FANMAIL

ebm-papst St. Georgen

May 2010

Product News – AC 100 Duct Fan

The AC 100 duct fan is the latest addition to the ACmaxx series manufactured by ebm-papst St. Georgen and will enable access to new markets. The product is designed for the decentralised ventilation of buildings and can also be employed for residential buildings and industrial purposes. As far as noise and power efficiency is concerned, the AC 100 represents an optimized product on a market that is currently dominated by simple and inefficient AC fans.
Thus, ebm-papst St. Georgen sets future standards that are not only restricted to the IT and telecommunication sector.

APPLICATION

A typical range of application for the new AC 100 duct fan is the controlled ventilation of closed rooms, e.g. toilets, storage rooms. The used air is suctioned out of the room via a duct system or directly discharged to the outside air. Typically, the fans are mounted in ceilings, walls or windows and are concealed by a guard or filter. The fan diameter is optimized for 100mm installation ducts.

The illustration shows a duct fan in a typical installation as found in bathrooms and toilets in private buildings and hotel rooms and sanitary rooms in catering establishments. Only the fan guard can be seen from outside, the fan itself and the electrical connection is concealed in the wall.

SPECIAL FEATURES OF AC 100

The well-known exhaust fans of this type are usually driven by a simple shaded-pole AC motor. Due to the ACmaxx Technology, it is far more efficient and considerably quieter thanks to advanced aerodynamics, speed control and a vibration-damped motor. In ventilation technology „Specific Fan Power“ is a typical value used for evaluating the power efficiency – the AC 100 can boast an excellent value of 0,22 W/l/s
The high efficiency has a positive effect on the life expectancy. With 70.000 hours at 40°C this is considerably higher than that of existing models.

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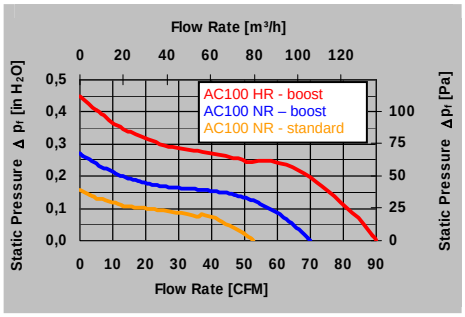
PREFERRED TYPES AND FUNCTIONS

The standard versions AC100 NR and AC100 HR are equipped with 2 defined speed stages that can be selected by the customer. The catalogue types are all protected against humidity and meet the typical IP44 market requirements.

	Stage	Speed [min^{-1}]	V_{max} [m^3/h]	dB(A)	P[W]
AC100 NR	standard	2750	80	35	2.5
	boost	3500	105	42	4.5
AC100 HR	standard	3500	105	42	4.5
	boost	4500	130	50	5.3

Control inputs, signal outputs and different speeds as well as constant flow regulation can be adapted to the customer's specific requirements. Antibacterial and stain-resistant coatings are also available. We also offer OEMs special housings and colours so that they can adapt the product to the individual requirements.
The model AC100 MR-011 will be available shortly. The customer can choose between 2 standard speeds and a boost speed (connected to the mains voltage).

Air flow rate

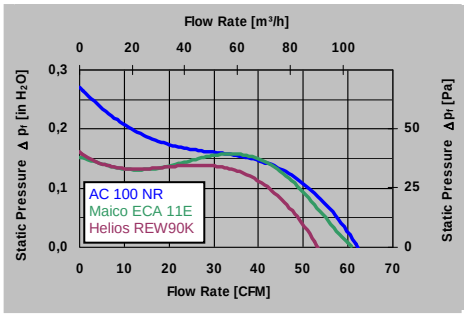


The diagram shows the measured air flow rates of the two standard versions AC 100 NR and AC 100 HR at the standard and boost speeds.
Versions with reduced standard and boost speeds can also be adapted to customer-specific requirements and enable a further reduction of the power input.

PRODUCT COMPARISON

The following production comparison shows the new AC 100 compared to typical duct fans that are all less efficient AC products.

Fan performance



The diagram shows the best of the measured competitive models. The AC 100 NR is slightly superior to the best model. In the speed version H with 4500 min^{-1}, the fan performance is considerably higher.

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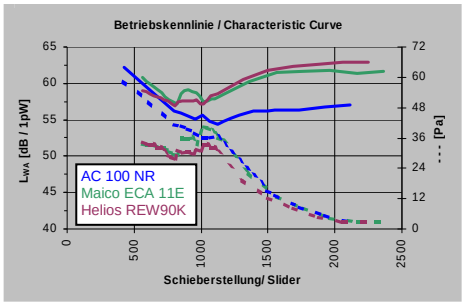
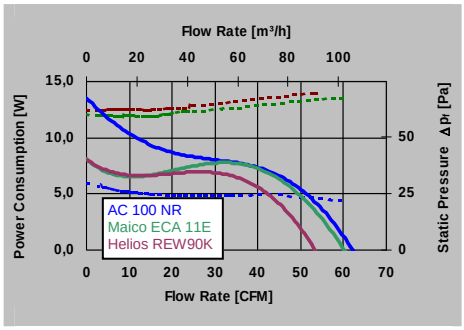
Noise



The noise comparison (solid line) of the same 3 models shows the advantages of the AC 100 NR.
The operating noise is 2 to 6 dB(A) quieter than that of the competitors depending on the operating point.

Efficiency



The power input of the AC 100 and the competitive models is shown in the curve by a dashed line. It can be clearly seen that that the AC 100 consumes on average 65% less energy. The AC100 achieves a maximum overall efficiency of over 12%, whereas that of the competitors is between 4 and 5 %.

The above mentioned data refer to values measured in our laboratories and may therefore deviate from data printed in the catalogues of competitors. The following models were measured:
Maico ECA 11 E, Helios REW90K
Speeds were partially adapted to achieve the required operating points.

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TECHNOLOGY

The excellent characteristics of the AC 100 are achieved by special technological methods.

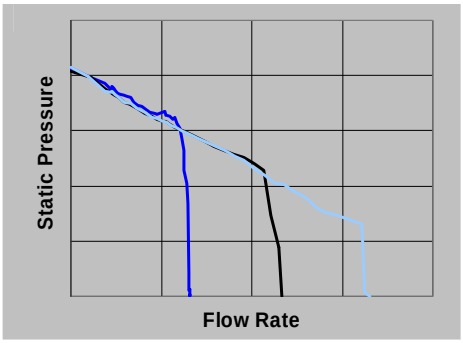
Decoupled motor

The motor of the AC100 is fixed with a vibration-damped mount in the fan housing. The motor is thus decoupled from the housing which clearly minimizes the transmission of vibration and noises.

Drive and aerodynamics

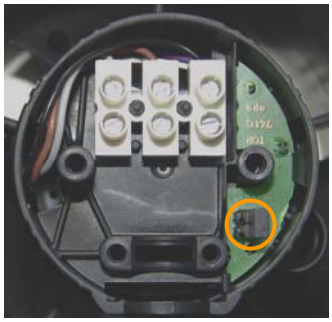
The drive of the AC100 is distinctly more efficient than the current AC shaded-pole. The fan propeller was specially optimized for the application and has an aerodynamic efficiency of over 45%.

Optional constant volume regulation



The constant volume regulation assigns a defined flow rate within a pressure range. The fan automatically adapts its discharge rate to environmental changes, e.g. filter, wind pressure and obstacles. As the fan only operates with the power that it actually requires to fulfil its task, it is extremely energy-saving and quiet when operating in continuous mode.

Optional 2-stage standard speed



The AC100 LR-008 model will be available shortly. It has 2 standard speeds that the customer can choose from and a boost speed connected to the network.
The standard speed can be selected via a jumper in the terminal box, the boost speed via the cable clamp as is the case in other models.

ADVANTAGES

The AC 100 NR offers the following advantages in comparison to other products:

- Considerably lower power input
- specific fan power of 0,22 W/l/s in typical installation
- Low operating noise
- Optional constant volume regulation
- Optional speed versions
- Considerably higher life expectancy

The AC 100 can replace existing AC products, without having to adapt mechanical or electrical components.

APPLICATIONS

In addition to the typical use for ventilation purposes in bathrooms, the AC100 is also suitable for use in the following applications:

- Cellar and attic ventilation (to avoid mould)
- Sauna ventilation
- Window and wall fans
- Air washers/ cleaners
- Humidifiers
- Suction systems for soldering workplaces
- Suction systems for hazardous material cabinets
- Exhaust air systems for campers and caravans
- Suction equipment in medical technology

MARKETING

The AC 100 is an OEM product and is not sold to end customers by ebm-papst. Due to the incomplete accessory range, direct sales are therefore not feasible. Our first step will be to serve the market for bathroom ventilation as suppliers for regular OEMs.

PRICES

The sales prices for the new products are listed in the next price list.

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