

NICOTRA||Gebhardt

fan|tastic solutions



JET FANS

AGM SERIES

For Smoke Extraction & Basement Ventilation

Catalogue CN0050C03-R03 September-2019



The System.

The Safety.

The Service.

The principle behind Jetfan air extraction systems: construction and positioning

As with tunnel ventilation, Jetfans are mounted on the ceiling and achieve their effect by means of the thrust (impulse) of the air outflow. A high induction of the surrounding air is produced here, and after a short time the volume of air in the entire space begins to circulate. This effect results in the transferred volume of air being several times greater than the actual flow volume of the fan. This central airflow is then drawn into the low-pressure area of the centrally aligned outlet air channel.

The advantage : duct systems are not required.

Both the alignment of fans and the positioning and dimensions of the slipstream air vents are of decisive importance for the effectiveness of such a system. The formation of a continuous airflow in the direction of the outlet air channel is significant here.

Technology and material : 'Jetfan Prevent' premium AGM

'Jetfan Prevent' premium are available in two versions AGM which in turn is available in size 0400. The casing for all of these products is made of galvanized steel sheet and features noise suppressors integrated on both sides.

The axial fan built into AGM 02 transports the air by exerting pressure from the motor as standard.

In all models, the impeller wheel with aerofoil blades is made of saltwaterproof pressure die cast aluminium and is wheel-balanced according to DIN ISO 1940 Class G6,3. Certified motor for smoke gases protection IP55, Insulation H, protected heat resistant electric feed cable, leading to metal connection box on fan casing.

It adopts a "flying" position on the shaft of the drive motor located within the flow of air. The thermally resistant connecting cable is protected against mechanical damage.

A temperature-resistant, metal connection box is located on the side of the casing. On the suction and Discharge side, there is protective grating made of steel.

'Jetfan Prevent' premium AGM have been tested according to EN 12101-3 at 300°C/120 min in a testing laboratory at TUM (Munich Technical University) and exceed the legally required standards.



- The car park becomes lighter and more pleasing for clients, as no bulky ventilation ducts impinge upon the environment. This means an enormous saving of space, along with increased efficiency in comparison with conventional systems.
- Air outlet fans operate at significantly lower thrust levels, as no duct network is required (energy saving).
- Air inlet fans are not required at all if free slipstreaming is in place.
- Easier and quicker installation-impulse fans are much quicker and easier to install than extensive ducting.
- Lower maintenance - No distribution ductwork to clean.
- Better car park security - No ducting improves CCTV coverage, keeping the environment safer and lighter.
- Sprinklers - Impulse systems are eminently suitable for use with sprinkler systems. Where legislation requires sprinklers, it is possible for the approving authority to accept the deletion of sprinklers where an improved car park ventilation will be installed. In this instance, the impulse system will need to be able to maintain clear access conditions for fire-fighters.

Cost, safety, design – the benefits of 'Jetfan Prevent'

'Jetfan Prevent' has many advantages over classic duct systems:

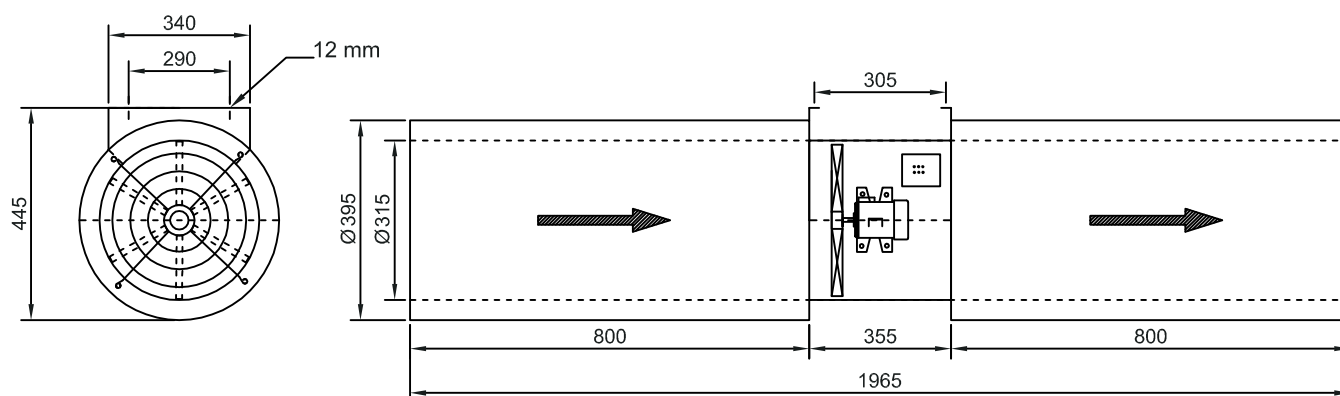
- The 'Jetfan Prevent' can partially ventilate or extract smoke.
- The dynamic airflow means that all layers of air throughout the entire car park are intermingled; the concentration of toxic substances is much lower than in the case of conventional units with ventilation ducts.
- The flexible positioning of Jetfans means that "dead spots" (where there is no airflow) are prevented.
- Jetfans are flexible and can be adapted to suit changes in the use of space.
- Expensive large-scale ducts are not required. Such ducts are not effective if air inlet and outlet ducts are more than a certain distance apart.

In short : More safety, less costs

- The largest financial benefit of Jetfans lies in the savings made in investment costs. Depending on the results of the smoke flow simulation, experience shows that lower investment costs are involved in installing the respective number of Jetfans, compared with the complete installation of a duct system with a central air outlet unit.
- No penetration of the ceiling is required for the installation of Jetfans either, meaning that the structural concept of the underground car park is simplified significantly as well, therefore contributing further to the reduction of investment costs, Jetfans can also be expected to generate very low operating costs on the whole because partial ventilation is also possible.
- And in addition to all of this: Jetfan systems offer maximum safety in a fire and meet all statutory requirements.

AGM 02-0315-C, 300°C - 120 min, 50 Hz, Non-Reversible

AGM Model	Thrust	Max. Air Volume	Voltage/ Connection	Nominal Speed	Poles	Motor Input Power at 0 Pa	Nominal Current	Starting Current / Full Load Current	Motor Size	Weight
	N	m ³ /hr	V (3 ~)	rpm		kw	A	A	Kg	Kg
02-0315-C-FD	30	4500	415/Y	2933	2	0.94	2.1	5.6	80	92
02-0315-C-2D	30/7.5	4500/2230	415 Δ/YY	2933/1492	2/4	0.94/0.26	2.53/1.8	13.6/8	80	80
FD-Single Speed , 2D - Dual Speed,			* Sound pressure measurement measured at the centre line below the fan					All Dimensions in mm subject to change		

**Testing Standards**

AMCA - 210 & 300

Note : AGM 12 Reversible fans are also available.For details kindly contact at info@nicotraindia.com**Accessories (on request)**

- Smoke detecting switch unit
- Optical smoke detector with mounting base
- Manual switch
- CO measuring unit

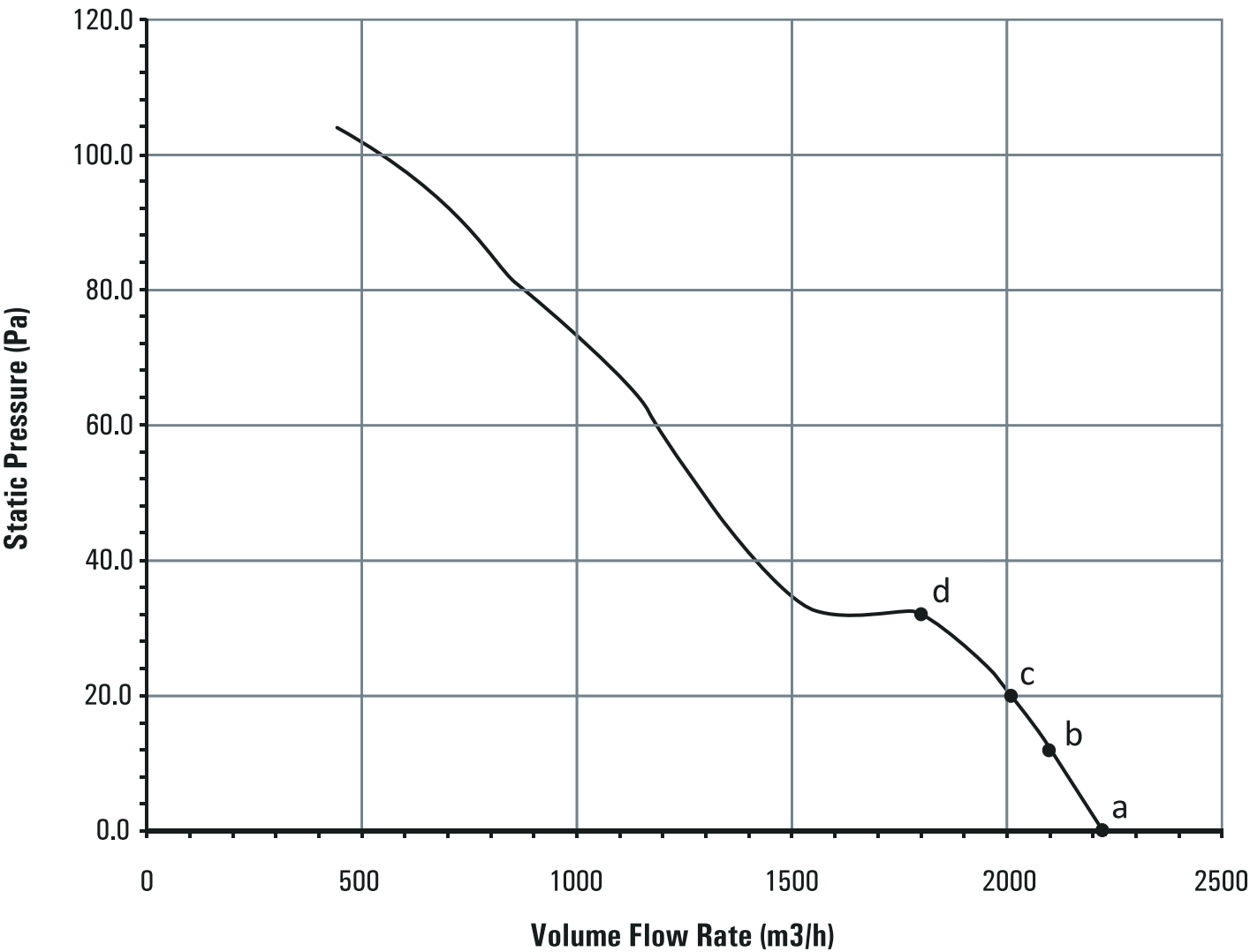
**Smoke detection switch (Control Panel)**

Robust design, coated steel sheet casing of protection class IP 54. For ambient temperature up to +40°C. Operating and display elements clearly located on the front door.

Function

Switching the fans on and switching two – step fans to high speed. In case of using an inverter this will be by – passed and the motor fed directly from the mains. The switch reacts to fire alarm sensors such as the optical smoke detector EBS 02. Manual triggering via the fire alarm button or operation via the function keys on the door is possible as well.

Performance Curve AGM 02-0315 50Hz 1492 rpm Motor Input Power at 0 Pa - 0.26 kw
Outlet Area : 0.078 m² Voltage - 415 v



	Full octave Band Center Frequency								
Ref	Hz								LwA
	63	125	250	500	1k	2k	4k	8k	dB(A)
a	61	73	65.4	55.9	58.6	54.5	48.1	44.6	64
b	62	72.6	65.3	55.8	59.9	54.5	48.1	44.8	64
c	61.7	72.1	65.3	55.6	60.2	54.7	48.3	45.2	64
d	65.7	71.9	67.5	57.2	60.3	57.8	48.1	44.8	65



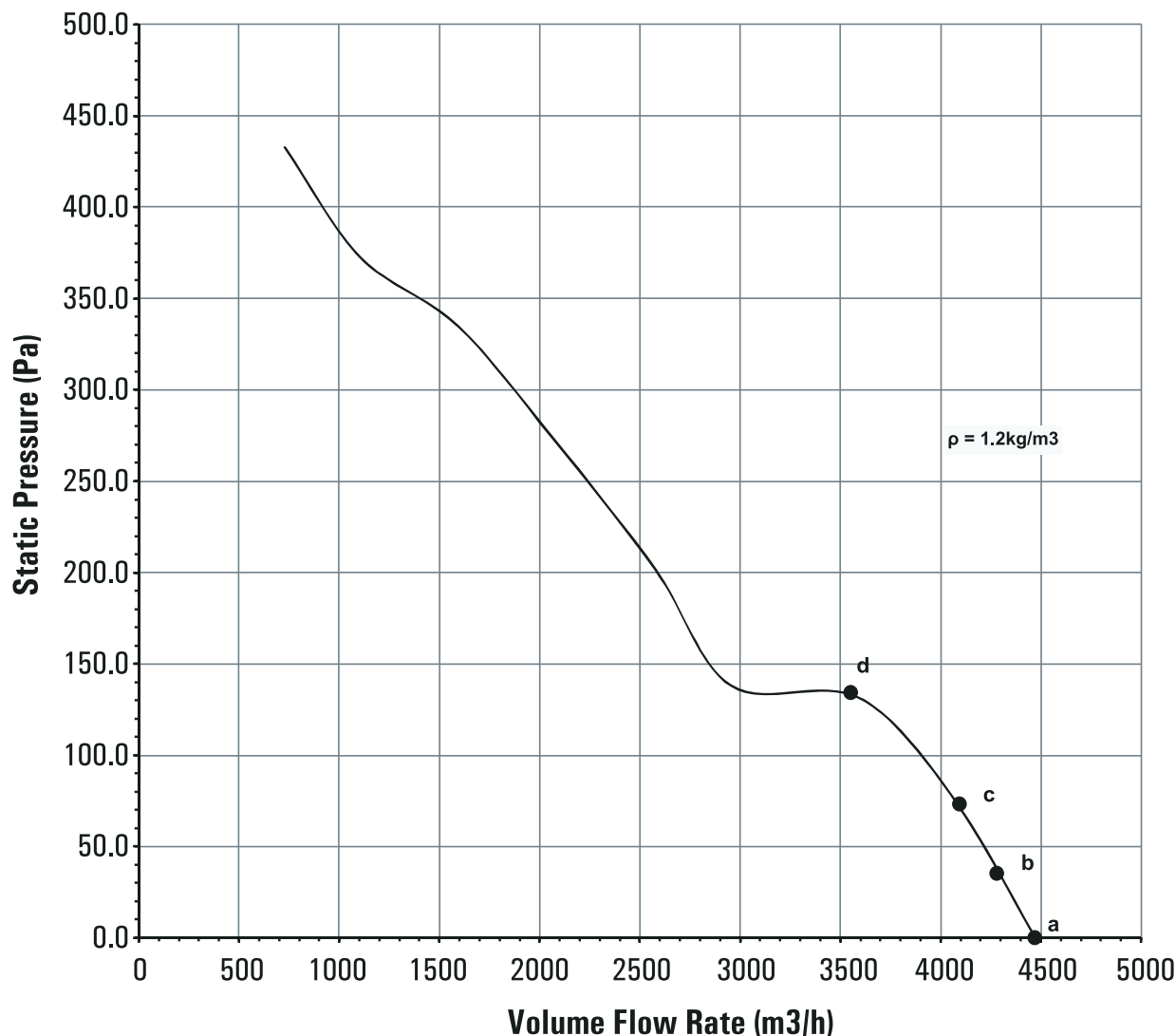
NICOTRA INDIA PVT.LTD. certifies that the AGM series shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

Performance certified is for Installation type A: Free Inlet-Free Outlet. Performance ratings include the effects of 2D inlet silencer and 2D outlet silencer.

The Sound Power Level ratings shown are in decibels, referred to 10-12 watts, calculated per AMCA International Standard 301. Values shown are for outlet Lwo and outlet LwoA sound power levels for Installation type A: Free Inlet-Free Outlet. Ratings include the effects of duct end correction.

The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.

Performance Curve AGM 02-0315 50Hz 2933 rpm Motor Input Power at 0 Pa - 0.94 kw
 Outlet Area : 0.078 m² Voltage - 415 v



	Full octave Band Center Frequency								
Ref	Hz								LwA
	63	125	250	500	1k	2k	4k	8k	dB(A)
a	83	78	82.8	74.1	67.7	66.7	65.2	61.9	78
b	82.9	78	82.4	73.7	66.8	66.6	65	62	77
c	82.8	78	81.4	73.3	66.4	66.5	65.2	62.4	77
d	82.9	90	83	75.3	66.2	68.8	68.8	61.4	80



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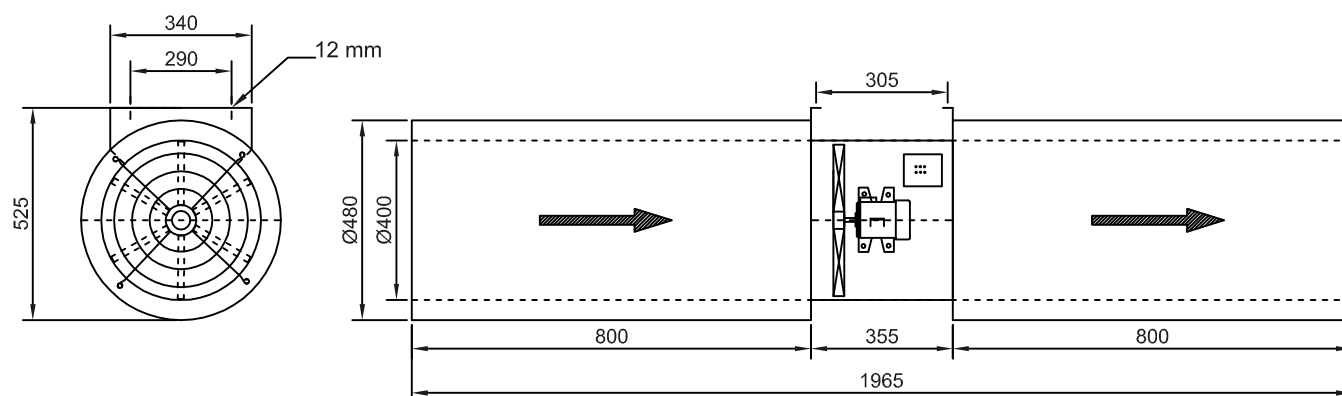
Performance certified is for Installation type A: Free Inlet-Free Outlet. Performance ratings include the effects of 2D inlet silencer and 2D outlet silencer.

The Sound Power Level ratings shown are in decibels, referred to 10-12 watts, calculated per AMCA International Standard 301. Values shown are for outlet Lwo and outlet LwoA sound power levels for Installation type A: Free Inlet-Free Outlet. Ratings include the effects of duct end correction.

The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.

AGM 02-0400-C, 300°C - 120 min, 50 Hz, Non-Reversible

AGM Model	Thrust	Max. Air Volume	Voltage/ Connection	Nominal Speed	Poles	Motor Input Power at 0 Pa	Nominal Current	Starting Current	Full Load Current	Motor Size	Weight
	N	m ³ /hr	V (3 ~)	rpm		kw	A	A	A		Kg
02-0400-C-FD	50	7000	415/Y	2879	2	1.49	2.6	14.3	2.6	80	114
02-0400-C-2D	50/12	7000/3650	415 Δ/YY	2879/1490	2/4	1.49/0.360	2.53/1.8	16/11	2.53/1.8	80	90
FD-Single Speed , 2D - Dual Speed,			* Sound pressure measurement measured at the centre line below the fan						All Dimensions in mm subject to change		

**Testing Standards**

AMCA - 210 & 300

Note : AGM 12 Reversible fans are also available.For details kindly contact at info@nicotraindia.com**Accessories (on request)**

- Smoke detecting switch unit
- Optical smoke detector with mounting base
- Manual switch
- CO measuring unit

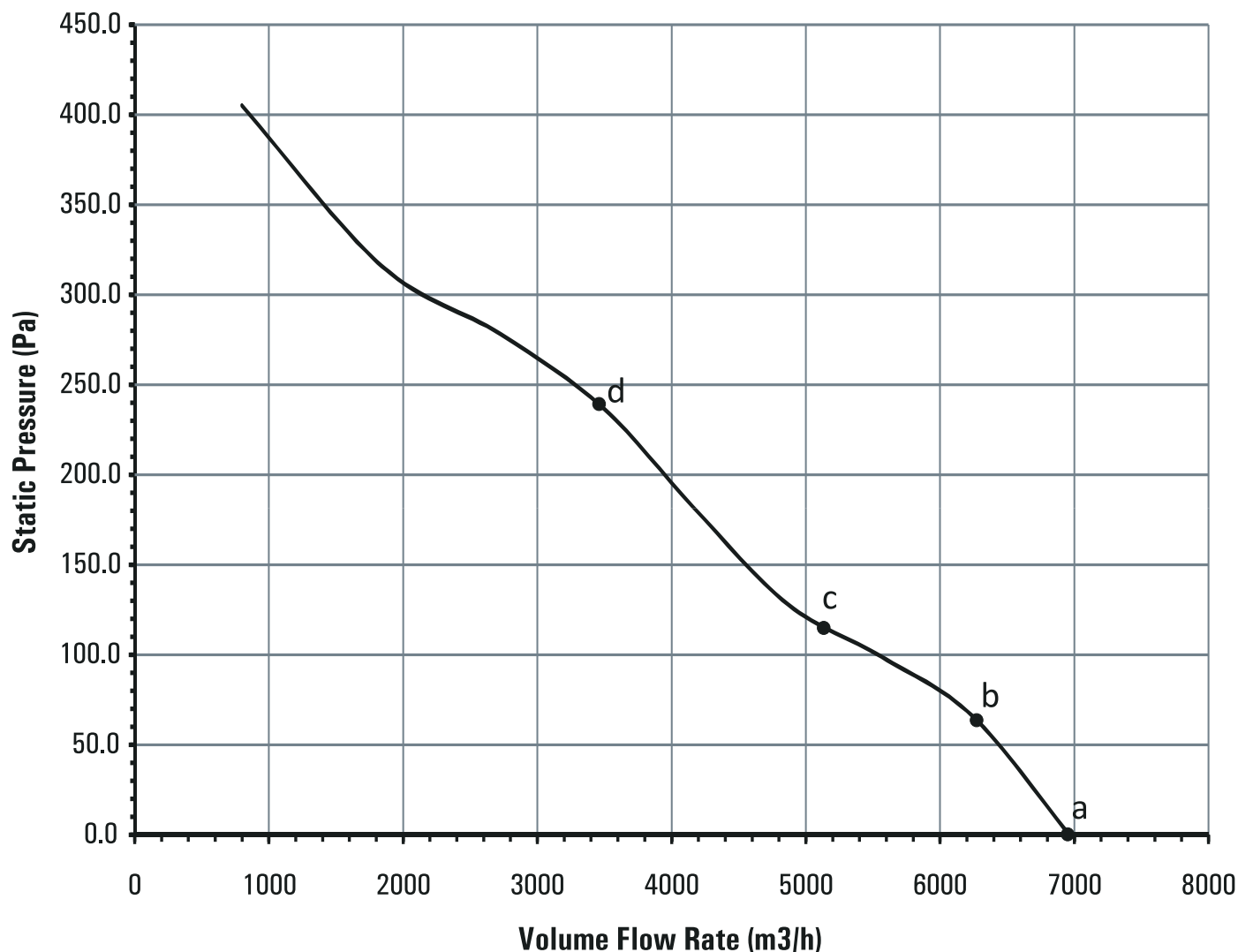
**Smoke detection switch (Control Panel)**

Robust design, coated steel sheet casing of protection class IP 54. For ambient temperature up to +40°C. Operating and display elements clearly located on the front door.

Function

Switching the fans on and switching two – step fans to high speed. In case of using an inverter this will be by – passed and the motor fed directly from the mains. The switch reacts to fire alarm sensors such as the optical smoke detector EBS 02. Manual triggering via the fire alarm button or operation via the function keys on the door is possible as well.

Performance Curve AGM 02-0400 50Hz 2879 rpm Motor Input Power at 0 Pa - 1.49 kw
 Outlet Area : 0.126 m² Voltage - 415 v



	Full octave Band Center Frequency								
Ref	Hz								LwA
	63	125	250	500	1k	2k	4k	8k	dB(A)
a	85	91	87	80	71	74	70	68	83
b	85	91	89	82	71	73	71	68	84
c	87	96	93	84	71	72	71	67	87
d	88	97	86	77	66	68	67	65	84



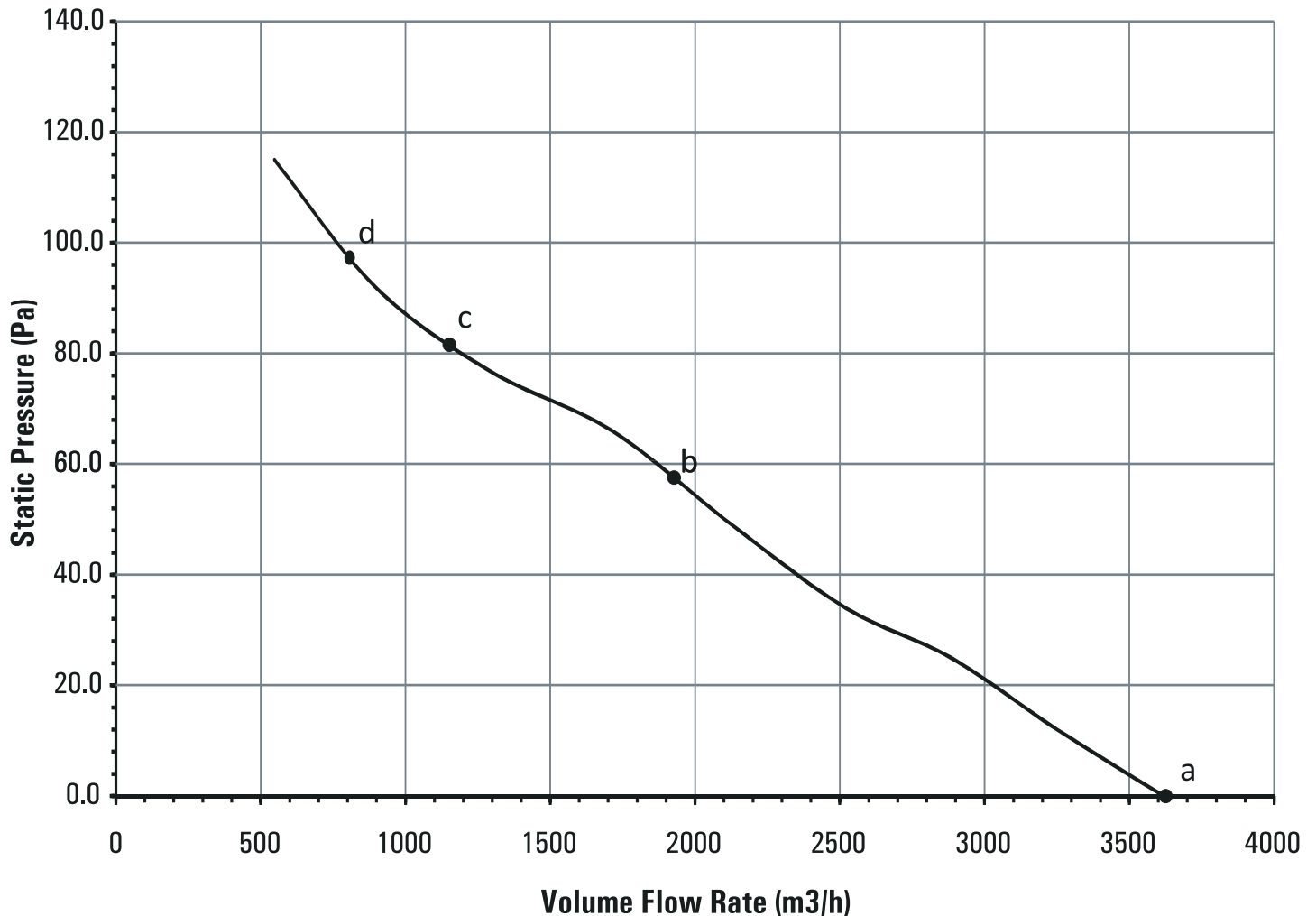
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Performance certified is for Installation type A: Free Inlet-Free Outlet. Performance ratings include the effects of 2D inlet silencer and 2D outlet silencer.

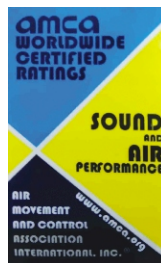
The Sound Power Level ratings shown are in decibels, referred to 10-12 watts, calculated per AMCA International Standard 301. Values shown are for outlet Lwo and outlet LwoA sound power levels for Installation type A: Free Inlet-Free Outlet. Ratings include the effects of duct end correction.

The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.

Performance Curve AGM 02-0400 50Hz 1490 rpm Motor Input Power at 0 Pa - 0.360 kw
 Outlet Area : 0.126 m² Voltage - 415 v



	Full octave Band Center Frequency								
Ref	Hz								LwA
	63	125	250	500	1k	2k	4k	8k	dB(A)
a	70	78	72	66	69	61	57	54	72
b	79	78	69	64	68	60	57	54	71
c	73	76	68	63	68	61	57	53	71
d	73	76	68	63	68	61	57	53	71

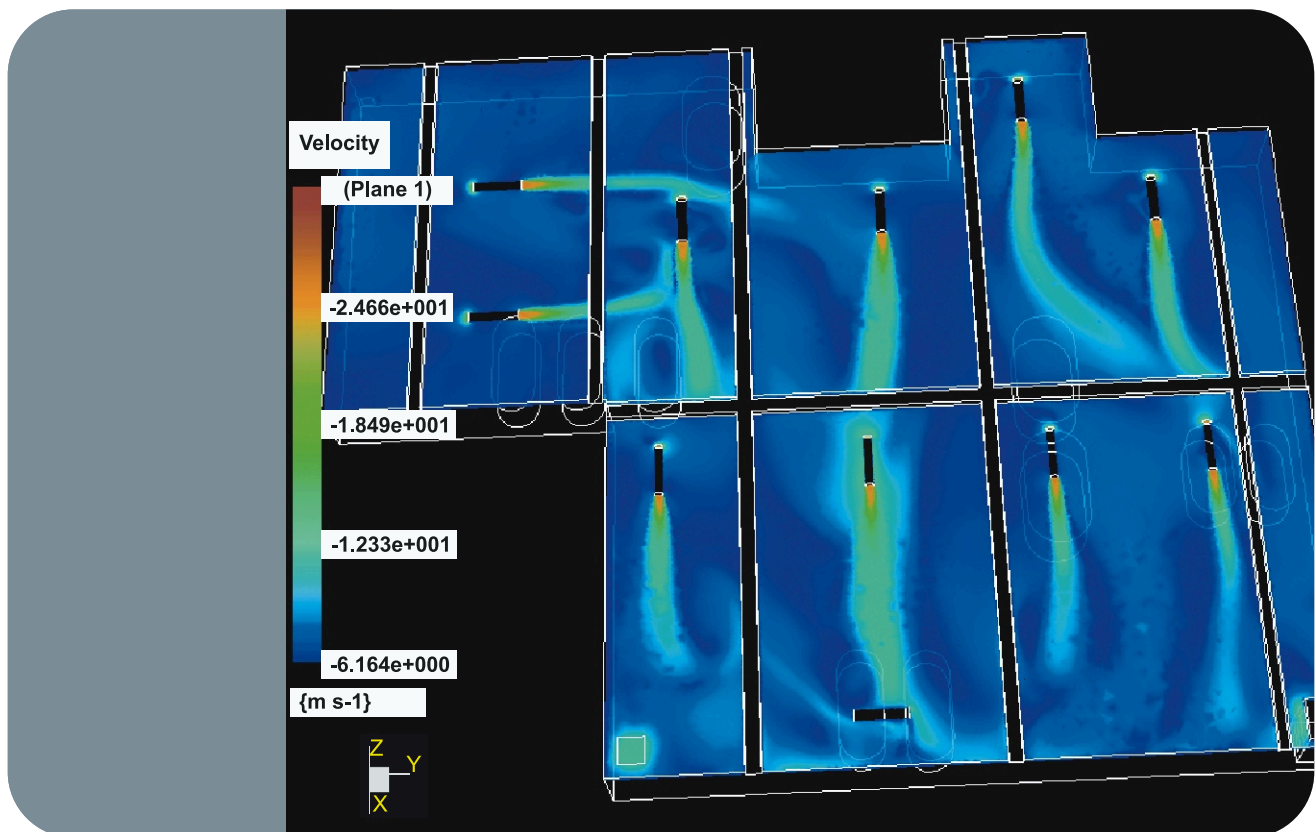


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The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Ventilation - the Jetfan air outlet system

In normal day-to-day operation, the Jetfans are controlled by the CO system – in accordance with the concentration threshold setting. In this way, carbon monoxide contaminated air is extracted from the car park. This takes place with either just a few Jetfans operating at a low speed, or with all system components operating at a higher output level, depending on the concentration in the air.

Smoke extraction – the 'Jetfan prevent' smoke extraction system

In the event of smoke needing to be extracted, the Jetfans are immediately activated at maximum speed by smoke detectors, regardless of the CO system setting, in order to extract smoke from the area of the fire. The central ventilation shafts are switched to full power at the same time.

A significant advantage of the 'Jetfan prevent' smoke extraction system lies in the fact that smoke can be partially extracted from the immediate area of the fire. In other words, the Jetfans can be used to control smoke levels as well. This avoids the costly process of dividing a car park up into separate sections to reduce the spread of fire.

Our service : smoke flow simulation for perfect planning

We will assist you in the detailed planning and dimensioning of car park ventilation equipment, by means of a smoke flow simulation using computational fluid dynamics (CFD).

With the help of CFD, the ideal smoke extraction and ventilation system – including the number and positioning of Jetfans required – can be determined for each construction project, based on the legal requirements (GarVO). The alignment of Jetfans is impossible without using such an airflow simulation. It offers maximum planning security and is an invaluable tool for assessing the entire system.

Nicotra Gebhardt can provide a cost estimate for your projects – with respect to the alignment of our Jetfans, the slipstream vents and the central ventilation shafts.

CHECKLIST FOR OFFERS / CFD ANALYSIS FOR JET FANS

Project Name :

Customer Name :

1. Basement Drawings :

With Exact Floor Plans
 With Sectional drawings
 With Exact layout of the Passage for Car
 Positioning of Beams and Dead Ends

2. Fresh Air Supply :

Mechanical/Natural
 Location of the Fresh Air Supplies of the basement
 Air Volume (CMH)
 Corresponding Drawings

3. Exhaust Air :

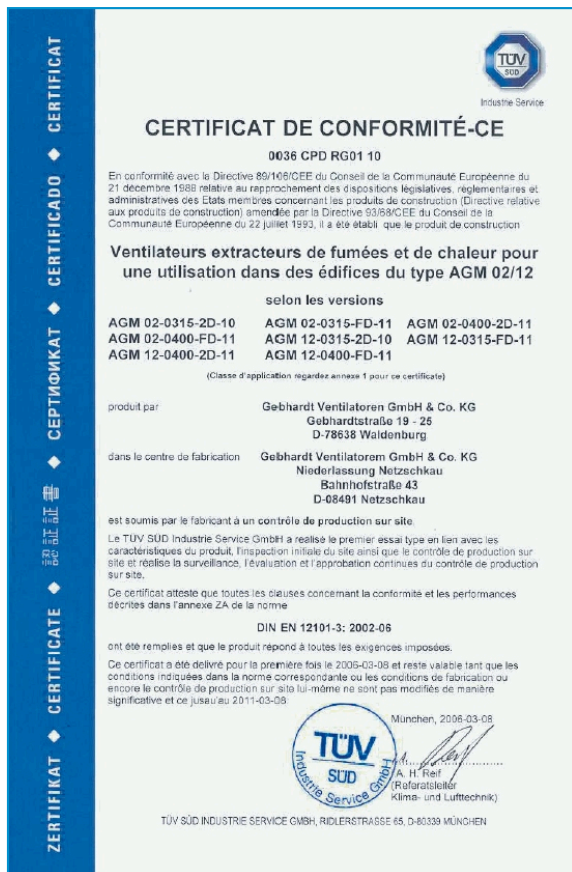
Mechanical / Natural
 Location of the Exhaust Air Fans in the basement
 Air Volume (CMH)
 Corresponding Drawings

4. Car Park

Air Exchange rate required(l/h):
 Total Volume of the basement (m³)

5. Jet Fan Specification

Rating Temp/time[..'C/..'h]:
 Air Volume for the Jet Fan [m³/h]:
 Thrust [n]:
 Two speeds : Yes / No
 Reversible : Yes / No



NICOTRA||Gebhardt

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