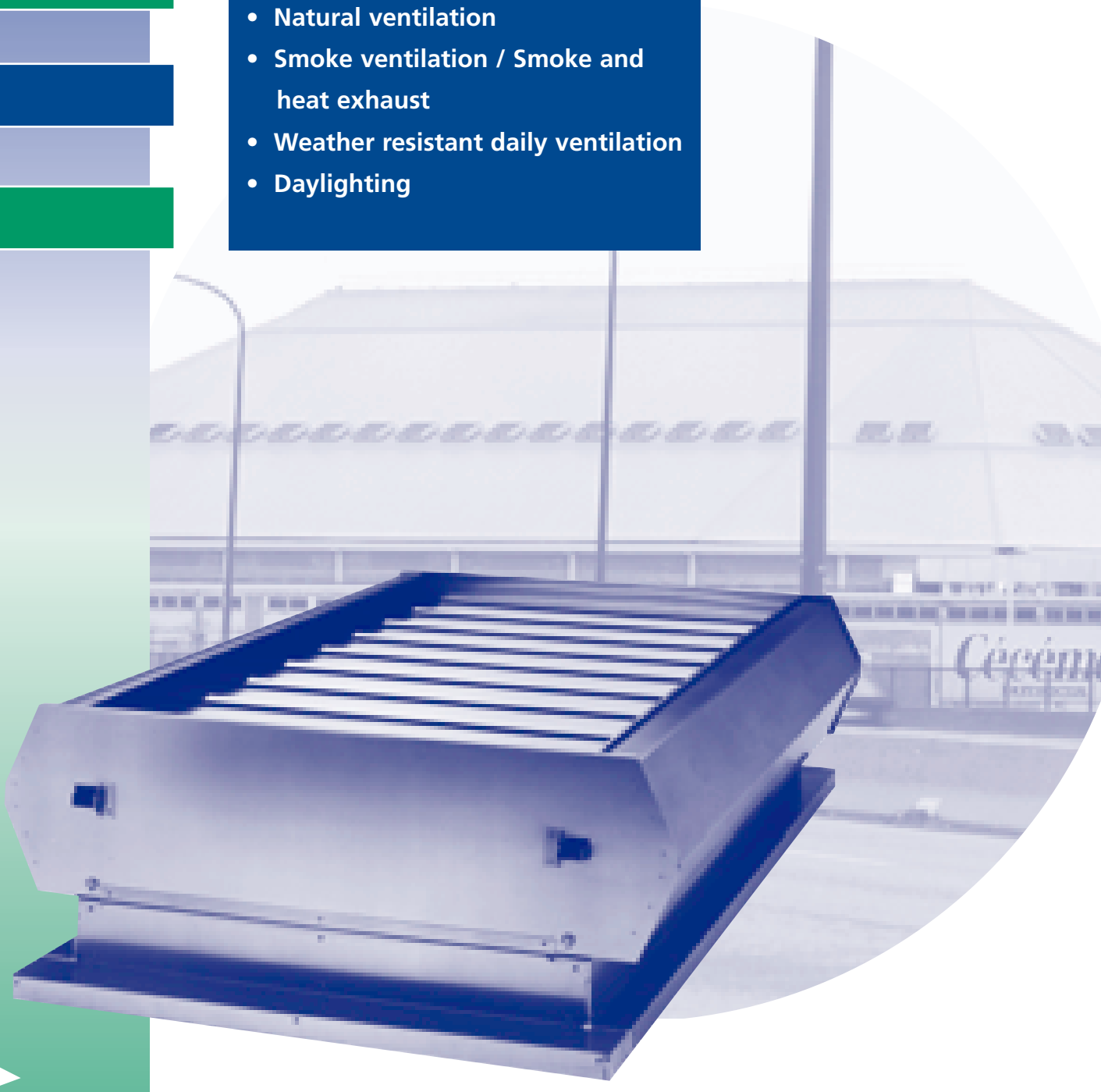
TMS - R

STANDARD ROOF LOUVRE VENTILATOR

WITH WEATHERED SIDE VENTILATORS

- Natural ventilation
- Smoke ventilation / Smoke and heat exhaust
- Weather resistant daily ventilation
- Daylighting

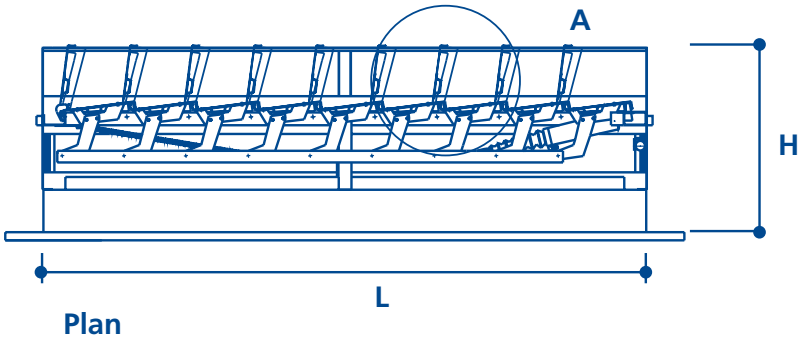


Bovema Konstrukties B.V.

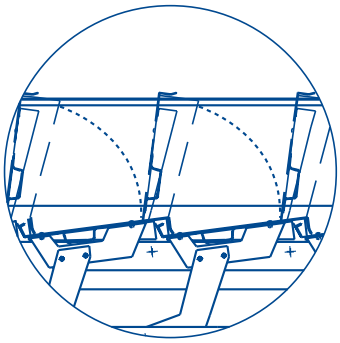
Bovema Konstrukties B.V. is a member of the international Bovema Beheer Group

TECHNICAL INFORMATION

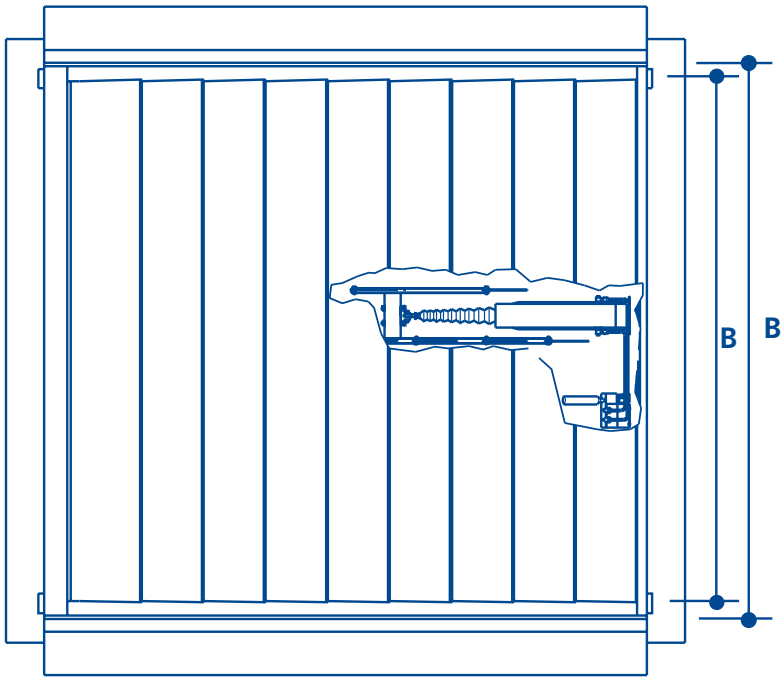
Side elevation

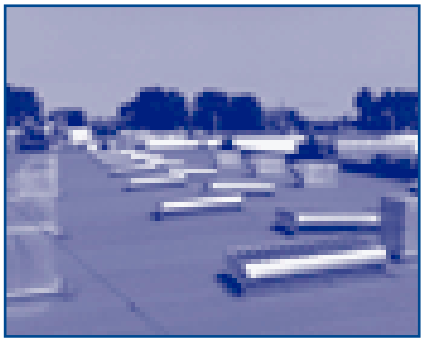


Detail A



Plan

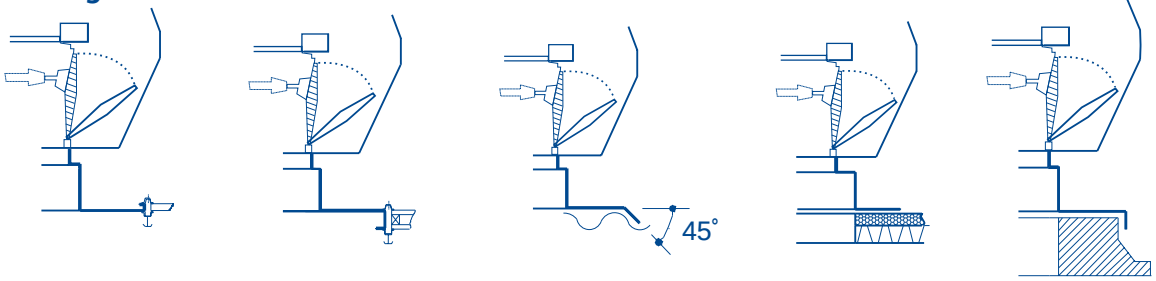




Type 150 : B^1= B + 400 mm

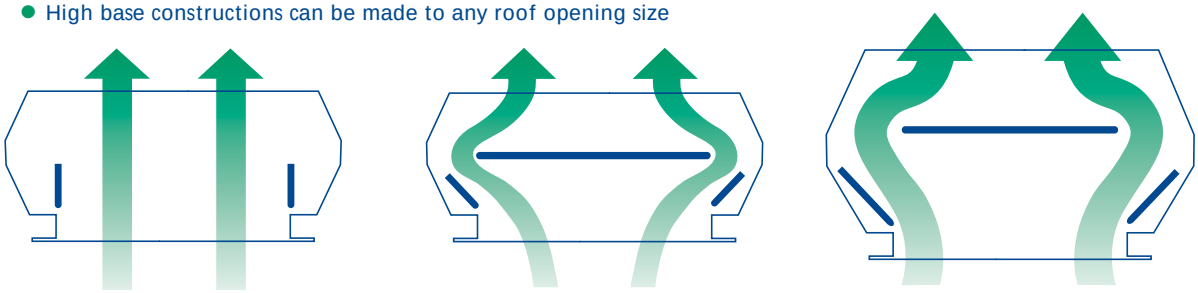
Type 300 : B^1 = B + 660 mm

Flange details S1..S5



S1 S2 S3 S4 S5

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



Daily ventilation
Smoke/fire ventilation

weathered ventilation
with type 150 side sections

weathered ventilation
with type 300 side sections

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

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

TYPE TMS-R
LOUVRED VENTILATOR WITH DAMPER CONTROLLED SIDE SECTIONS

TMS-R (high base) single skin aluminium

Geometric area (top louvre) Ag. (m^2)

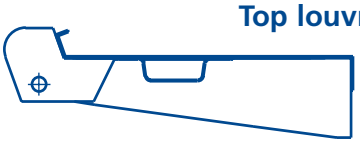
Type	3	4	5	6	7	8	9	10	11	12	13	14	15	16	B(mm)
6-	0.44	0.55	0.67	0.79	0.90	1.02	1.14	1.25	1.37	1.49	1.61	1.72	1.84	1.96	600
8-	0.62	0.78	0.95	1.11	1.28	1.45	1.61	1.78	1.94	2.11	2.27	2.44	2.61	2.77	850
11-	0.80	1.01	1.23	1.44	1.66	1.87	2.08	2.30	2.51	2.73	2.94	3.16	3.37	3.59	1100
14-	1.02	1.29	1.56	1.83	2.11	2.38	2.65	2.93	3.20	3.47	3.75	4.02	4.29	4.56	1400
17-	1.23	1.56	1.90	2.23	2.56	2.89	3.22	3.55	3.88	4.22	4.55	4.88	5.21	5.54	1700
L(mm)	725	920	1115	1310	1505	1700	1895	2090	2285	2480	2675	2870	3065	3260	

L (mm) = Length of throat opening B (mm) = Width of throat opening

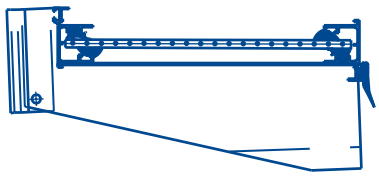
Type Geometric area (side dampers) Ag. (m^2)

150	0.18	0.23	0.28	0.33	0.38	0.43	0.47	0.52	0.57	0.62	0.67	0.72	0.77	0.82
300	0.41	0.52	0.64	0.75	0.86	0.97	1.08	1.19	1.30	1.41	1.52	1.64	1.75	1.86

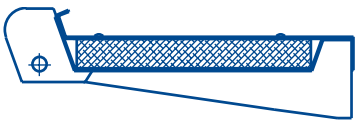
Top louvre blades



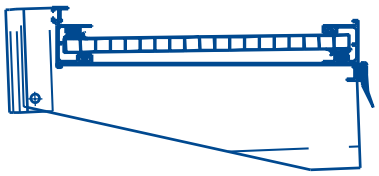
Aluminium 1.5 + 1.0mm
K= 5.7 W/m^2K (U value)



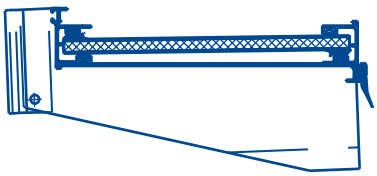
Georgian wired, toughened or laminated glass. K= 5.6 W/m^2K (U value)
± 90 % light transmission.



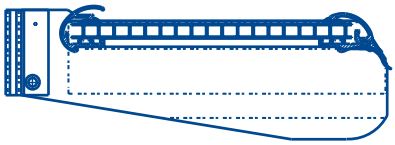
Double skin aluminium with 20 mm thermal insulation
K=1.4 W/m^2K (U value)



Translucent polycarbonate clear or opal with 10 mm thermal insulation K=3.0 W/m^2K (U value)
± 79%-50% light transmission

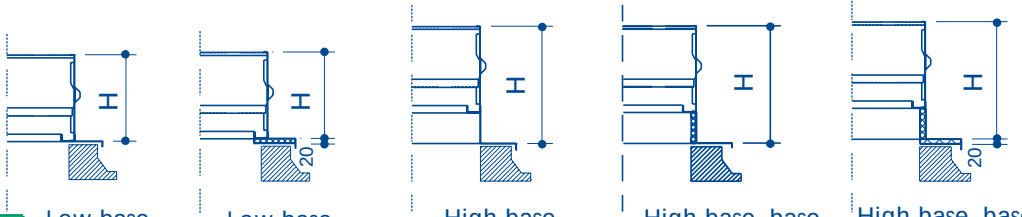


Aluminium sandwich (Alusandwich) with 10mm thermal insulation
K=1.9 W/m^2K (U value)



TMS - N, translucent polycarbonate clear or opal with 10 mm thermal insulation K=3.0 W/m^2K (U value)

± 79%-50% light transmission



Minimum Throat opening	Low base, single skin aluminium	Low base, fixing flange with insulation	High base, single skin aluminium	High base, base with insulation	High base, base and fixing flange, with insulation.
Length	L	L	L	L - 50	L - 50
Width	B	B	B	B - 50	B - 50

Height H	High base	Low base
Side type 150	570	440
Side type 300	890	760

General information

DESCRIPTION

The **Bovema** TMS-R louvred ventilator, with weathered side sections, is designed to provide an economic, non-powered method for the removal of large quantities of warm air, and/ or smoke. The ventilator is particularly suitable for use in industrial buildings where low cost natural ventilation is required with a reduced weathered ventilation facility during inclement weather. Each slim line, multi purpose, ventilator is manufactured to NEN-EN-ISO 9002 quality standard control, and is designed and tested to comply with various national standards for smoke ventilators such as BS: 7346:Pt 1 in the U.K. or NFS 61937 in France. The construction is formed using the highest quality corrosion resistant aluminium to ensure low maintenance. Various methods of operation, including pneumatic or electric systems are available. The overall design results in a versatile, economic ventilator suitable for a wide range of applications.

OPERATING PRINCIPLES

Warm air in a building rises due to thermal convection and large quantities of warm air and / or smoke can be evacuated using this natural ventilation principle. The ventilation effect can be increased due to external wind action.The TMS- R ventilator has operable top louvres, which provide substantial daily ventilation or smoke / heat evacuation. Operable and weathered side ventilators provide a lower level of weather-protected ventilation. The side dampers operate outside of the top louvre air-stream so the aerodynamic performance of the top louvres is not compromised. The top louvre and side dampers can be operated independently, to allow maximum variation of the level of ventilation. When used as a smoke extract ventilator, the louvre blades are opened on a priority control basis. Operating systems can include rain or other environmental systems to protect the building interior. The louvre section has specially designed interlocking blades, to ensure weather protection. These are angled to allow translucent louvres to be self-cleaning. The louvre blade pivots are outside the airsteam to ensure maintenance free operation and specially designed seals, on each side of the blades, reduce unnecessary energy losses. The bottom hung side dampers offer minimum resistance to airflow and when closed they do not obstruct the louvre drainage facility.

APPLICATION

Industrial buildings, particularly those with heat producing processes which require a large volume of ventilation in the summer, with reduced weathered ventilation at other times. Also smoke ventilation in the event of a fire.

SPECIFICATION

Top louvres :	- 1.5 + 1.0 mm single skin aluminium
	- 10 mm thermal insulation, double skin aluminium
	- 20 mm thermal insulation, double skin aluminium
	- 6 mm single, laminated, toughened glass or wired glass.
	- 10 mm twin wall polycarbonate, clear or opal.
Side dampers :	- Single skin aluminium
	- Insulated, double skin aluminium
Frame/housing :	- Single skin aluminium
	- Insulated, double skin aluminium

CONTROLS

TMS - R louvres are normally provided with pneumatic or electrical operating systems. The pneumatic systems may include individual one-shot glass bulbs and CO_2 systems for Emergency fail-safe operation to open in fire conditions. These operate at a temperature to suit the project requirements, 68-93-110 or 140 deg C. 24V D/C or 230 V A/C electric actuator operation is available, with fusible link and spring type fire sets if required. The pneumatic or 24 V D/C electrical systems can be operated via remote control panels with a protected mains / battery facility, plus wiring or compressor units and pipe-work as required.

MATERIALS

Corrosion resistant aluminium, with sheet materials from AlMg3 alloy.
Extruded aluminium profiles from AlMgSi 0.5 alloy. All fixings are in stainless steel.

GENERAL

The TMS-R louvre is supplied fully assembled and each is test operated before despatch. The standard unit is manufactured in natural mill finished aluminium, but a Polyester Powder Paint finish may be applied, to any standard RAL colour selected from the Bovema standard range. Other optional items such as bird screens, insect mesh, sound attenuators, sprinkler shields and open/close location devices are also available.
The ventilator base/flange units 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 TMS-R ventilators to be installed onto almost any type of cladded, built up or glazed roof construction. The overall construction allows for simplicity of installation and ensures watertight connections to the roof construction.

SERVICE

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

Bovema

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