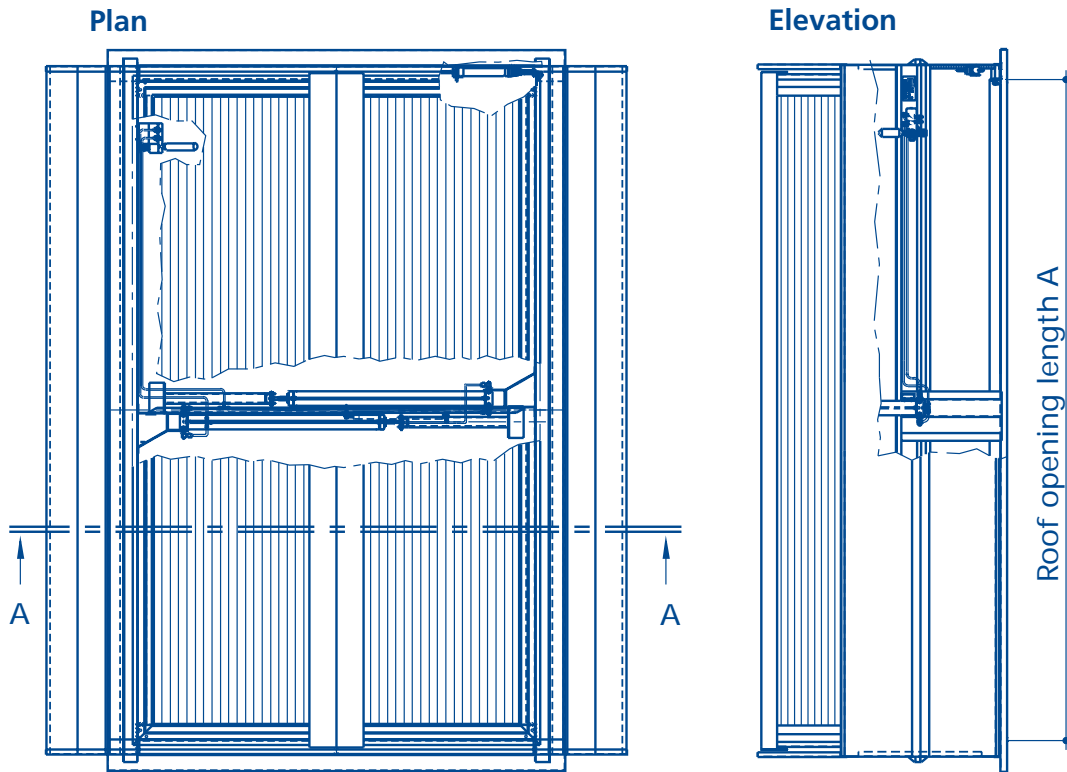
- Natural ventilation
- Weathered ventilation
- Smoke ventilation /
smoke and heat exhaust
- Superior protection against
air losses / condensation
- High levels of sound and
thermal insulation
- Daylighting with double
glazed units



Bovema 
Konstrukties B.V.

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

TECHNICAL DETAILS



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

TWIN FLAP VENTILATOR

TYPE NKV - RD

Type NKV - RD (high base) single skin aluminium

Overall

| NKV-RD Type | SideVent type | Roof opening width B | Roof opening length A | Geometric Area Top flap m ² | Geometric Area Side vents m ² | Height h | Height H | Width C |
|-------------|---------------|----------------------|-----------------------|--|--|----------|----------|---------|
| 75/200 | 150 | 750 | 2000 | 1.50 | 0.60 | 130 | 600 | 1210 |
| 100/200 | 150 | 1000 | 2000 | 2.00 | 0.60 | 130 | 730 | 1460 |
| 130/200 | 150 | 1300 | 2000 | 2.60 | 0.60 | 130 | 870 | 1760 |
| 75/200 | 300 | 750 | 2000 | 1.50 | 1.20 | 230 | 700 | 1460 |
| 100/200 | 300 | 750 | 2000 | 1.50 | 1.20 | 230 | 700 | 1460 |
| 130/200 | 300 | 1300 | 2000 | 2.60 | 1.20 | 230 | 970 | 2010 |
| 75/250 | 150 | 750 | 2500 | 1.88 | 0.75 | 130 | 600 | 1210 |
| 100/250 | 150 | 1000 | 2500 | 2.50 | 0.75 | 130 | 730 | 1460 |
| 130/250 | 150 | 1300 | 2500 | 3.25 | 0.75 | 130 | 870 | 1760 |
| 75/250 | 300 | 750 | 2500 | 1.88 | 1.50 | 230 | 700 | 1460 |
| 100/250 | 300 | 1000 | 2500 | 2.50 | 1.50 | 230 | 830 | 1710 |
| 130/250 | 300 | 1300 | 2500 | 3.25 | 1.50 | 230 | 970 | 2010 |

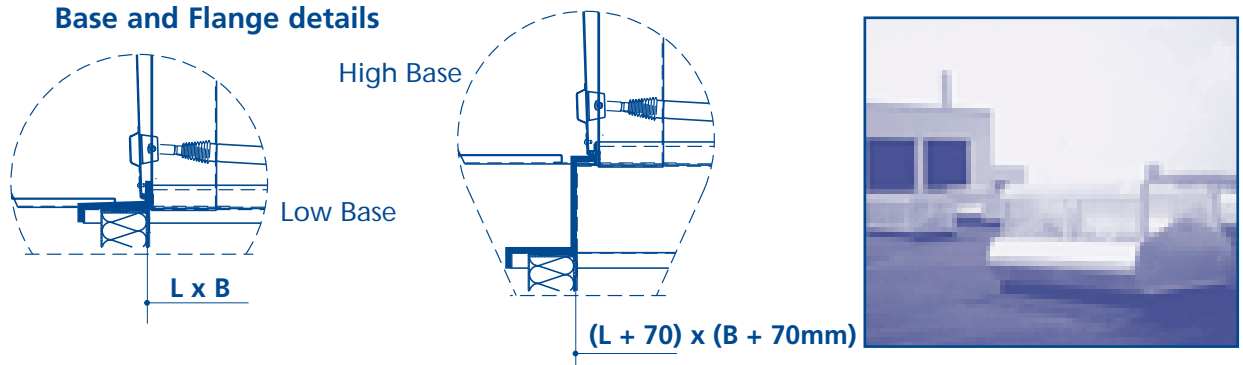
Dimensions in mm

Thickness of Top Flaps

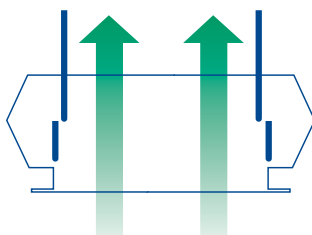
| | 1.5 | 6.0 | 10 | 16 | 18 | 20 | 24 | 25 | 30 | 60 | Thickness in mm |
|---|-----|-----|----|----|----|----|----|----|----|----|-----------------|
| Single skin aluminium | ■ | | | | | | | | | | |
| Single pane glass | | ■ | | | | | | | | | |
| Double skin polycarbonate | | | | ■ | | ■ | | ■ | | | |
| Standard double-glazed | | | | | ■ | ■ | | ■ | ■ | | |
| Insulated double glazed, type HR | | | | | | ■ | ■ | ■ | ■ | | |
| Double skin aluminium thermally insulated | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |

■ = availability

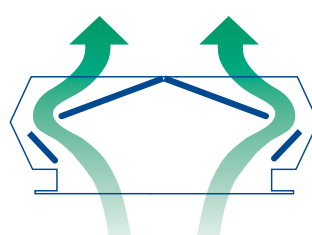
Base and Flange details



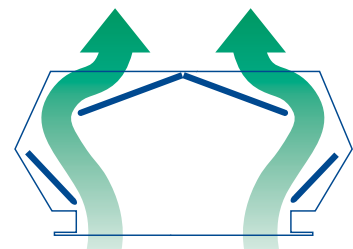
- High base constructions can be made to any roof opening size



**Daily ventilation
smoke ventilation**



**Weathered ventilation
type 150 side vents**



**Weathered ventilation
type 300 side vents**

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

General information

DESCRIPTION

The **Bovema** NKV-RD twin flap ventilator, with side ventilation units, provides an economical and energy efficient method of exhausting large quantities of warm air and / or smoke from a building. The NKV-RD is particularly suitable for high heat industrial and commercial buildings where the overall building design requires low rates of air leakage, good sound attenuation and good thermal insulation performance. The NKV-RD ventilator is manufactured with a built in 30 Deg slope to the top flaps, which allows the installation of ventilators with glazed flaps on completely flat roofs, where the rainfall will wash the flaps, preventing water pooling to minimise the growth of algae on glazed units. The sloping flaps also aid the shedding of rain or snow in areas with severe winter climates. The side ventilation units allow reduced levels of ventilation on a fully weathered basis, with operable dampers providing full volume control. Both the NKV-RD top flaps and side ventilator dampers are fully insulated and sealed to provide the maximum possible levels of thermal and acoustic insulation, when closed. The NKV-RD ventilators are manufactured to NEN-EN-ISO 9002 quality control standards and are designed and tested to comply with various national standards for smoke ventilators, such as BS: 7346: Pt1: 1990 in the UK and DIN 18232 in Germany. The NKV-RD ventilators are manufactured from high quality corrosion resistant aluminium to ensure low maintenance requirements.

WORKING PRINCIPLES

Warm air is lighter than cold air and rises by convection. Using this natural ventilation principle, assisted as appropriate by wind action, large quantities of warm air or smoke can be evacuated from a building. The NKV-RD natural ventilator utilises this principle to provide high levels of ventilation. Each ventilator has two large top flaps and two side ventilator dampers. All close onto single or double EDPM seals to provide an air and watertight seal around their full perimeter. A fully welded upstand and central gutter combine to drain water from the flaps directly onto the roof without first entering the building and the sloping construction aids the drainage system in poor environmental conditions. The flaps themselves are hinged outside of the air-stream and this allows the ventilator flaps to open fully to 90 Deg. This maximises the free area available for ventilation. The weathered side ventilators have operable dampers which are hinged outside the air stream, so that the aerodynamic free ventilation area of the top flaps is not reduced by operation of side dampers. Operation of the top flaps or side dampers is by pneumatic or electric actuators. Typical control systems allow the opening of the top flaps in hot summer conditions for daily ventilation, with rain sensor protection to close. The side dampers would be opened or closed to regulate the reduced levels of ventilation when the top flaps are closed. The pneumatic or electric actuators would be operated via remote control panels, allowing interface connections to rain, wind detectors, BMS or fire alarm systems. Any fire alarm interface would override other controls to open the top flaps for smoke extraction.

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.

SPECIFICATIONS

| | |
|------------------|--|
| Flaps | 1.5 – 2.0 mm thick, single skin aluminium 20, 30, 60 mm thick double skin aluminium with thermal insulation 20, 30, 60 mm thick double skin aluminium, thermally broken with full insulation. 6 mm Georgian wired, toughened or laminated glass. 18 - 30 mm double-glazed insulated units (in various compositions) 16, 20, 25 mm translucent, insulated double skin polycarbonate. |
| Side dampers: : | Single skin aluminium Double skin aluminium with thermal insulation |
| Frame / housing: | Single skin aluminium Double skin aluminium with thermal insulation |

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 / CO₂ emergency fail safe system actuation, operating at 68, 93, 110, or 140 Deg C as required to meet the project requirements. 230 V A/C or 24V D/C electric actuator operation to motor the flaps from fully open to fully closed. Both the electric and pneumatic systems can be provided with remote control panels, with fail safe battery or compressed air operation, plus complete pipe work and wiring as required.

MATERIALS

Corrosion resistant aluminium sheet from AlMg3 alloy. Extruded Aluminium profiles from AlMgSi 0.5 alloy. All fixings in stainless steel. Hinges in aluminium and stainless steel. Weather resistant seals in EPDM

GENERAL

The NKV-RD twin flap weathered ventilators are fully assembled and tested before despatch. The standard unit is supplied in natural mill finished aluminium, but a Polyester Powder Paint finish to any RAL colour from the Bovema range may be supplied. Other optional items such as bird screens, sound attenuators, sprinkler shields and open / close location switches are also available. The ventilator bases and fixing flanges are of fully welded construction and the versatile base design allows installation onto most types of building roof, solid, glazed or rooflight systems. Standard flange size is 100mm but special sizes can be supplied to meet project requirements and ensure simple, weatherproof installation. Can be installed in any roofing or glazing construction as well as in beaded lightdomes. All required flange sizes are customer made, to give easy installation and 100% water tightness.

SERVICE

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

