STULZ the natural choice

Certainly award winning

CyberAir – IT protection with EC fan technology

ebmpapst

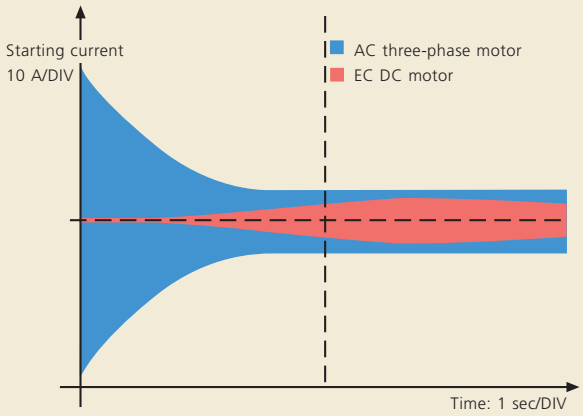
STULZ

Certainly innovative

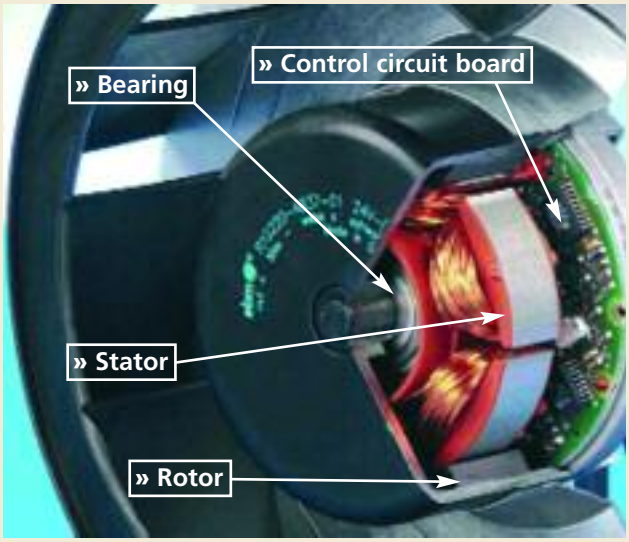
» Unlike the traditional AC fans, the EC fans from ebm-papst have an electronically commutated permanent magnet DC motor. This technology, which is insensitive to voltage fluctuations, provides extremely quiet running, long life and continuously adjustable speeds.

EC motors help to minimise operating costs with their high efficiencies of up to 92 %.

» EC fans from ebm-papst comply with the strictest EMC standards: emissions EN50081-1, interference immunity EN61000-6-4 and harmonic current emissions EN61000-3-2. Furthermore, they hold all important international approvals in accordance with VDE, UL, CSA, CCC and GOST.



» **What does EC actually mean?**
An EC motor is a DC motor with a shunt characteristic. Shunt motors impress with very good regulation behaviour and high efficiency. The rotary motion of the motor is achieved by supplying the power via a switching device – the so-called commutator. Previously the commutator was realised using mechanical carbon brushes with, however, a very limited service life of only a few thousand hours. On the EC motors this commutation is performed using semiconductor modules, that is electronically, and therefore wear-free.



Certainly cost-effective

As shown in the following examples, EC fans significantly reduce the power consumption, the operating costs and life cycle costs for precision air conditioning units.

Example A

The company CLEVER runs a medium-sized computer centre with a thermal load of 300 kW. Instead of using air conditioning units with traditional belt-driven centrifugal fans, the company decided for the CyberAir precision air conditioning solution with EC fans. Although this solution presented a higher capital investment, the additional procurement costs have already been recouped after 8.8 months. Considerable savings in operating costs can be achieved using CyberAir with EC fan technology over the service life of the equipment.

Comparison of operating costs CyberAir/Compact-Line for 12 months			
Unit type		**Compact-Line CSD 1052 A**	**CyberAir ASD 1052 A**
Number of units		4	4
Air flow	m³/h	96,000	96,000
Cooling capacity (total)	kW	375	375
Cooling capacity (net sensible)	kW	296	296
Compressor power consumption	kW	82.7	79.0
Fan power consumption	kW	36.8	23.5
Total power consumption	**kW**	**119.5**	**102.5**
Purchase price	**€**	**63,574.–**	**76,510.–**
Operating costs per annum	**€**	**124,327.80**	**106,641.–**
Saving in energy costs	**€**		**17,687.–**
Payback	**in months**		**8.8**

Energy costs 0.12 €/kWh, operating conditions: return air 24 °C, 50 %, external static pressure 20 Pa

» **Cost saving 17,687.– € annually**

» **Payback period 8.8 months**

Example B

The example shows the IT rooms at the computer centre operator HOST. CyberAir with EC technology is operated here using a chilled water system cooling system and the innovative C7000 control in energy saving mode. This configuration yields further potential for savings:

Figure 1

» **Conventional operation**
3 units run at full load to cover the thermal load. One unit is in standby mode

Figure 2

» **STULZ CyberAir energy saving mode**
4 units run, controlled by the C7000-VarioLogic control system, at partial load

* When required (e.g. on a failure or maintenance) the remaining units automatically switch to controlled full load (see Figure 1)

Comparison of operating costs CyberAir with/without standby unit for 12 months			
Unit type		**CyberAir ASD 1500 CW**	**CyberAir ASD 1500 CW**
Number of units		4	4
Number of units in standby		1	0
Operating point, air flow	%	100	73
Total air flow	m³/h	85,000	85,000
Cooling capacity (net sensible)	kW	335	335
Total power consumption	**kW**	**24.0**	**12.4**
Noise level 2 m, free field	dB(A)	70	65
Operating costs per annum	**€**	**24,969.–**	**12,901.–**
Saving in energy costs	**€**		**12,068.–**

The performance data for CyberAir were measured on a standard test stand at DMT.
The advantages of the partial load area: 1/2 speed = 1/8 power input > lower energy requirement and less noise Energy costs 0.12 €/kWh, operating conditions: return air 24 °C, 50 %, water 7 °C/12 °C, external static pressure 20 Pa

» **Cost saving 12,068.– € annually**

EC fans comply with the highest requirements for cost-effectiveness, flexibility and reliability also in cleanroom systems. At a leading cleanroom specialist EC fans have already been in use for more than nine years or 80,000 hours without any maintenance.

08-06 e · IWS · SDM, München

Certainly easy to service

CyberAir with maintenance-free EC fans are easy to place in operation. Thanks to continuous speed control of the EC motor, complex adjustment of the air flow by adjusting the belt is superfluous.

Integrated monitoring functions protect motor and electronics against the effects of jamming, phase loss or overtemperature. EC fans provide reliable operation and long service life.

Certainly the first

STULZ was the first manufacturer to develop a complete series of precision air conditioning units that exploits the advantages of the EC technology and provides you with a wide range of options: cooling systems in Upflow/Downflow variants, LowEnergy/LowNoise versions with maximum EER (Energy Efficient Ratio) and best footprint to cooling capacity ratio.

STULZ the natural choice www.stulz.com/global

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