

Movement by Perfection



The Royal League in ventilation, control and drive technology

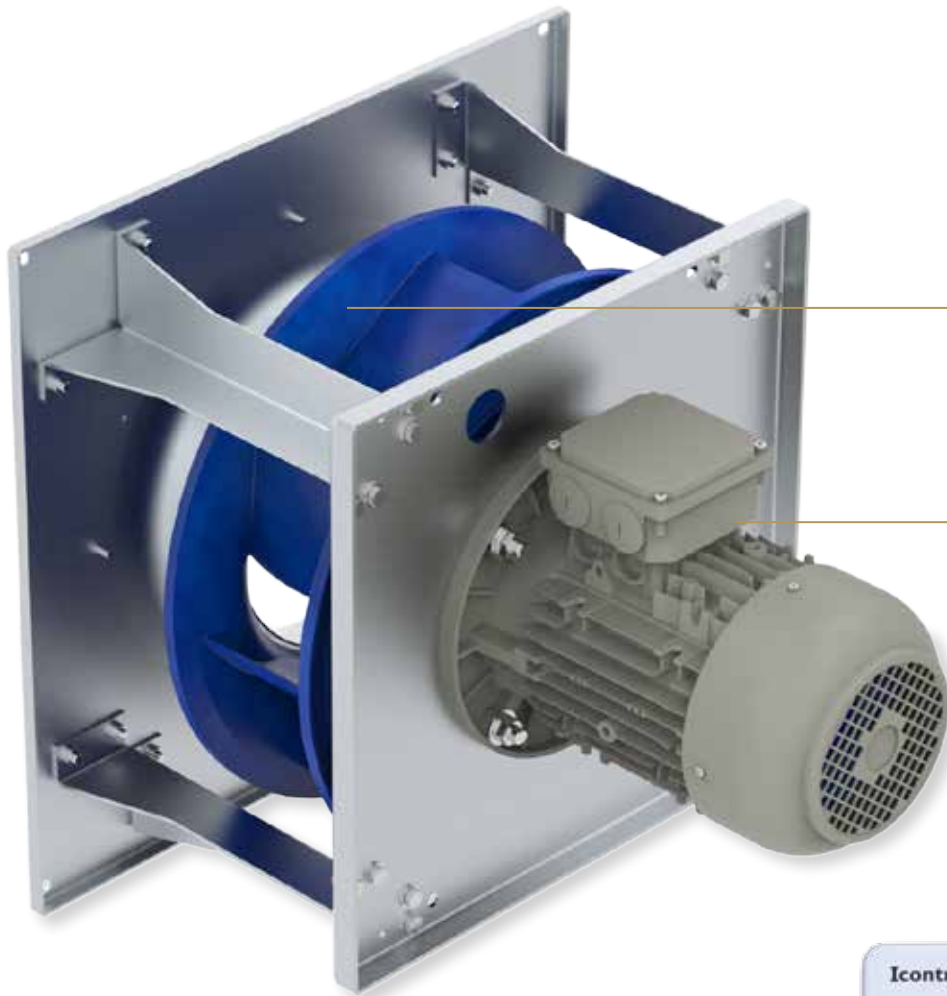


## System solutions

Centrifugal fans for air-conditioning technology

# Systematic Centrifugal Fans

ZIEHL-ABEGG offers the largest range of fans in various materials, motor technologies and control technology – perfectly matched to customer needs.



## The most suitable solution for every application – an overview of our components

Everything is just perfect: Innovative centrifugal fans – also available as modular system solution in parallel operation – with state-of-the-art motor technology in AC and EC versions. Intelligent control technology, flexible and application-specific. Everything from a single source.

On the following pages you will find an overview of the ZIEHL-ABEGG system components:

### Centrifugal impellers made of various materials

Pages 4 - 5

### Motor technologies

Page 6

### Designs

Page 7

### Control technology

Page 8



Compile the system components according to your needs. Our certified FANselect software will help you decide. It will propose the ideal components, suited to your plant's specifications.

# Versatility for any application

Centrifugal impellers made of various materials



**Vpro**

*High-performance composite material*  
Ø 190 - 630 mm



**Cpro**

**ZAmid**® Technology  
Ø 250 - 630 mm



**C-Steel**

*Steel, powder coated*  
Ø 225 - 1120 mm

## Benefits of diversity:

- Impellers with the highest efficiencies – combined with the best noise behaviour
- Operating temperatures of up to 600 °C in process air
- Applicable for high hygienic requirements, e.g. clean room, hospitals
- Resistant to various substances (oils, greases, chemicals)
- All product sizes can be combined with highly efficient motor technology

## Benefit from the **ZAmid**® Technology

- Significant increase of the static impeller efficiency to 75 %, which saves up to 15% energy during operation
- Prevents noise emission by reducing the tonal noise by up to 5 dB
- Significant weight reduction, which reduces motor bearing loads and increases the system service life
- Suitable for temperature ranges from -20 °C to +80 °C – comparable to a steel impeller
- Colour-stable, no toxic gas emissions
- Microbiological inertness for the highest hygienic requirements





### C-Alu

Aluminium  
 Ø 225 - 800 mm



### C-ATEX

Steel, powder coated  
 (Zone 2G + 3G, additionally  
 electrically conductive)  
 Ø 225 - 1000 mm

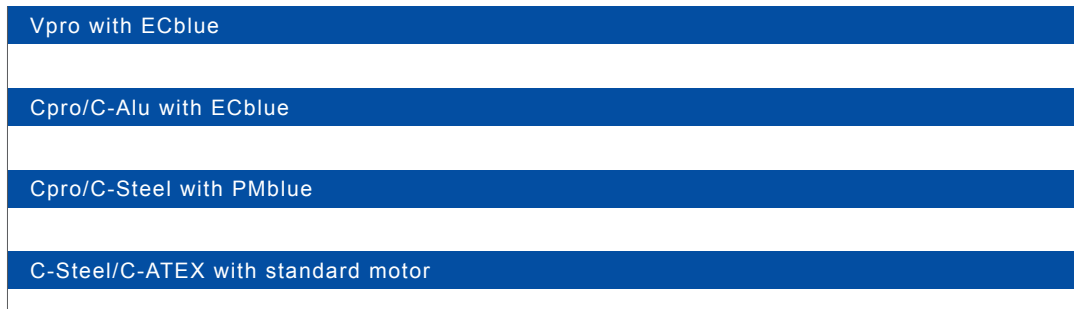
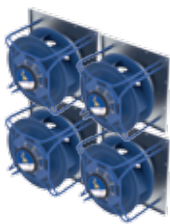


### PR

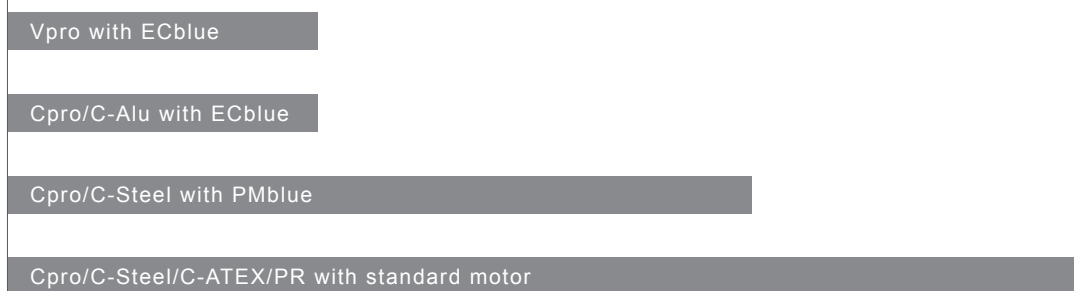
High-alloy stainless steel  
 Process air from 1.4301  
 (Ansi 304) to 1.4878  
 (duplex stainless steels)  
 Ø 250 - 2000 mm

### Capability profile of possible impeller-motor combinations:

Parallel operation



Single fans



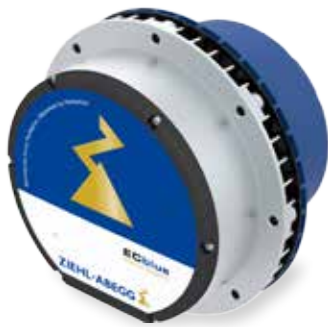
Air volumes [m³/h]  
 [cfm]

25.000 50.000 200.000  
 15.000 30.000

# High-efficiency drives

## EC-technology

## AC-technology



### ECblue

- Compact external rotor motor
- Optimised integrated EC controller
- IE4 Efficiency class
- Efficient operation even at low speeds



### PMblue

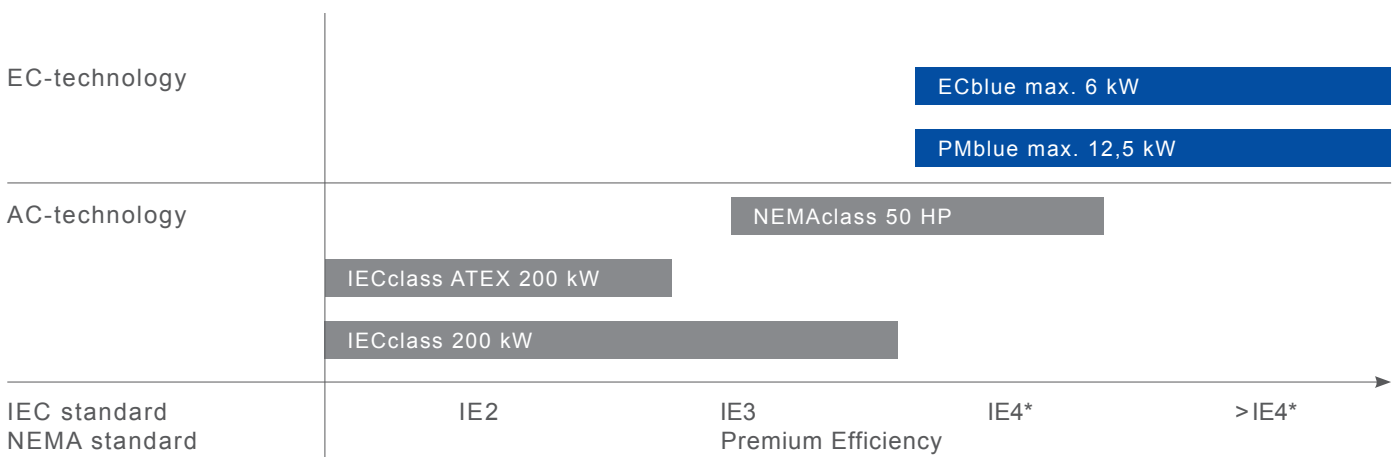
- Permanent-magnet internal rotor motor with low-noise and vibration-free operation
- Ideal for very high rotational speeds
- Highest efficiencies, even at low rotational speeds and in the partial load range.
- IE4 Efficiency class



### Standard motor

- Standardised motors from mass production manufacturers (IEC or NEMA standard)
- Standard motors are tested by ZIEHL-ABEGG
- Available in various efficiency classes (IE2-IE3 or NEMA Premium Efficiency)

## Efficiency classes of the various motor technologies:



\*compliant with the EN 60034 draft standard





# Precise fitting designs

For the highest demands – free-running centrifugal fans with direct drive

## Comparison of standard motor to the ECblue design

Design	RH	GR	ER	PR
Fitting position	Horizontal Vertical	Horizontal Vertical	Horizontal	Horizontal Vertical
<b>Standard motor for high pressure and strong air volume flow rates</b>				
Impeller diameters	Ø 225 - 1120 mm	Ø 225 - 1000 mm	Ø 225 - 1120 mm	Ø 225 - 2000 mm
<b>ECblue motor for confined installation situations</b>				
Impeller diameters	Ø 190 - 800 mm	Ø 250 - 630 mm	Ø 250 - 800 mm	

### The advantages of free-running centrifugal fans with direct drive as compared to belt-driven fans:

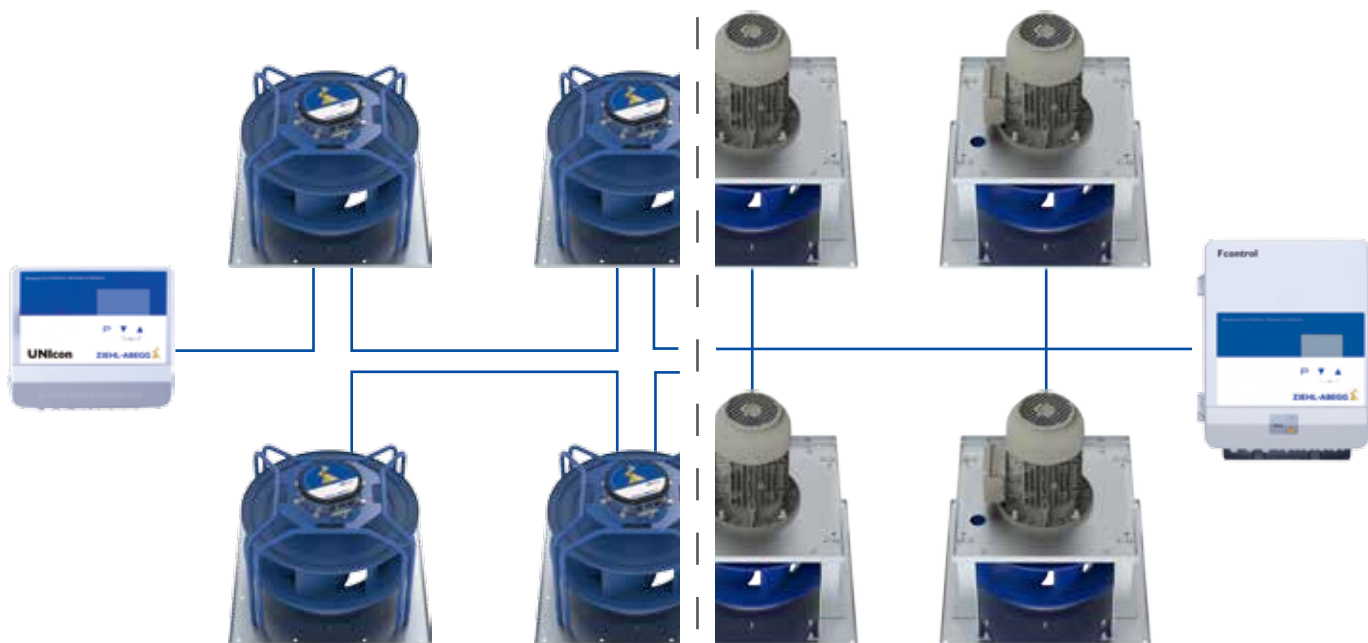
- No transmission losses, which means higher system efficiency
- The absence of a belt drive means significantly lower maintenance requirements
- Hygienically flawless design, easy to clean thoroughly
- More compact design
- Reduced installation surface
- Ideal flow conditions, uniform pressurization of the filter (no belt obstruction)

A stable sheet construction in the standard galvanized steel version supports the GR, ER, PR designs. It is also available with synthetic coating and, on request, in stainless steel (process air).

The various installation positions make these fans highly versatile.

# Perfect interaction

Intelligent control technology with perfectly matched fans for the highest power and energy-saving control



*ECblue motors with UNIcon, control the fans through one bus line*

*AC technology with Fcontrol frequency inverters, trouble-free parallel operation through integrated sinusoidal filters*



*UNIcon-CXE/AV Control module*

*Icontrol and Fcontrol frequency inverter with integrated sine filters*



*Hand held terminal*



*Add-on module AM-Modbus for function expansion*





## Frequency inverters for any application

**Fcontrol** with integrated, all pole effective sinusoidal filter preferably for:

- Fans with external rotor motors
- Parallel operation of fans
- Long cable lengths + unshielded motor cables
- Motors that are not suitable for frequency inverter operation
- Ideal when retrofitting a speed control
- Quiet fan operation without the typical frequency inverter whistling noise

**Icontrol** – established frequency inverter technology especially for:

- IEC standard motors (internal rotor motors)
- Isolated fan operation in air handling units
- Generally for frequency inverter-capable motors/fans

Applies to both Fcontrol/Icontrol product families:

- Available in multifunctional and basic versions
- With IP54 housings for installation without a control cabinet, even outdoors

**ZIEHL-ABEGG offers – entirely from one, single source – a comprehensive portfolio of control technology and system components.**

- The products are system-engineered to match each other perfectly
- Cross-platform control solutions, regardless of whether ECblue, PMblue or IEC motors are being used
- Add-on modules for functional expansion of the basic components ECblue, Fcontrol and Icontrol Basic
- Overriding control with UNIcon through Modbus, perfect for parallel operation of fans
- Modern configuration of many units can be undertaken wireless

## The unbeatable team

Modular system solution for maximum air handling capacity



### Advantages:

- Low space requirements: Several small fans take less mounting space
- Reduction of the sound power level in the low-frequency range
- Improved reliability thanks to redundancy: The failure of a single fan does not lead to a complete system failure
- Energy-saving through optimum selection of fans with the highest efficiency
- Increased flexibility: The number and size of the fans can be ideally selected based on the installation conditions
- Improved flow distribution: The result is an improved heat transmission and filter utilisation in the central air handling unit

# Quality in the Royal League

From development to individual application

## FANselect

The quality of the system solutions from ZIEHL-ABEGG is more than the sum of the individual product components. Consequent orientation to the customer requirements is complemented by individual, straightforward support when selecting and configuring the system solution. FANselect is the new, web-based selection software from ZIEHL-ABEGG. With FANselect, you can find the fan that best suits your requirements. Just enter an operating point and FANselect displays the most suitable fans. You can select the system components and calculate the life-cycle costs. View the SFP (specific fan power) classification and compare up to three fans for the desired air handling capacity and life-cycle costs.

High quality standards compliant with ISO 9001, UL and AMCA



In our innovative centre for research and development, the InVent Technology Centre, products are tested under the strictest conditions on our own test rigs and in measurement laboratories. The certification of our production processes and products based on international standards once more confirms the quality of the Royal League.

In the world's largest and most modern performance and acoustic fan test chambers, the fan units are tested in every conceivable combination. In gigantic air ducts, unbelievable air-flows of up to 100,000 m<sup>3</sup>/h as well as pressures of more than 3,000 Pa can be measured. Only products that pass the tests are the right components for system solutions from ZIEHL-ABEGG.

### Advantages

- Comprehensive product selection software, available anywhere in the Internet
- TÜV-certified calculation algorithms
- Available as a web and standalone version plus as calculation-DLL for integration into customer software
- Facilitates fan dimensioning in the installed state, also for modular system solution
- Along with centrifugal fans, also a comprehensive axial fan product portfolio
- All data is based on measurements

[www.fanselect.info](http://www.fanselect.info)







InVent – the world's largest air and noise test chamber

# The Royal League

© ZIEHL-ABEGG SE - 00703886 - EN - MA - 03/2016 - 2.000 - Klunker & Ewald - Subject to technical modifications

