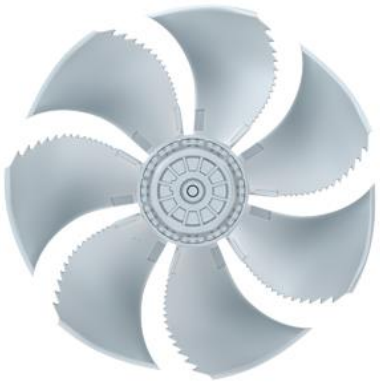
EN

Movement by Perfection

The Royal League in ventilation, control and drive technology



Product documentation

Type
FN050-VDS.4I.V7P1

Article number
161541

ZIEHL-ABEGG

Product documentation

ZIEHL-ABEGG Contact
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Type
FN050-VDS.4I.V7P1

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161541

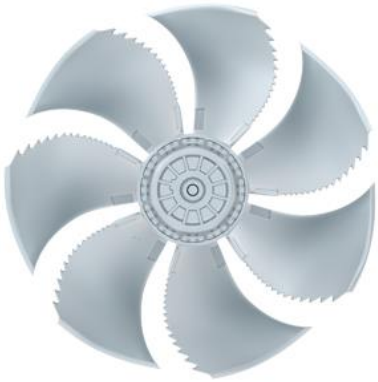


Table of Contents

1. Recitals

The Product Specifications contained in this document are final, unless otherwise stated by a separate provision in the "ZIEHL-ABEGG deviation list document" with respect to information provided by the customer (cp. separate Chapter: Attachment).

Other regulations between the parties, regardless of time, form or content, are not part of the subject matter of the contract and the agreement on characteristics/of features (Product Specifications) between the parties.

Compliance with the following specifications is mandatory to ensure the functionality and safety of the product. If the following specifications given especially but not limited for operating conditions, transport, storage, mounting, start-up, maintenance and repair are not observed, the product may not operate safely and may cause a hazard to the life and limb of users and third parties.

Deviations from the following requirements may therefore lead both to the loss of the statutory material defect liability rights and to the liability of the buyer for the product that has become unsafe due to the deviation from the specifications.

2. Product Specification - Technical Data

Article number	161541	
Type	FN050-VDS.4I.V7P1	
Rated values	3~400V D/Y 50Hz P(1) 0.84/0.54kW 1.45/0.96A ΔI=15% 1340/940/min COSY 0,80 70°C	
Electrical connection	Terminal box K62	
ErP Data	Measurement category ErP: A Air flow q(v) on Eta opt: 6159 m3/h Pressure increase p(fs) on Eta opt: 149 Pa Input power P(1) on Eta opt: 760 W Efficiency H(statA): 34.2 % Efficiency grade: N(actual) = 41.3 / N(target) = 40* *ErP 2015	
Type Of Protection	IP54	
Heat Class	THCL155	
Mounting Type Terminal Box	Mounted on Stator	
Connection Diagram	1360-108XA	
Rating Plate	1x fixed	
Fitting Position	H/Vu/Vo	
Motor Protection	thermal contact	
Impregnation	Moisture and hot climate protection	
Condensation Drain Holes	Condensation drain holes stator/rotor open	
Bearing Quality	ball bearing with long-time lubrication	
Material Rotor	Aluminium	
Painting Rotor	Rotor unpainted	
Painting Stator	Stator unpainted	
Material Blades	Aluminium	
Painting Impeller	Blades unpainted	
Contact Protection Type	ring grill	
Other	All connecting elements in stainless steel.	
Other	All connecting elements with screw locking.	
Operating Manual	L-BAL-001	
Engine Suspension Paint	Motor suspension powder-coated resistance class 2 (L-TI-0585)	
Weight	13.30	kg
Colour Suspension	RAL 9005 (jet black)	
Min. Operating Temperature °C	-40°C***	
Disclaimer Ct20/Doe	Selected product is not governed by U.S. DOE and CT20 industrial fan and blower regulations.	

*** Operation mode: Continuous operation with occasional starts (S1) according to DIN EN 60034-1:2011-02. Occasional starting between -40 °C and -25 °C is permissible. Continuous operation below -25 °C only with special bearings for refrigeration applications on request.

3. Characteristic Curve

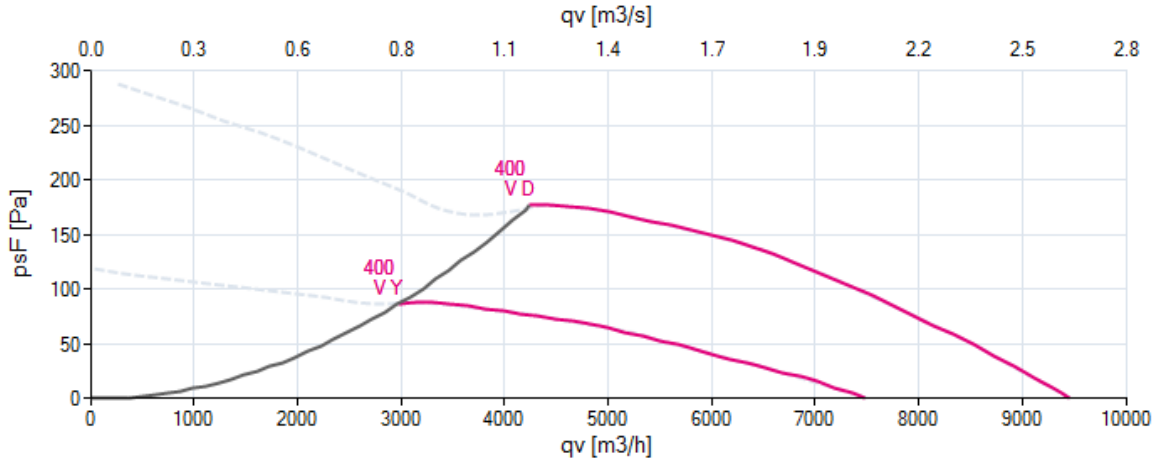
FN050-VDS.4I.V7P1

Measured in full nozzle without guard grille in air flow direction V in installation type A according to ISO5801

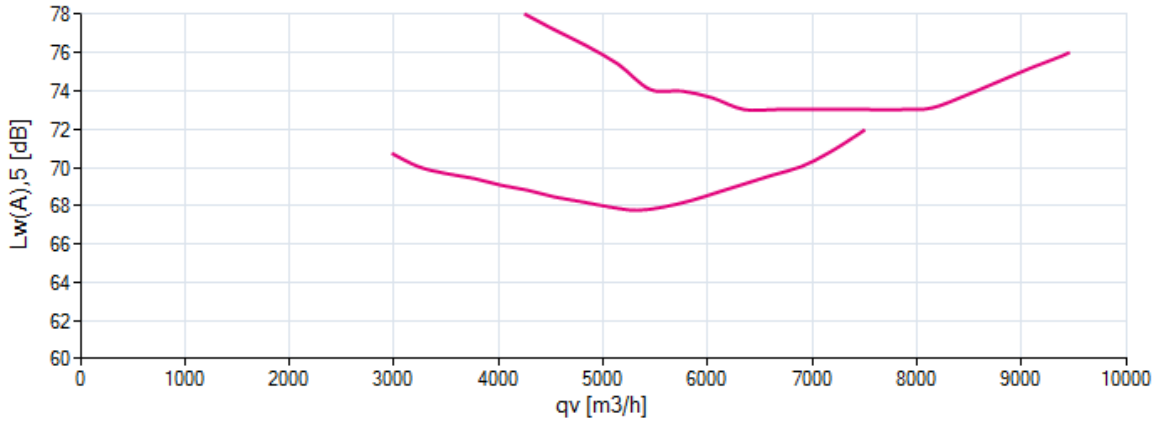
3~ 400V 50Hz `D

measurement density 1.16 kg/m³

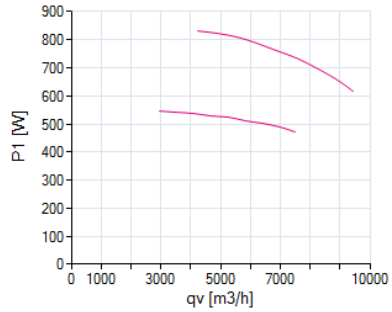
Air performance



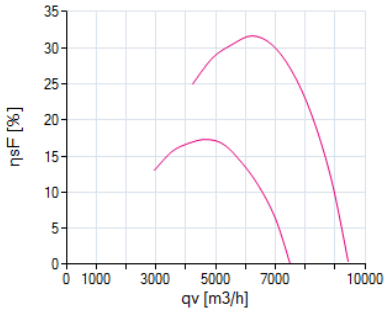
Acoustics



Power input



Efficiency



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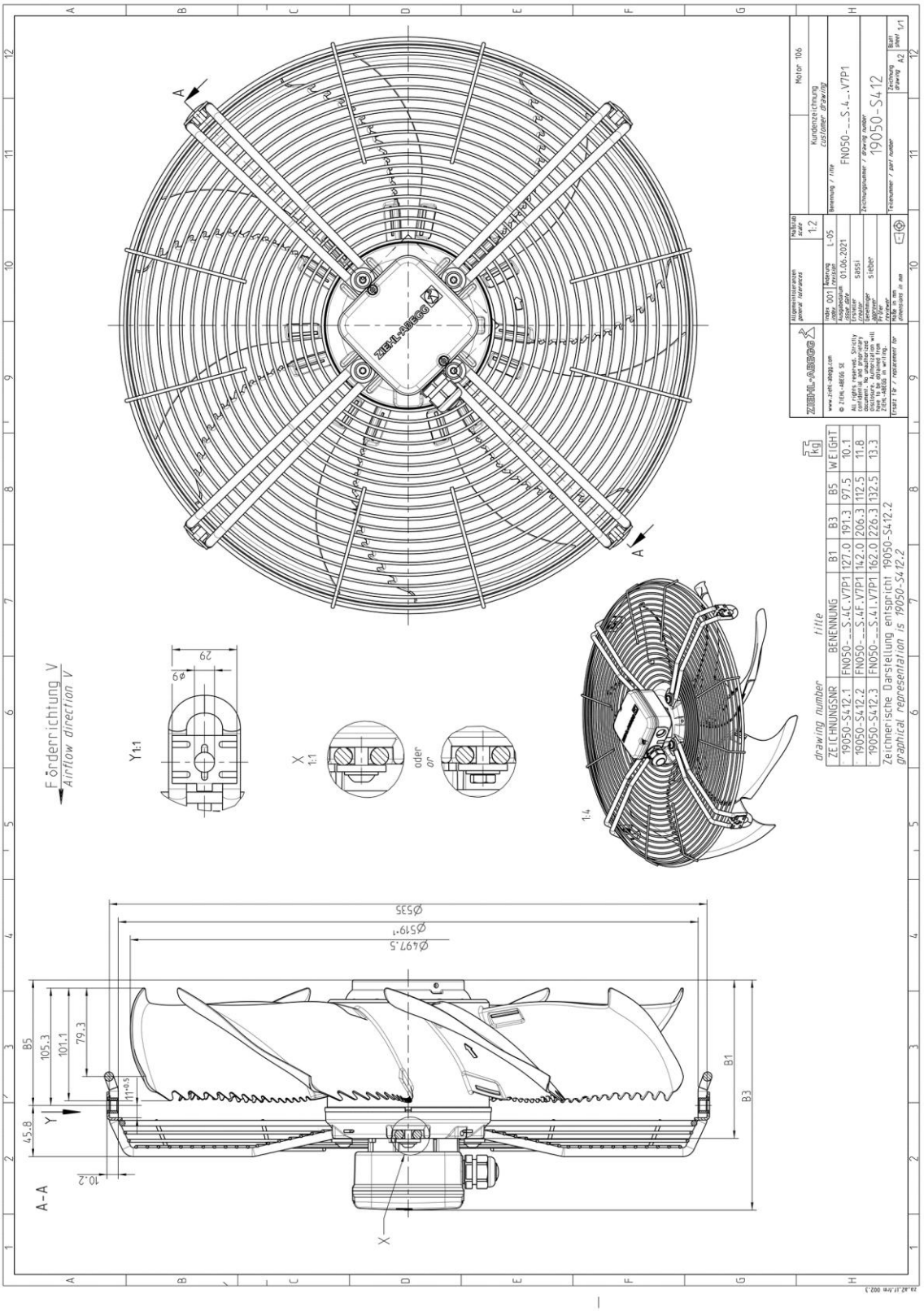
Please note: It’s not allowed to use this fan in the stall area!**In doubt please ask your responsible ZIEHL-ABEGG sales contact.

4. Drawing



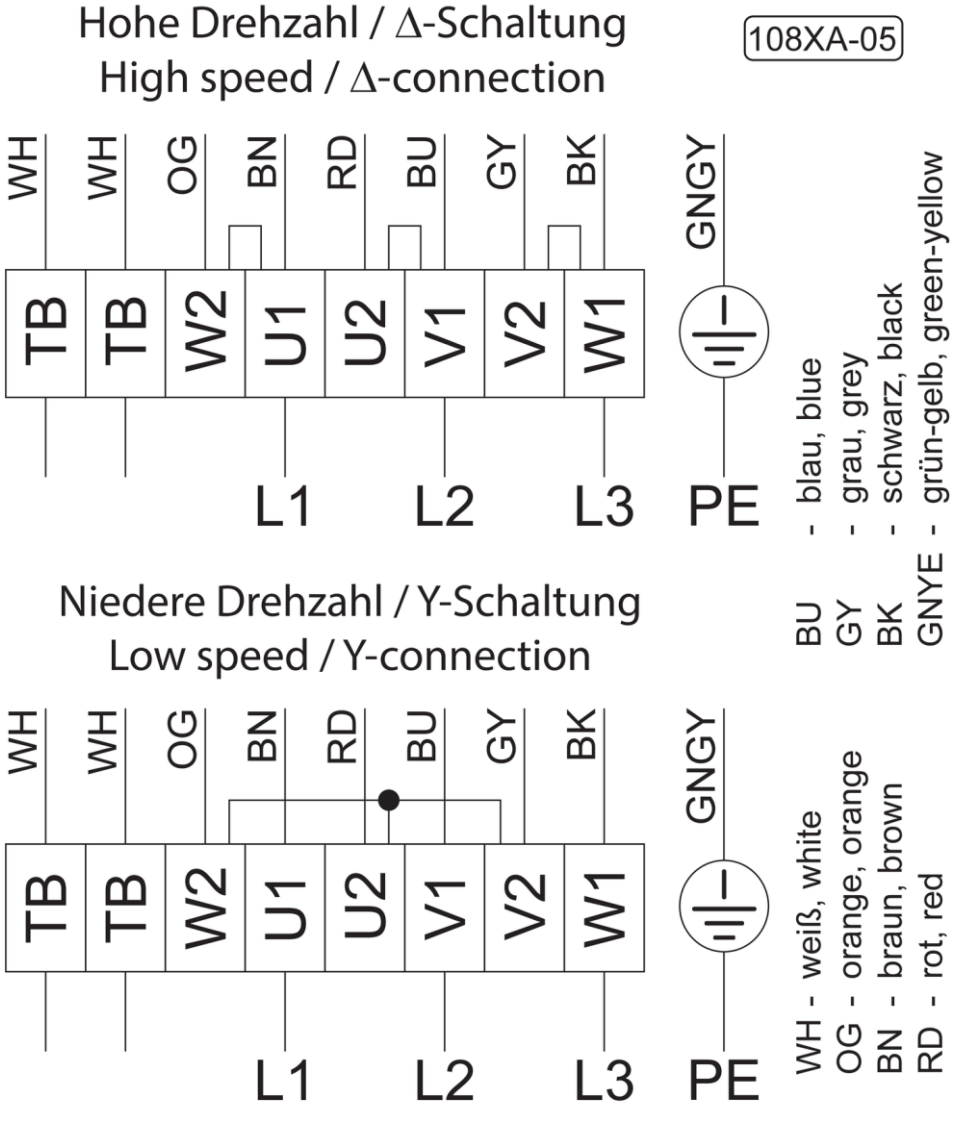
Dimensions in mm

The illustrations shown make no claim to completeness and are for orientation purposes only.

5. Connection Diagram

3~ Motor mit 2 Drehzahlen (Δ/Y-Umschaltung) und Thermostatschalter (falls eingebaut). Ohne Brücke bei Verwendung von Drehzahlumschalter.

3~ motor, 2 speeds (Δ/Y switch over) with thermostatic switch (if built in). Without bridge when using speed change-over switch.



6. Aerodynamics and Acoustics

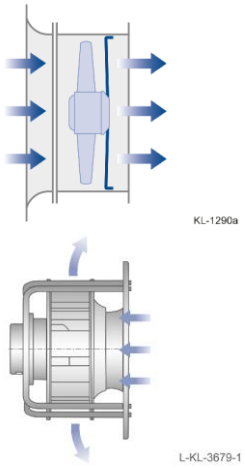
Measurement method

The characteristic map display shows the pressure increase ΔpsF in Pa as a function of the volume flow rate qV in m3/h.

Technical conditions of supply

The specified performance data meet the respective requirements for accuracy
- AN2 for centrifugal impellers without motor
- AN3 for centrifugal fans with standard motors
- AN2 for centrifugal impellers with ECblue motors (except EC055)
- AN3 for centrifugal impellers with ECblue motor EC055 (see type key)
- AN3 for axial fans with ECblue motors
- AN4 for axial fans with AC external rotor motors

in line with ISO 13348 and apply to the rated data and air performance curves at the rated voltage. The continuous line in the characteristic curve represents the optimum reliable operating range for fans.



Installation type A according to ISO 5801

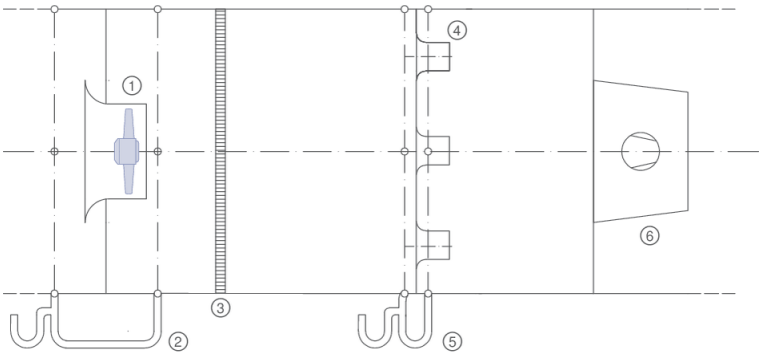
Fan test bench

The fan characteristic curves are determined on a combined ventilation and sound test bench.
The characteristic curves are measured in compliance with DIN EN ISO 5801 and AMCA 210-99. The sound power levels are measured in compliance with DIN EN ISO 3745 and ISO 13347-3 using the enveloping surface measuring method.

Technology Centre (InVent)

Air density

The figure below shows an example of the measuring setup. The fan is installed in the measuring chamber at free inlet and free exhaust (installation type A as per DIN EN ISO 5801 or AMCA 210-99).



① Test fan
② p_{fs}
③ Flow straightener
④ Nozzles
⑤ Δp Differential pressure
⑥ Auxiliary fan

Article number
161541

Noise level data

The sound power levels are determined by using the enveloping surface method in compliance with ISO 13347-3, accuracy class 1 and/or DIN EN ISO 3745.

This is done by measuring the sound pressure level Lp of the individual third-octave bands at 12 points on the enveloping surface (Fig. Ia). The measured sound pressure levels for the third-octave bands are initially used to calculate the sound power level for the third-octave bands and then the suction side sound power level LW5. To do this, the fans are installed with a free inlet (from the measuring chamber) and free exhaust (into the surrounding area). The standard measurements are carried out without the need for additional parts, e.g. guard grille. The measuring equipment used complies with DIN EN 61672.

Because of the different weighting of the third-octave sound power level, the A-evaluation, which is typically carried out, takes into account the subjective nature of human sound perception. The A-tested sound power level is the standard variable used to assess the sound characteristics of technical equipment.

Calculation of pressure side sound power level and total sound power level

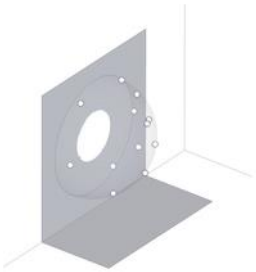


Fig.Ia: Position of microphones

Fig. Ib: Fan test-bench

Determination of total sound power level during the interaction of several sound sources

The total sound power level of several individual sound sources operating concurrently is calculated by adding the power of the individual levels in compliance with DIN EN ISO 3745. This equation is the basis for the diagrams in Fig. II and III.

To add up several sound sources with the same level, please see diagram (Fig. II) for complete level information; e.g. 6 identical sound sources operating concurrently results in a total level that is approx. 8 dB higher.

The total sound power level of two sound sources with different levels can be seen in diagram Fig. III. For example, two sound sources whose sound power levels differ by 4 dB produce a total sound power level that is around 1.5 dB higher than that of the louder sound source.

Determination of sound pressure level

The A-tested sound pressure level LpA for rooms with average absorption capacity for a distance of 1m from the fan axle is calculated by subtracting 7 dB from the A sound power level LWA. In most cases, this assumption is correct and provides a sufficient level of accuracy. However, the sound characteristics can be hugely influenced by the individual installation situation.

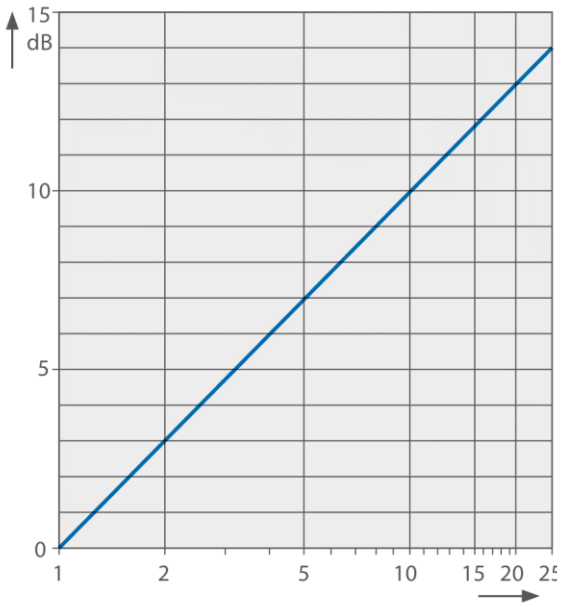


Fig. II: Addition of several sound sources

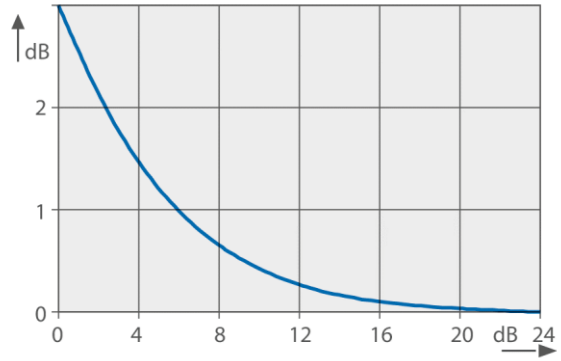


Fig. III: Sound sources of different levels

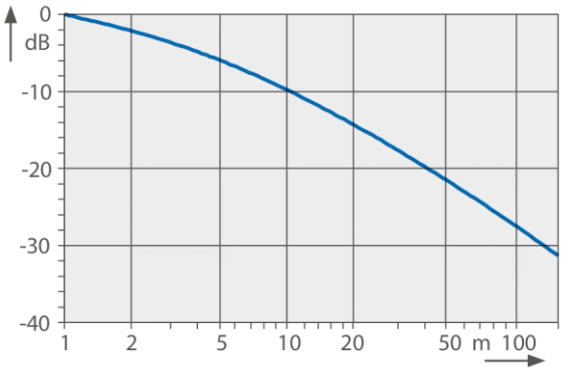


Fig. IV: Reduction of sound pressure level

7. EU-Declaration of Conformity

EU declaration of conformity

- Translation -
(english)

ZA75-GB 2022/47 Index 019

Manufacturer: ZIEHL-ABEGG SE
Heinz-Ziehl-Straße
74653 Künzelsau
Germany

The manufacturer is solely responsible for issuance of the declaration of conformity.

The products:

- External rotor motor MK.., MW..
- Axial fan DN.., FA.., FB.., FC.., FE.., FF.., FG.., FH.., FL.., FN.., FP.., FS.., FT.., FV.., VN.., VR.., ZC.., ZF.., ZG.., ZN..
- Centrifugal fan ER.., GR.., HR.., RA.., RD.., RE.., RF.., RG.., RH.., RK.., RM.., RR.., RZ.., WR..
- Cross-flow fan QG.., QK.., QR.., QT..

Motor type:

- Asynchronous internal or external rotor motor
- Asynchronous internal or external rotor motor with integrated frequency inverter
- Electronically commutated internal or external rotor motor
- Electronically commutated internal or external rotor motor (also with integrated EC controller)

The above mentioned products of this declaration fulfil all relevant provisions of the following Directives of the Union:

- EMC Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- ErP Directive 2009/125/EC, in conjunction with Regulation (EU) no. 327/2011

The following harmonized standards have been applied:

- EN 60034-1:2010 + AC:2010
- EN 60204-1:2018
- EN 60529:1991 + A1:2000 + A2:2013 + AC:1993 + AC:2016 + AC:2019
- EN IEC 61000-6-2:2019
- EN IEC 61000-6-3:2021

Compliance with the ErP Directive 2009/125/EC does not refer to external rotor motors MK.., MW..

All ErP-relevant information comprises measurements which are determined using a standardised measurement set-up. More details can be obtained from the manufacturer.

Compliance with the EMC Directive 2014/30/EU refers only to those products when they are connected by mounting / operating instructions. If these products are integrated into a system or supplemented with other components (e.g. sensing controls) and operated, the manufacturer or operator is responsible of the overall system for compliance with the EMC Directive 2014/30/EU.

Künzelsau, 24.11.2022
(Location, date of issue)

ZIEHL-ABEGG SE
Moritz Krämer
Director Product Development
Ventilation Technology
(name, function)

i.V.

(signature)

ZIEHL-ABEGG SE
Ralf Oesselke
Director Projects & Series Development
Ventilation Technology
(name, function)

i.V. Ralf Oesselke

(signature)

ZIEHL-ABEGG

EC Declaration of Incorporation

- Translation -
(english)

ZA87-GB 2023/47 Index 013

as defined by the EC Machinery Directive 2006/42/EC, Annex II B

The design of the partly completed machine:

- Axial fan DN.., FA.., FB.., FC.., FE.., FF.., FG.., FH.., FL.., FN.., FP.., FS.., FT.., FV.., SG.., VN.., VR.., ZC.., ZF.., ZG.., ZN..
- Centrifugal fan ER.., GR.., HR.., RA.., RD.., RE.., RF.., RG.., RH.., RK.., RM.., RR.., RZ.., WR..
- Cross-flow fan QD.., QG.., QK.., QR.., QT..,

Motor type:

- Induction internal or external rotor motor (also with integrated frequency inverter)
- Electronically commutated internal or external rotor motor (also with integrated EC controller)

Complies with the requirements in Appendix I, Articles 1.1.2, 1.1.5, 1.4.1, 1.5.1 in EC Machinery Directive 2006/42/EC.

Manufacturer: **ZIEHL-ABEGG SE**
Heinz-Ziehl-Straße
D-74653 Künzelsau

The following harmonized standards have been applied:

EN 60204-1:2018	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
EN ISO 12100:2010	Safety of machinery – General principles for design – Risk assessment and risk reduction
EN ISO 13857:2019	Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs
Note:	Compliance with EN ISO 13857:2019 relates only to the installed contact protection if it is part of the scope of delivery.

The special technical documents in accordance with Appendix VII B have been created and are available in full.

The following persons are authorized to compile the technical documents, address see above.

Upon reasonable request, the special documents shall be transmitted to the public authority. The transfer can be made electronically, on data carriers or on paper. All property rights remain with the aforementioned manufacturer.

Start-up of this incomplete machine is prohibited until it is ensured that the machine in which it has been installed complies with the provisions of the EC Machinery Directive.

Künzelsau, 22.11.2023
(Location, date of issue)

ZIEHL-ABEGG SE
Moritz Krämer
Director Product Development
Ventilation Technology
(name, function)

i.V.

(signature)

ZIEHL-ABEGG SE
Ralf Oesselke
Director Projects & Series Development
Ventilation Technology
(name, function)

i.V.

(signature)

ZIEHL-ABEGG

8. UKCA Declaration of Incorporation

UKCA Declaration of Conformity

- Original -
(english)

ZA75_UK-GB
2022/15 Index 002

Manufacturer: **ZIEHL-ABEGG SE**
Heinz-Ziehl-Straße
74653 Künzelsau
Germany

The manufacturer is solely responsible for issuance of the declaration of conformity.

The products:

- External rotor motor MK.., MW..
- Axial fan DN.., FA.., FB.., FC.., FE.., FF.., FG.., FH.., FL.., FN.., FP.., FS.., FT.., FV.., VN.., VR.., ZC.., ZF.., ZG.., ZN..
- Centrifugal fan ER.., GR.., HR.., RA.., RD.., RE.., RF.., RG.., RH.., RK.., RM.., RR.., RZ.., WR..
- Cross-flow fan QG.., QK.., QR.., QT..

The motor type:

- Asynchronous internal or external rotor motor
- Asynchronous internal or external rotor motor with integrated frequency inverter
- Electronically commutated internal or external rotor motor
- Electronically commutated internal or external rotor motor with integrated EC controller

These products comply with the following UK directives:

- Electromagnetic Compatibility Regulations 2016 No. 1091
- Electrical Equipment (Safety) Regulations 2016 No. 1101
- The Ecodesign for Energy-Related Products and Energy Information (Amendment) (EU Exit) Regulations 2019 No. 539

The following harmonised standards have been used:

- EN 60034-1:2010 + AC:2010
- EN 60204-1:2018
- EN 60529:1991 + A1:2000 + A2:2013 + AC:1993 + AC:2016 + AC:2019
- EN IEC 61000-6-2:2019
- EN 61000-6-3:2007 + A1:2011 + AC:2012

Compliance with the Ecodesign for Energy-Related Products and Energy Information (Amendment) (EU Exit) Regulations 2019 does not refer to external rotor motors MK.., MW..

All ErP-relevant information comprises measurements which are determined using a standardised measurement set-up. More details can be obtained from the uthorised representative.

Compliance with the Electromagnetic Compatibility Regulations 2016 refers only to those products when they are connected by mounting / operating instructions. If these products are integrated into a system or supplemented with other components (e.g. sensing controls) and operated, the manufacturer or operator is responsible of the overall system for compliance with the Electromagnetic Compatibility Regulations 2016.

Künzelsau, 14.04.2022
(location, date of issue)

ZIEHL-ABEGG SE
Tobias Gauss
Deputy Head of Technics Ventilation Technology
(name, function)

i.V.

(signature)

ZIEHL-ABEGG SE
Moritz Krämer
Head of Electrical Systems
(name, function)

i.V.

(signature)

ZIEHL-ABEGG

UKCA Declaration of Incorporation

- Original -
(english)

ZA87_UK-GB
2022/17 Index 002

as defined by the Supply of Machinery (Safety) Regulations 2008 No. 1597, PART 2 / Annex II B

The design of the incomplete machine:

- Axial fan DN.., FA.., FB.., FC.., FE.., FF.., FG.., FH.., FL.., FN.., FP.., FS.., FT.., FV.., VN.., VR.., ZC.., ZF.., ZG.., ZN..
- Centrifugal fan ER.., GR.., HR.., RA.., RD.., RE.., RF.., RG.., RH.., RK.., RM.., RR.., RZ.., WR..
- Cross-flow fan QD.., QG.., QK.., QR.., QT..,

The motor type:

- Asynchronous internal or external rotor motor (also with integrated frequency inverter)
- Electronically commutated internal or external rotor motor (also with integrated EC controller)

complies with the requirements in Annex I, Articles 1.1.2, 1.1.5, 1.4.1, 1.5.1 in Supply of Machinery (Safety) Regulations 2008 No. 1597.

The manufacturer is **ZIEHL-ABEGG SE**
Heinz-Ziehl-Straße
D-74653 Künzelsau

The following harmonised standards have been used:

EN 60204-1:2018	Safety of machinery; electrical equipment of machines; Part 1: General requirements
EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN ISO 13857:2019	Safety of machinery; safety distances to prevent danger zones being reached by the upper limbs
Note:	The maintenance of the EN ISO 13857:2019 relates only to the installed accidental contact protection, provided that it is part of the scope of delivery.

The specific technical documentation in accordance with Annex VII B has been written and is available in its entirety.

The following persons are authorized to compile the technical documents, address see above.

The specific documentation will be transmitted to the official authorities on justified request. The transmission can be electronic, on data carriers or on paper. All industrial property rights remain with the above-mentioned manufacturer.

It is prohibited to commission this incomplete machine until it has been secured that the machine into which it was incorporated complies with the stipulations of the Machinery (Safety) Regulations.

Künzelsau, 27.04.2022
(location, date of issue)

ZIEHL-ABEGG SE
Tobias Gauss
Deputy Head of Technics Ventilation Technology
(name, function)

i.V.

(signature)

ZIEHL-ABEGG SE
Moritz Krämer
Head of Electrical Systems
(name, function)

i.V.

(signature)

ZIEHL-ABEGG

The Royal League in ventilation, **control** and drive technology

Intelligent control technology for any application

ZIEHL-ABEGG system capabilities:

Everything from a single source – perfectly matched for optimal performance

Please contact us. We would be pleased to design an individual solution for your requirements.

We would like to welcome you on our worldwide exhibitions. Please find our next exhibitions here.

ZIEHL-ABEGG EVENTS