

Movement by Perfection



The Royal League in ventilation, control and drive technology



Fans for railroad engineering

Innovative, efficient, application-specific

Wir entwickeln und produzieren die
effizientesten Ventilatoren für die Zukunft

ZIEHL-ABEGG

Die Königsklasse

der Lufttechnik
Regeltechnik und Antriebstechnik

Einzigartige
Kunststoffproduktion
für bionische Hightech-
Ventilatoren



EGG



klasse

chnik,
stechnik

Welcome to the technology leader

Top technology made by ZIEHL-ABEGG

The workshops in the pit lane at the Formula 1 race track in Abu Dhabi, the premises of the broadcaster RTL in Cologne, large wind-driven power stations, modern animal stalls, office buildings and shopping centres – ZIEHL-ABEGG fans provide ventilation, cooling and air conditioning in almost all application areas. Air technology from the Künzelsau-based company is even used in clean rooms and surgical rooms. ZIEHL-ABEGG use of bionics in our product development has made us a trend-setter in the industry. With the help of retrofit concepts, older systems can also be made state of the art.

The Künzelsau-based company ZIEHL-ABEGG SE has developed and built truly efficient, durable and robust electric motors for over 100 years. Drive technology is another area in which the company uses its innovative products to successfully deliver a wide range of applications in everything from lifts to medical technology. The efficiency of the electric in-wheel hub motor for city buses is the highest in the world.

More than half of the company's 3,900 employees work in southern Germany. This is also home to the world's largest combined measuring chamber and test bench for fans, which is able to simultaneously measure sound and efficiency. Annual research and development expenditure amounts to some seven per cent of turnover. These framework conditions have enabled ZIEHL-ABEGG to set global standards in the efficiency and sound characteristics of motors and fans over a number of decades.

The high-tech company was founded by Emil Ziehl in 1910 as a manufacturer of electric motors. ZIEHL-ABEGG SE is not listed on the stock market and is entirely family-owned.

Global sales network and production group

ZIEHL-ABEGG has 28 subsidiaries worldwide. With over 100 dedicated sales offices, the company is able to operate in close proximity to customers across the globe. This makes it possible to tap into trends and developments around the world that can be incorporated into product development. 18 international production sites deliver consistent product quality on a global level.





Fig.: Siemens



Your ticket for a royal league ride

As the world's leading system supplier in the field of fans and drives, ZIEHL-ABEGG offers matching control technology along with innovative solutions for railroad engineering.

We are a reliable innovation partner to many companies and rely on our decades of product experience in railroad engineering with special areas of application such as vehicle engineering, wind power stations, agriculture, the chemical industry and transformer cooling.

We produce tens of thousands of fans for the railroad engineering sector every year. With our wide range of products and our more than 300 man strong development team, we are able to flexibly create application-specific solutions.

Our world-wide sales and production network provides you with our services locally.

Fans for railroad engineering

Air conditioning for passenger compartments



Equipment

- Condenser fan, evaporator fan and exhaust air fan in axial or centrifugal design, either as a spiral housing fan with forward curved impeller or with free running, backward curved high-performance impeller
- Selection of various impeller and blade types: sickle-bladed, profiled – with EC and AC motor technology for optimum design

Advantages

- Low noise
- High corrosion protection
- Low overall height (flat top)
- Optimum thermal design



Passenger compartment air handling units for various types of train FE2owlet with ZAplus nozzles

Air conditioning for operator's platforms



Equipment

- Condenser fan and evaporator fan in axial or centrifugal design either as a spiral housing fan with forward curved impeller or with free-running, backward curved, high-performance impeller
- Design can be varied depending on the intended operating point and installation space
- EC and AC technology possible

Advantages

- Compact design
- Low noise
- High power density

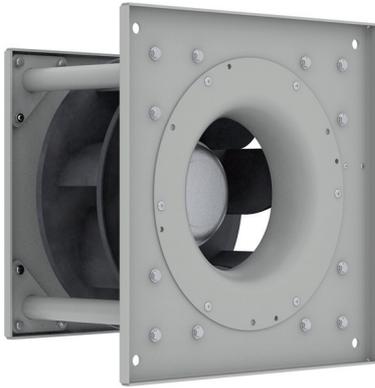


Fig.: Behr

Operator's platform air handling units RH..Cpro motorised centrifugal impeller

Innovative

Electronics and throttle cooling



Equipment

- Centrifugal fans for in-device installation without housing
- Ready-to-install modular solution
- High-performance impeller with backward curved blades
- Flexibly adapted to existing construction
- EC and AC technology possible

Advantages

- Compact design
- Available as a ready-to-install modular solution on request
- High impeller efficiency
- Motor winding design optimised for the operating point

Brake resistor cooling



Equipment

- MAXvent owlet medium-pressure axial fans complete with unique aluminium bionic profile in different housings and factory adjustable blade pitch angle
- Design can be varied depending on the intended operating point
- IEC internal rotor motor

Advantages

- Compact design
- Long service life
- Special corrosion protection
- Motor and impeller design optimised to meet the exact duty point requirements



ICE4, ventilation module, GR..Cpro



Brake resistor highly efficient medium-pressure fan series DN



Efficient

Transformer cooling and oil cooler



Equipment

- Internal rotor motors and external rotor motors with backward curved, free running, high-performance impellers
- Single and double inlet motorised impeller units – with and without housing for highest demands

Advantages

- Maximum reliability
- High corrosion protection
- Optimised impeller design
- High strength and temperature resistance



Fig.: Siemens

Siemens Vectron
PK-series centrifugal pipe fan

Compressor cooling



Equipment

- Single inlet centrifugal impeller RH..F design, with high power density
- AC external rotor motor integrated into the impeller – with optimised motor cooling

Advantages

- Extremely compact design
- High pressure
- Low weight

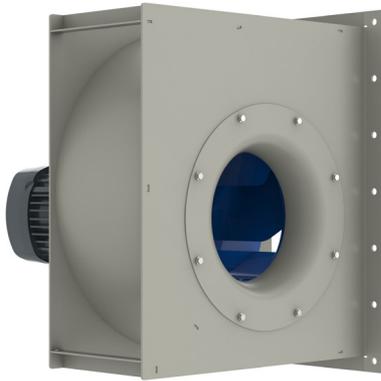


Fig.: Liebherr

ICE3 high-speed train
Roof-mounted air handling unit with RF22P housing fan

Application-specific

Traction motor cooling



Equipment

- High pressure centrifugal fan with backward curved blades in standard scroll housing with IEC internal rotor motor
- Compact external rotor motors with free running centrifugal impeller

Advantages

- Weight-optimised
- Vibration-isolated
- Special corrosion protection
- Motor and impeller design optimised to meet the exact duty point requirements



Fig.: Bombardier

Bombardier Intercity Regina
RG..Z design high-pressure fan

Ventilation for machine rooms



Equipment

- Double inlet, large-volume, forward-curved scroll housing fan with ZIEHL-ABEGG external rotor technology
- EC and AC technology possible

Advantages

- Customer-specific design
- Maximum reliability
- Long service life
- High volume flow rates
- Optimum motor cooling



Fig.: Bombardier

Bombardier double-decker railcar, Israel
RD..S design double inlet housing fan



Always a step ahead

Whether in Germany's underground rapid transport system or the ICE intercity network, solutions from ZIEHL-ABEGG are required in all areas of railroad engineering where fans are required for cooling or ventilation. This includes air conditioning for passenger compartments and driver's cabs as well as cooling systems for operator's platforms and motors.

Our system solutions in the field of air conditioning and ventilation systems are based on our established expertise in flow engineering for motors, drive technology and acoustics. A specialised team for railroad engineering with decades of experience in this area develops products and implements applications precisely in line with the individual operational areas.

Our products stand out thanks to their:

- Compact design
- Low noise operation
- Maximum efficiency
- Low weight
- Maximum reliability
- Long service life
- Design for high vibration load and shock load
- Outstanding corrosion protection
- Motor and impeller design optimised to the operating point
- Plug-in solutions

Relevant standards

We observe the specifications of the following rail-specific standards among others:

DIN EN 50155: Railway applications – Electronic equipment used on rolling stock

DIN EN 61373: Railway applications – Rolling stock equipment – Shock and vibration tests

DIN EN 45545: Railway applications – fire protection for railway vehicles – Part 2: Requirements for fire behaviour of materials and components

DIN EN 60349-2: Electric traction – Rotating electrical machines for rail and road vehicles – Part 2: Electronic converter-fed alternating current motors

DIN EN 15085: Railway applications – Welding of railway vehicles and components, classification level CL1

ZIEHL-ABEGG is certified in accordance with EN15085 "Welding of railway vehicles and components" classification level CL1.

DIN EN 50121-3-2: Railway applications – Electromagnetic compatibility – Part 3-2: Rolling stock apparatus

DIN EN 50124-1: Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment

DIN EN 60721-3-5: Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 5: Ground vehicle installations





The Royal League



Fig.: Talgo