Discover ebm-papst in the data center

Towards a more sustainable future through digital technology

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Innovation Datacenter

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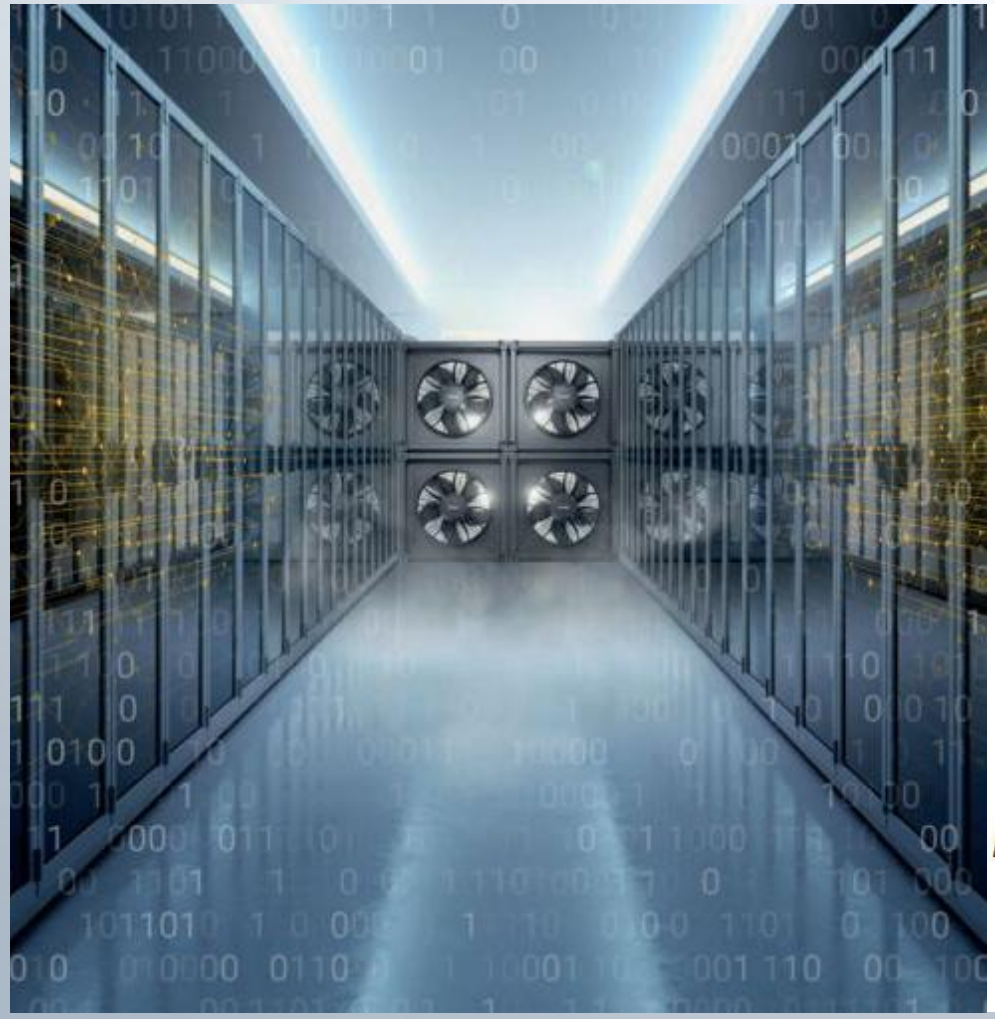

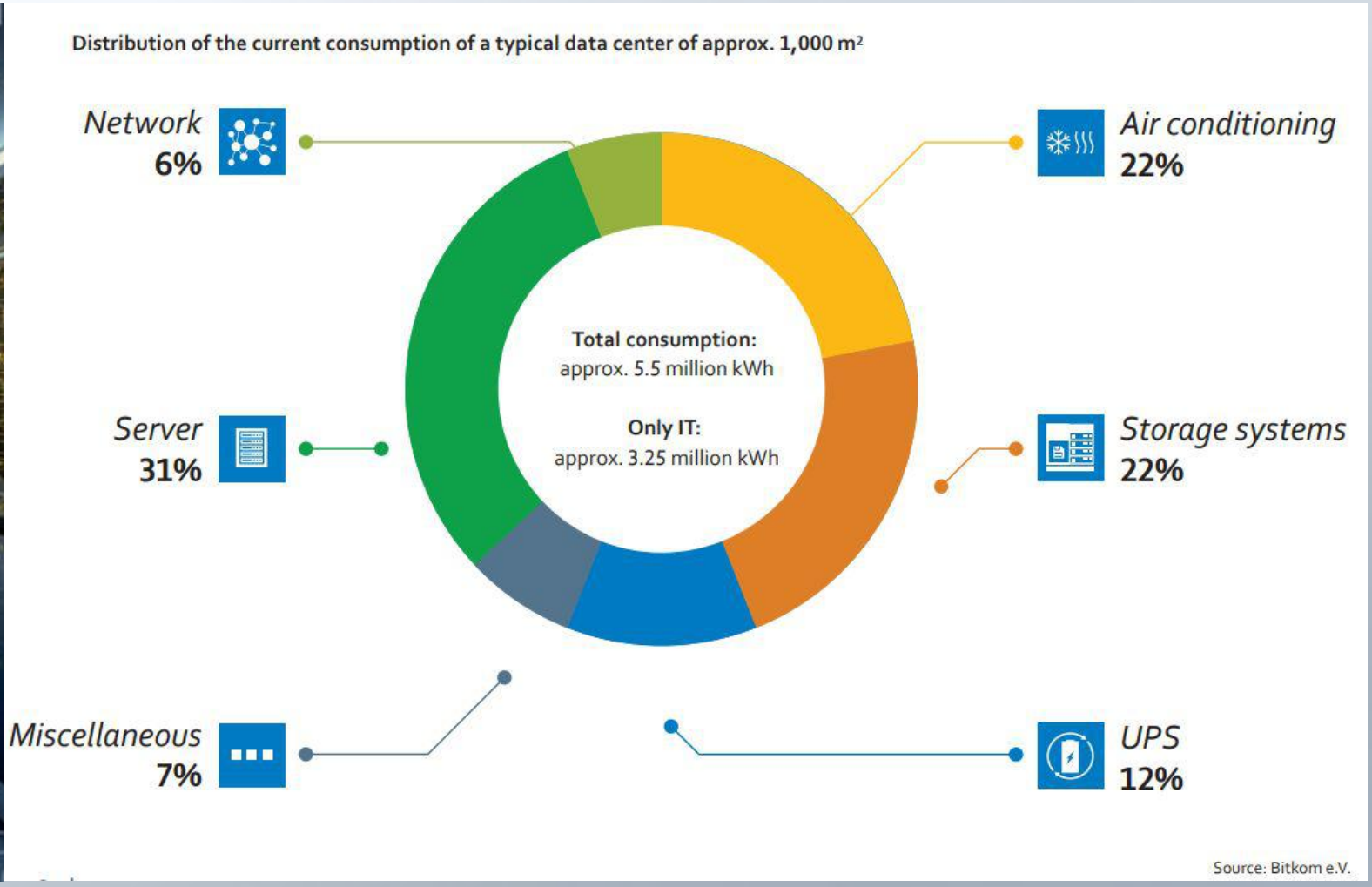

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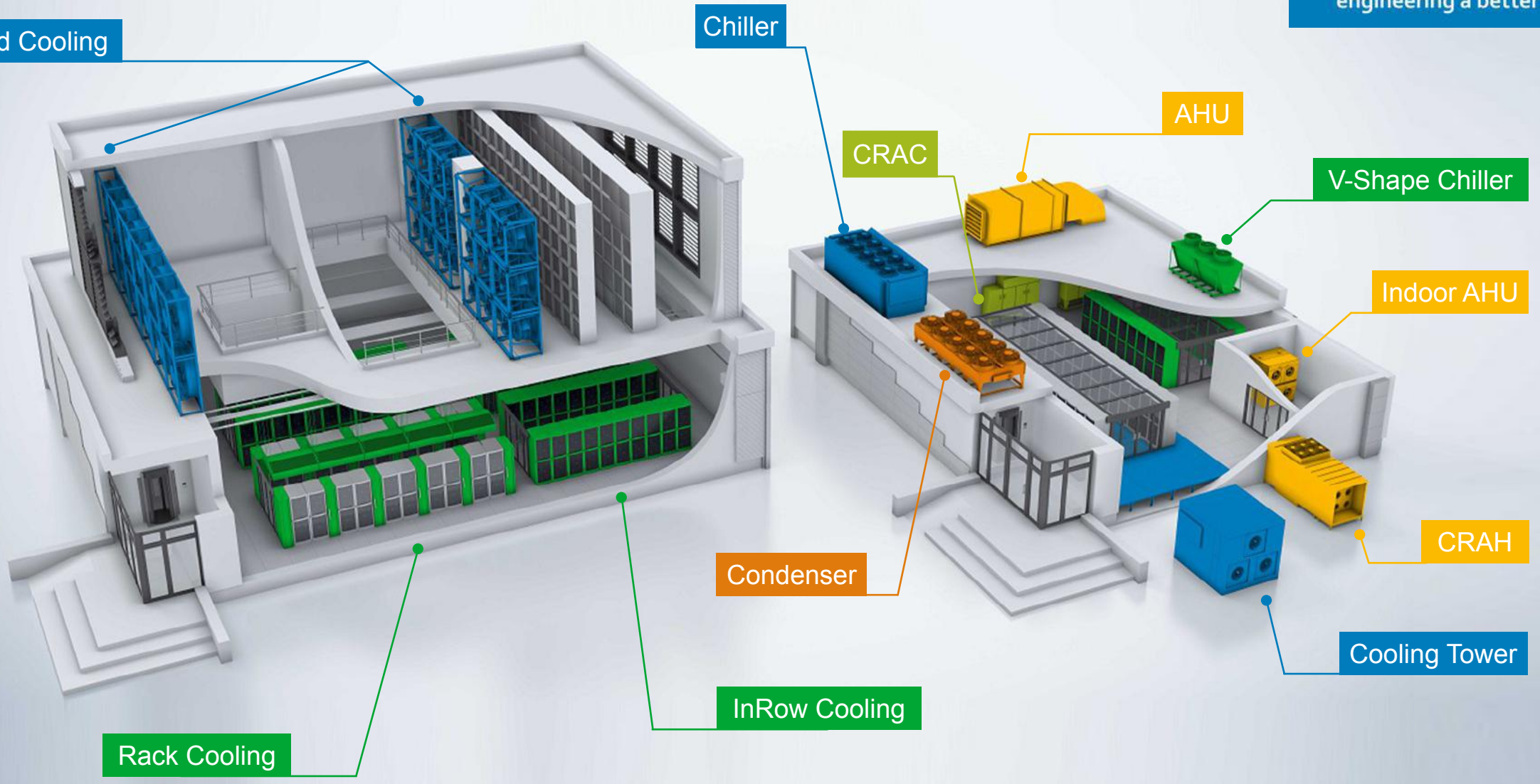
Demand for noise reduction

Increased power density / same space

Higher efficiency / same footprint

Intelligence



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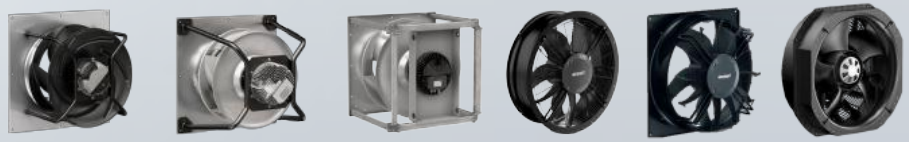
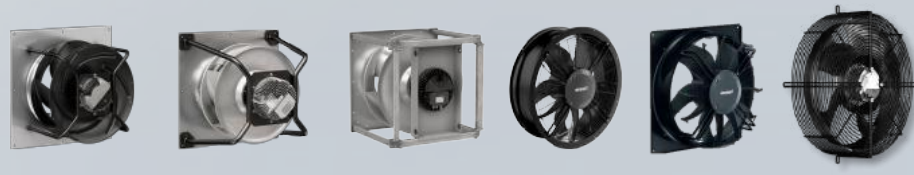
	Application Level	Fan Level
Edge		
Enterprise		
Colocation		
Hyperscalers		

The evolution of Centrifugals

Whichever way you turn it:
It's the benchmark. The new RadiPac

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RadiPac claims…

+ Optimized impeller geometry, composite material: Fewer flow losses and noise generation
+ New 8 kW electronics: Wider power range
+ Automatic resonance detection (generation III drive): Increased operational reliability
+ Standard + short version: More flexibility
+ Closed FlowGrid for protection against contact

Top efficiency
Higher power density
Best noise level

GreenIntelligence.
Making Engineers Happy.

All required hardware and software components from a single supplier:

- Monitoring of motor and ambient temperature
- Precise adjustment of volume flow and operating point
- Control and monitoring via MODBUS-RTU and/or 0-10 V/PWM
- Fan as sensor
- Automatic condition monitoring and resonance analysis
- Warning and/or shutdown in case of permanent unbalance

Datacenter Roadmap

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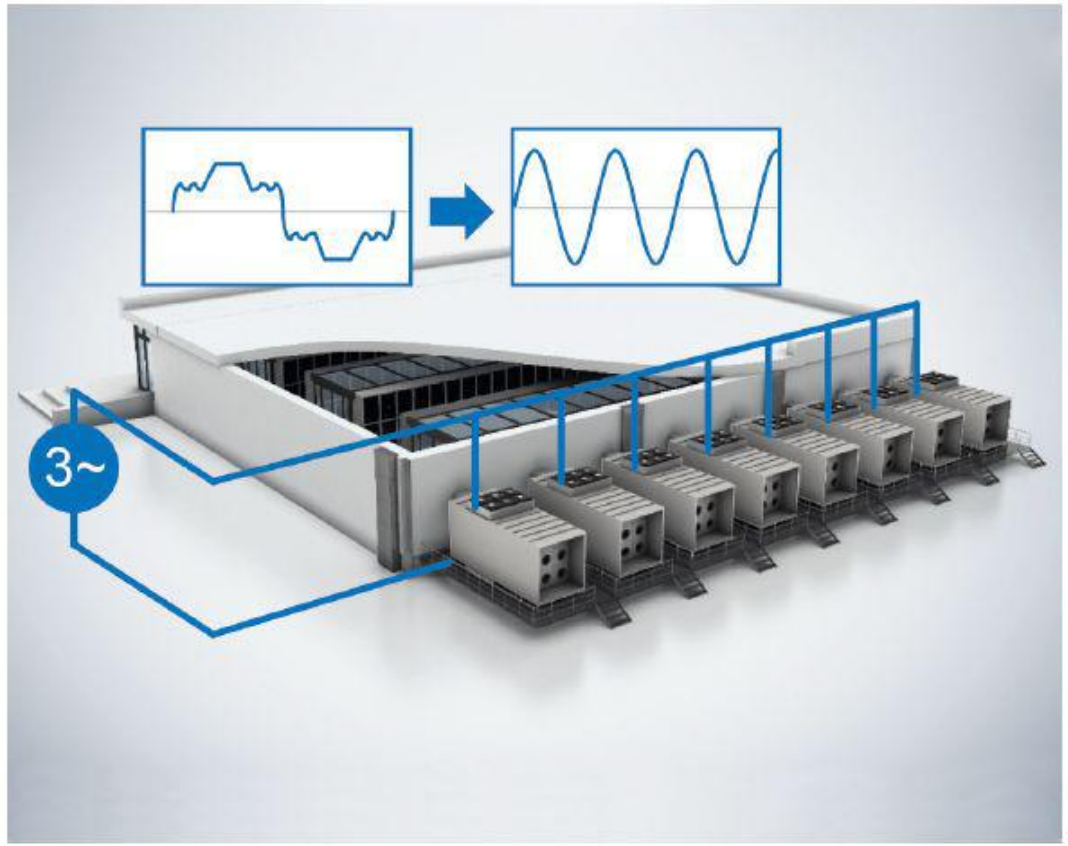
New Generation 3~Active PFC - Minimize the problem of harmonics



When operating speed-controlled drives, regardless of whether they are AC/PM motors with frequency converters or EC drives, current harmonics are generated as a matter of principle. In combination with an inadequately dimensioned voltage supply, these current harmonics can cause problems in critical infrastructures. In order to reduce these current harmonics, suitable measures must be introduced for the corresponding application case.

The good news: External components are now no longer required. To prevent the problem of harmonics from occurring in the first place, ebm-papst has come up with a solution where the harmonic filter is already integrated: namely, Active PFC (Power Factor Correction).

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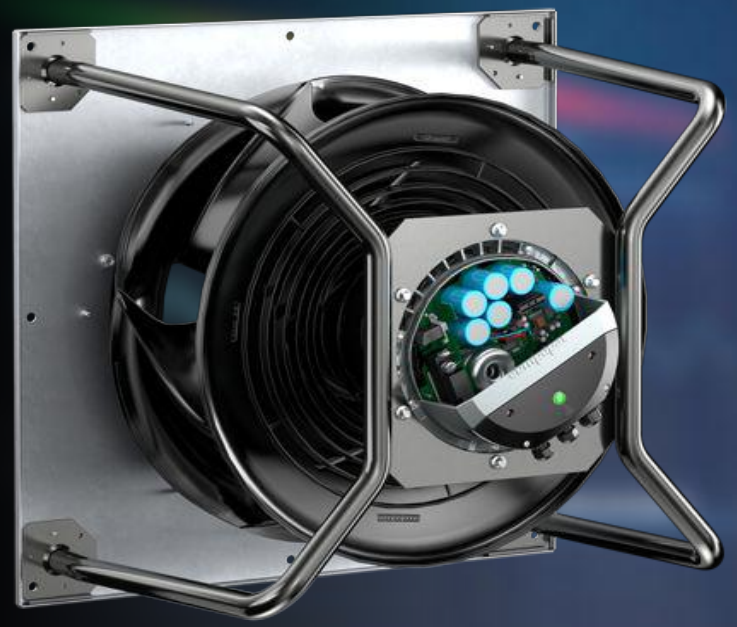
Harmonic minimization



- THD(I) ≤ 5 % over a broad power range
- Minimal current harmonics, even in part load operation
- Problem-free parallel connection of multiple fans
- Perfect interaction of efficient centrifugal fans and electronics with Active PFC
- Up to 4,0kW power @TA=40°C
- No additional wiring work required “Plug & play”
- Nearly ideal power factor of up to 0.998

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Preventive maintenance

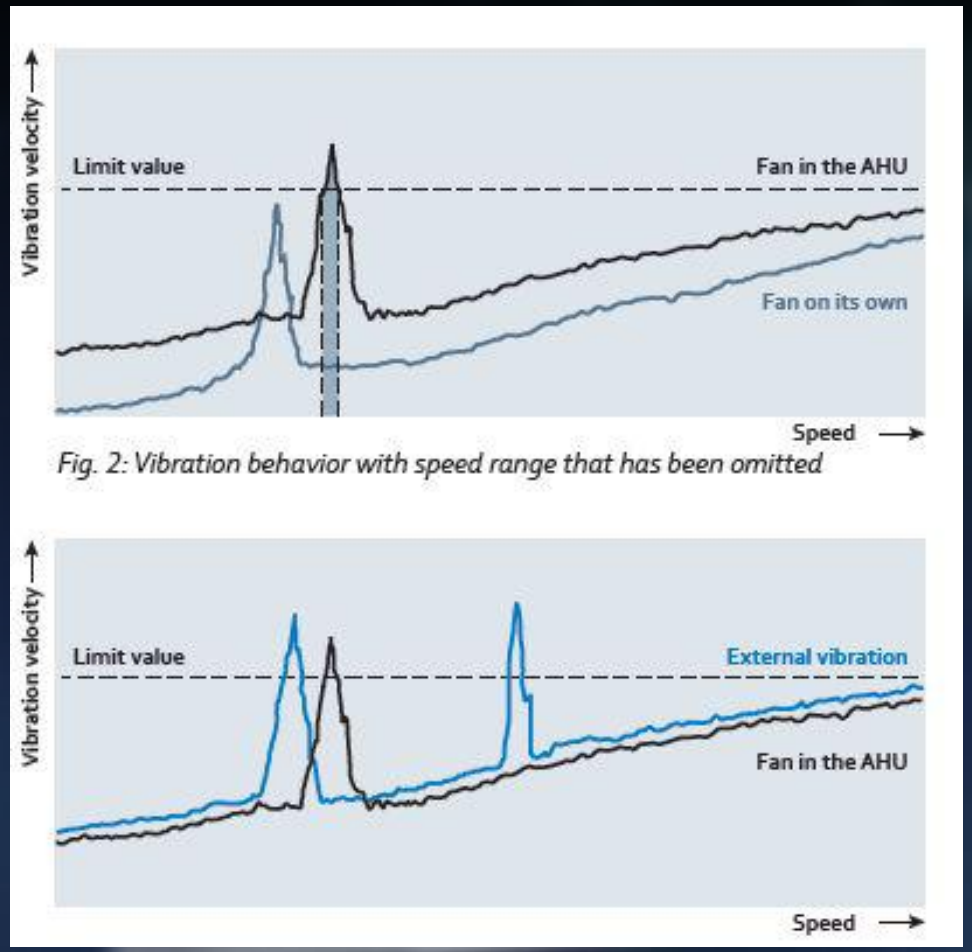

Fig. 2: Vibration behavior with speed range that has been omitted

The evolution of Centrifugals

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Our modular cube system

Simple handling
- Easy to transport and assemble
- Connecting elements can be purchased separately
- Customized assembly and scalability
- Mount up to five modules one on top of the other

Innovative design
- High-strength, lightweight material
- Customized cube sizes possible
- Aerodynamically optimized design to prevent installation losses

Immense power range
- Power range up to ∞ m³/h

Fan wall 30,000 l/s 1000 pa 3000 W in savings

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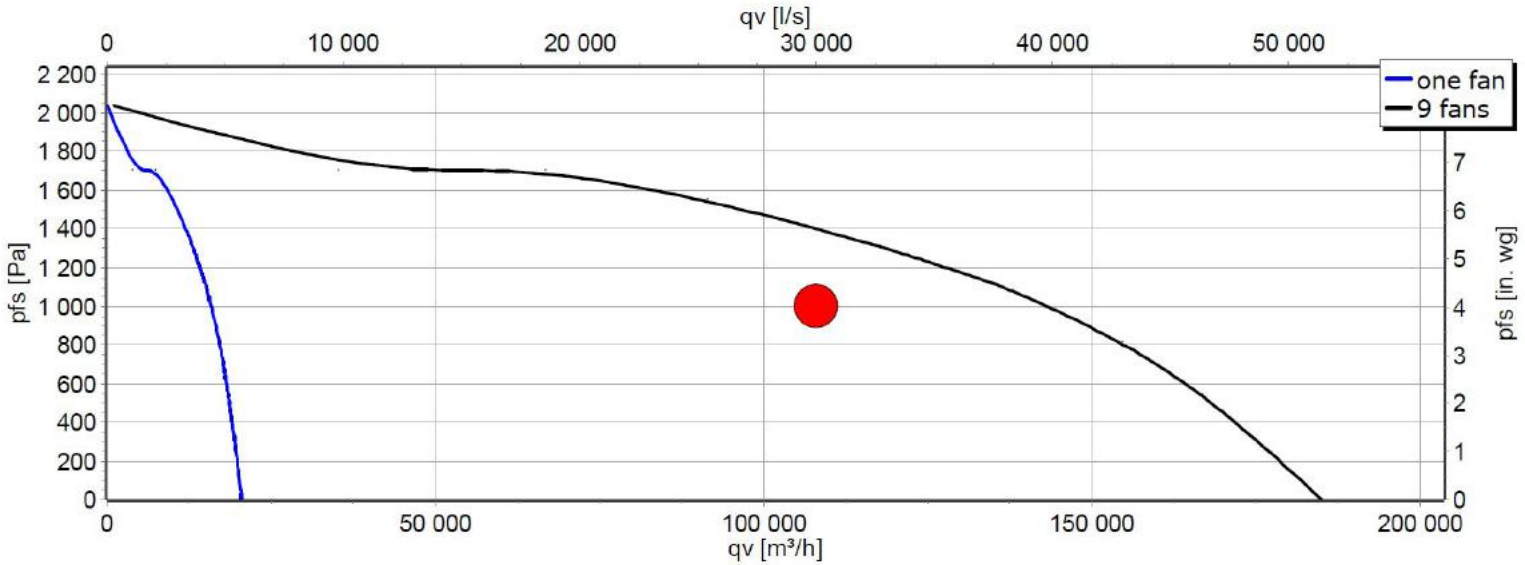
NEW

OP	qv[l/s]	pfs[Pa]	t [h]	es[%]	ed[%]	Ped [W]	n[1/min]	SFP	Uctrl. [V]	pd [Pa]	I [A]	E[kWh]	Pv[W]	m[%]	r[%]	sr[%]
1	30000	1000	8760	72	78	41478	2105	1,383	-	76,2	63,7	363342	0,0	91	86	80
p.a.			8760									363342				

OP	qv[l/s]	pfs[Pa]	t [h]	es[%]	ed[%]	Ped [W]	n[1/min]	SFP	Uctrl. [V]	pd [Pa]	I [A]	E[kWh]	Pv[W]	m[%]	r[%]	sr[%]
1	30000	1000	8760	68	71	44401	1747	1,480	9,7	56,6	67,9	388956	0,0	90	79	75
p.a.			8760									388956				



The evolution of Axials

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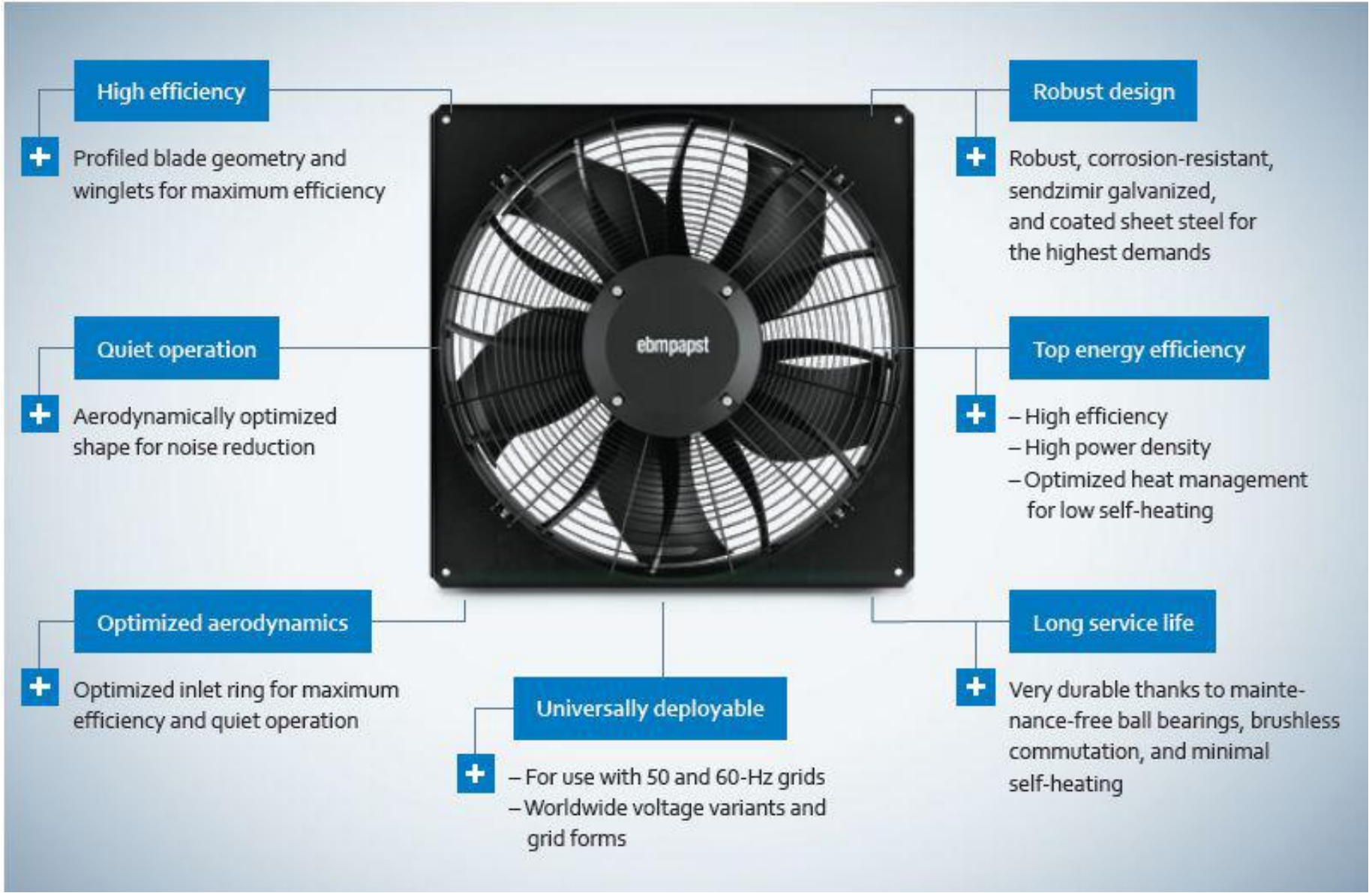

AxiEco
Protect & Perform

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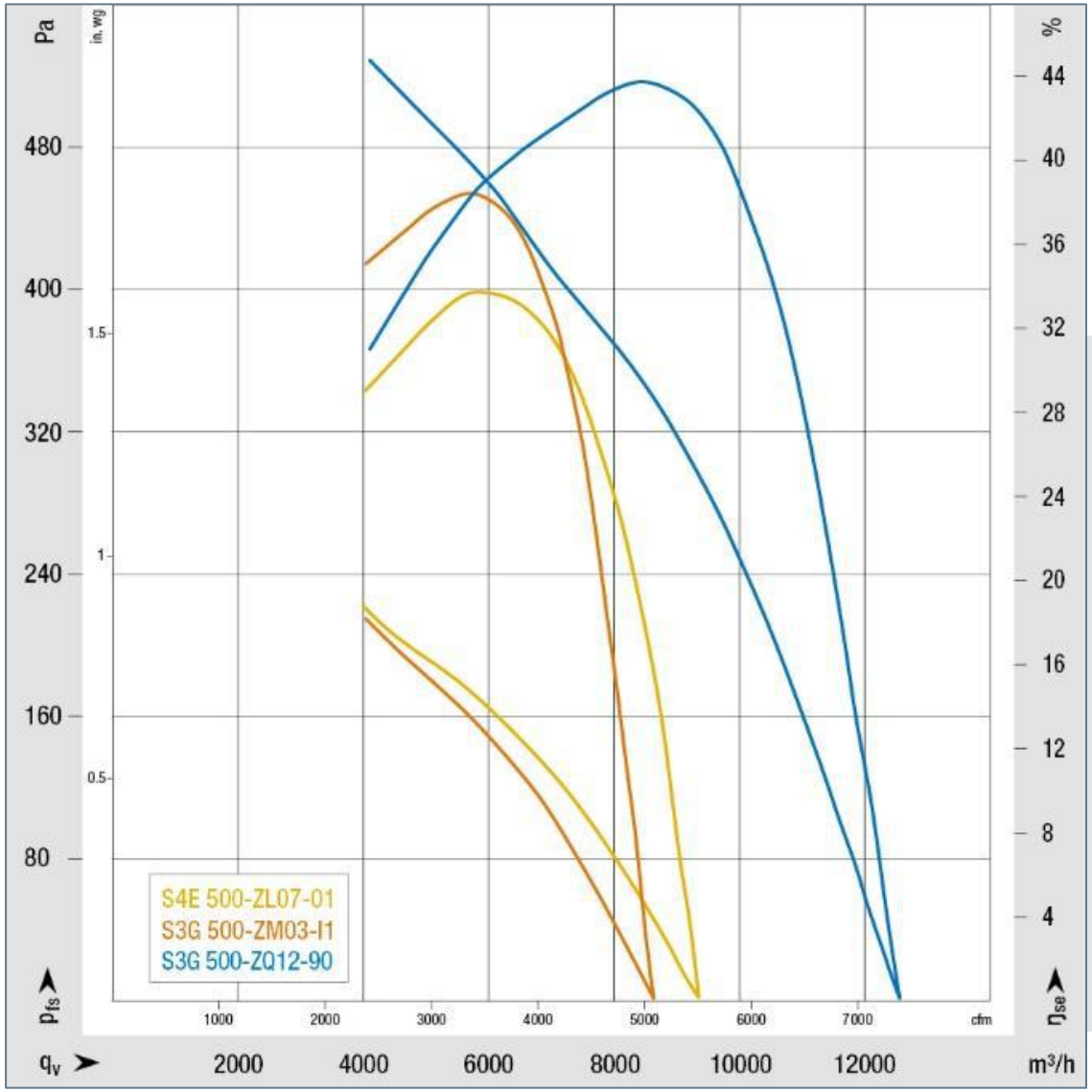

AxiEco Perform

Housing version

- Plastic housing with guard grill and inlet ring
- Integrated guide vanes to increase efficiency and air throw
- Flexible installation options
- Ready-to-install fan

The evolution of server rack and basestation

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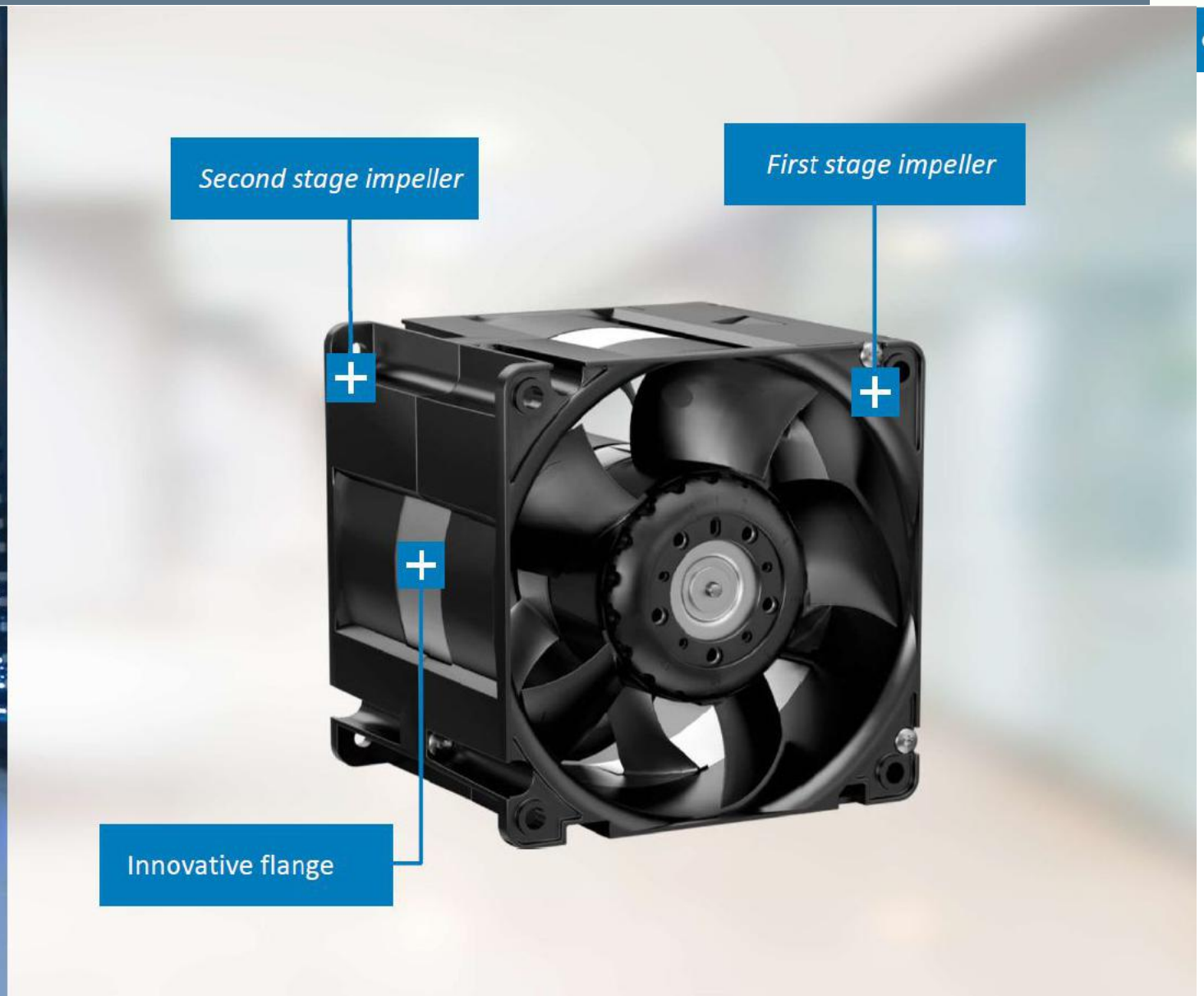

AxiTwin 100

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Description | Characteristic curve | Nominal data | Drawing

- New developed flow geometry
- New three-phase motor concept
- Counterwise rotating impellers
- 2 independent drives (Redundancy)
- Highly efficient
- Air flow direction: Exhaust over struts
- Rotational direction: Counterclockwise, looking towards rotor
- Material Housing: Plastic (PC+ABS)
- Material Impeller: Plastic (PA)
- Center flange: Die-cast aluminum

optional

- PWM speed control
- Analogue speed control
- Speed signal
- Alarm signal
- Humidity protection

Innovation Datacenter Flexi Connect

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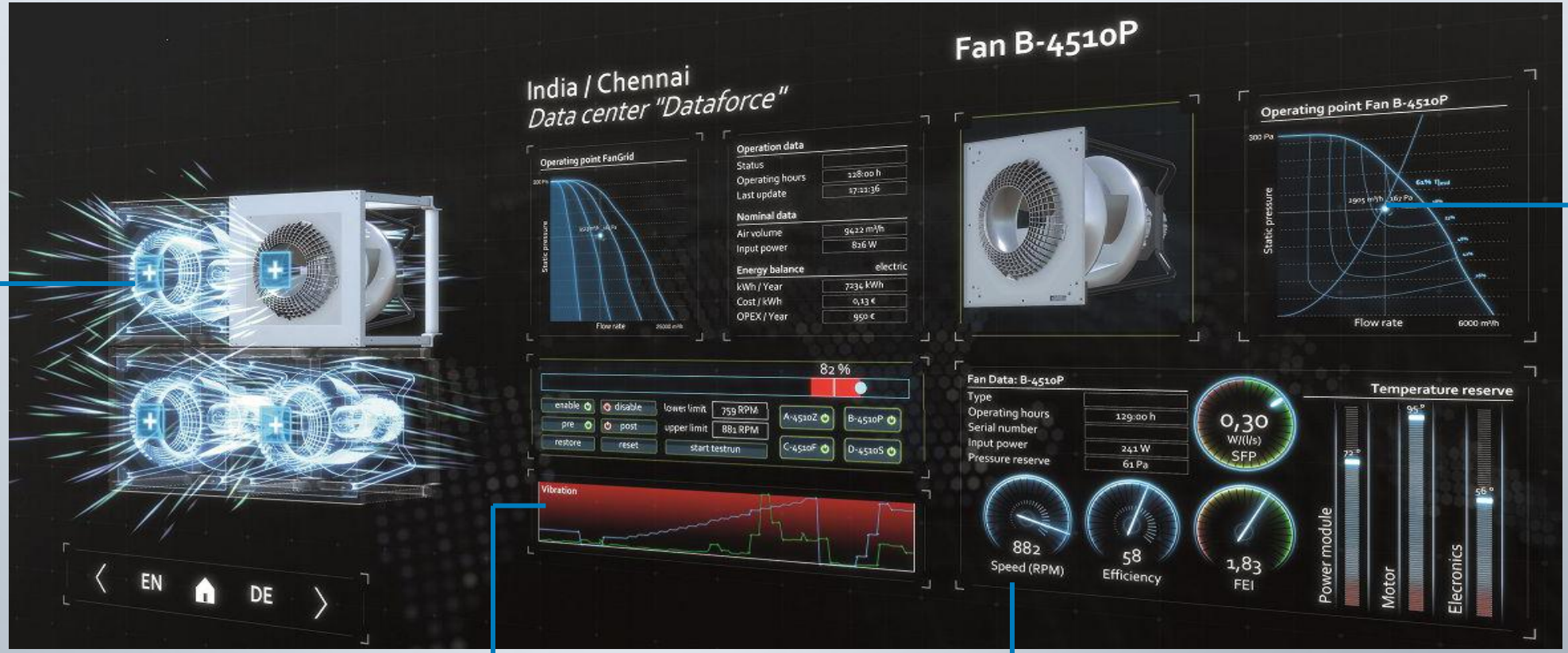

Time savings during commissioning

An optional controller enables FanGrids to be put into operation easily with the help of auto-addressing and then controlled.

Increased operational reliability

optional: Monitoring of vibration velocities using high-precision vibration sensors. Impermissible vibration velocities can be suppressed automatically.

Standard parameters

The most important fan parameters such as various temperature values, speed, and power consumption are available at any time for further processing.

Independent control

Controlling the required air flows or pressures precisely – no problem at all with optional sensors

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the engineer's choice

1. Visualization
Keep an eye on your data at all times from anywhere.

2. Preventive maintenance
The aim of preventative maintenance is to prevent failures and the associated downtimes. In keeping with Industry 4.0, the fan is equipped with a certain fundamental level of intelligence that enables it to inform the user about the next maintenance work as a preventive measure. In conjunction with optional vibration detection, the preventive maintenance feature ensures that critical vibration velocities can be detected and suppressed. This results in a longer service life for the entire system and thus a lower TCO.

3. Predictive maintenance
Predictive maintenance relies on high-precision sensors combined with integrated intelligence to be able to find out exactly about the actual condition of the fan. Based on this data, precise information about the remaining service life is possible depending on the relevant usage behavior.

Retrofit approaches
Step by step

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Engagement and interest!

1. Site survey

- Fan types, drive technology
- Controlling
- Built in situation (engineering demand - customized solutions)

2. Product selection and optimization

- Product types
- Optimize operating points and controlling

3. Estimate savings

- Evaluate the different potentials

Thank you

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