

Movement by Perfection



# Cross flow fans

03/2021 Edition

The Royal League in ventilation, control and drive technology

# Using air intelligently

Air is always there but is hardly perceived consciously. Directing air in a specific form of movement is the competence of ZIEHL-ABEGG. As the world's leading provider of fans with adapted control technology, ZIEHL-ABEGG relies on the efficiency and reliability of the products. With the trailblazing solutions from ZIEHL-ABEGG, customers use air and energy optimally for their individual requirements.

## FANselect The fan selection program

With the first fully comprehensive certified fan selection program FANselect the customer can find the optimum fans and system components for his needs conveniently, precisely and quickly. The specified values conform to reality. They are determined in the ZIEHL-ABEGG InVent technology centre which houses the world's biggest combined air and noise test benches of the ventilation system branch. More information on [www.fanselect.info](http://www.fanselect.info)







## Other catalogues

In the ZIEHL-ABEGG catalogues, the reader can find out all about ZIEHL-ABEGG fans, motors and the perfectly adapted control technology. All the catalogues are available on [www.ziehl-abegg.de](http://www.ziehl-abegg.de) website in the "Downloads" section.



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Wir entwickeln und produzieren die  
effizientesten Ventilatoren für die Zukunft

# ZIEHL-AB

Die Könige

der Luft  
Regeltechnik und Antriebe

Einzigartige  
Kunststoffproduktion  
für bionische Hightech-  
Ventilatoren



# Welcome to the world of ZIEHL-ABEGG

## Top technology "Made by ZIEHL-ABEGG"

A pioneering spirit and the courage of innovation were the driving forces behind Emil Ziehl's development of his first external rotor motor over a hundred years ago. With this he laid the corner stone for the success story of ZIEHL-ABEGG in 1910. Today, the family company ZIEHL-ABEGG, with its headquarters in Künzelsau, develops, produces and sells high quality, high-tech components: Fans, special electric motors and their perfectly adapted, state-of-the-art control technology. Still today, Emil Ziehl's pioneering spirit is the motivator for making good even better and finding new, revolutionary solutions. ZIEHL-ABEGG is based in Southern Germany but is at home all over the world. At the world-wide production and sales sites, thousands of employees develop, produce and sell technical, economical and ecological progress.

Welcome to the world of ventilation, control and drive technology.

## Your contact into the world of ZIEHL-ABEGG

Would you like to learn more about the company ZIEHL-ABEGG, its products and applications? Your current direct contact partners can always be found at [www.ziehl-abegg.com](http://www.ziehl-abegg.com)



# One-stop expertise

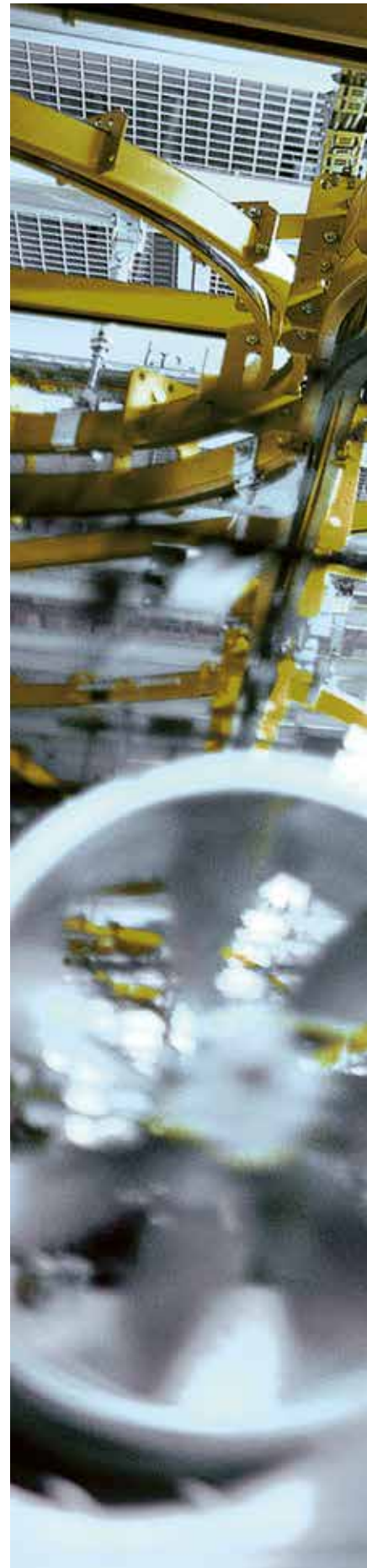
## Fan, motor and control technology

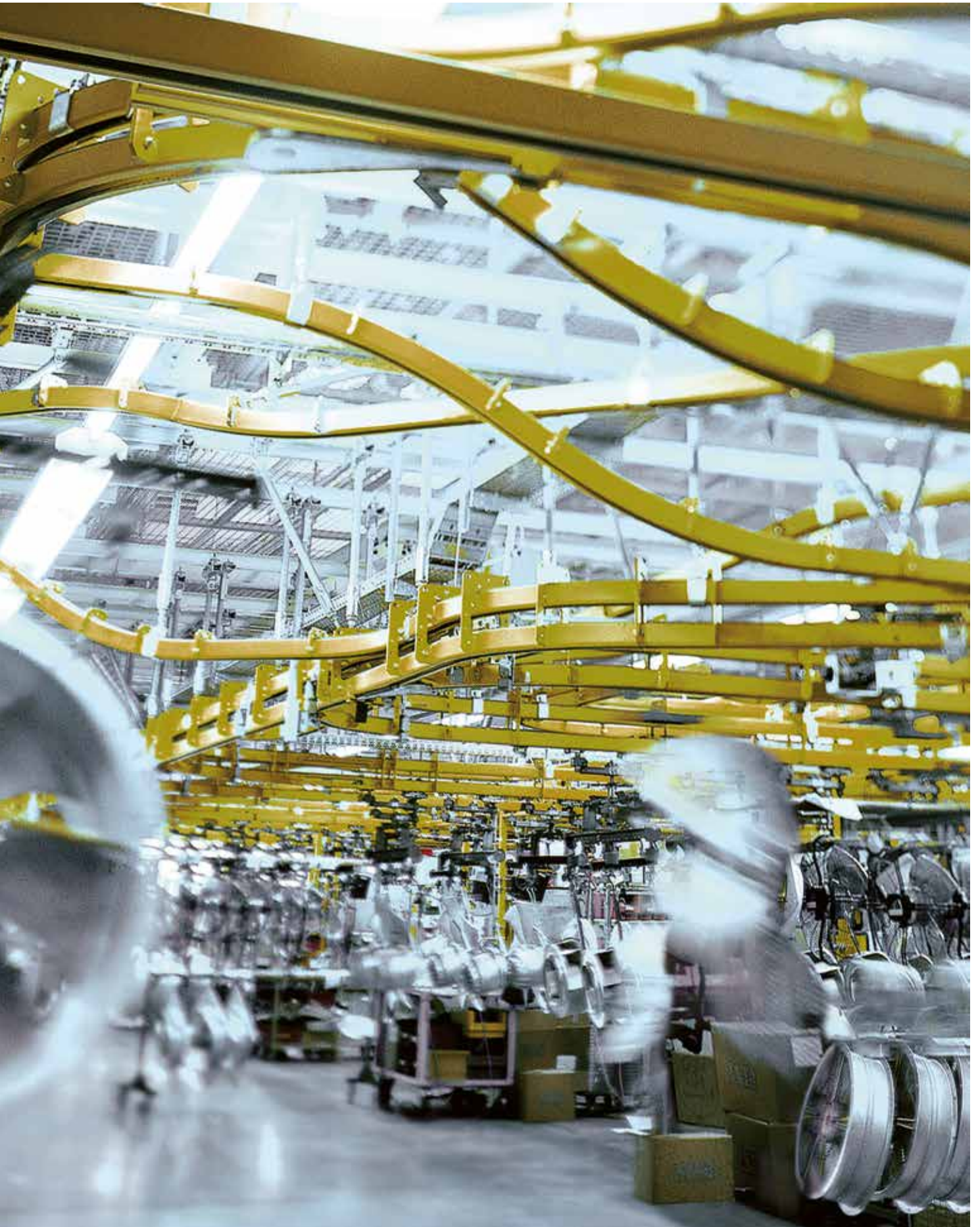
Whether air conditioning, drying, cooling or ventilating, the efficient fans with adapted drive and control technology from ZIEHL-ABEGG cope with these tasks safely and reliably. Individual and also complex customer requirements are welcome challenges.

At ZIEHL-ABEGG headquarters in Künzelsau, more than 400 engineers and technicians concentrate daily on finding the best solution. In the InVent, one of the most modern technology centres of its kind, they work on the innovations of the future. Their ideas are put into practice by excellently trained specialists on state-of-the-art plants. The production as well as all processes are accompanied by prudent quality management. ZIEHL-ABEGG products are subjected to rigorous testing before being put into operation at the customer's. On the world's biggest air and noise test bench, vibrations and external noises are eliminated and thus ensure top class fan measurements in accordance with ISO and DIN. The result is top class products and services which are marked by the seals "Premium Quality" and "Premium Efficiency".

The world's biggest and most modern test bench for fans at the headquarters in Künzelsau

State-of-the-art production lines to meet the highest demands





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# EC fans of the Royal League

## Quiet, efficient, environmentally friendly

EC fans from ZIEHL-ABEGG unite state-of-the-art motor technology with innovative aerodynamics. This symbiosis scores high marks by merging revolutionary ECblue technology with premium fans. The result is efficiency and absolutely economical operation. The new generation of axial fans heads the ECblue technology: The FE3owlet has biologically designed rotor blades for almost noiseless conveyance of air. Moreover, the FE2owletbio is made from 100% recyclable bio-polyamides. Further highlights of material development at ZIEHL-ABEGG are shown in the ZABluefin centrifugal fan with the new ZAmid® technology. The new high performance composite material is as hard as steel but only half the weight. This is kind on the bearings and saves energy. Greater efficiency also comes from the newly developed blade geometry in the centrifugal impellers which has only become possible thanks to the innovative composite material. In standard application, EC-fans achieve maximum air flows with extraordinary efficiency despite their low noise. Together with the ECblue motors, ZIEHL-ABEGG fans achieve a dynamic response which makes them absolute leaders in environmental friendliness and efficiency.



ECblue motor technology







Maximum efficiency and minimum consumption  
ECblue with the latest **ZAmid**<sup>®</sup> Technology  
Radial fans sector



Unique bionic profile FE2owlet,  
combined with ECblue technology



ECblue – highest efficiency

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# AC-fans of the Royal League

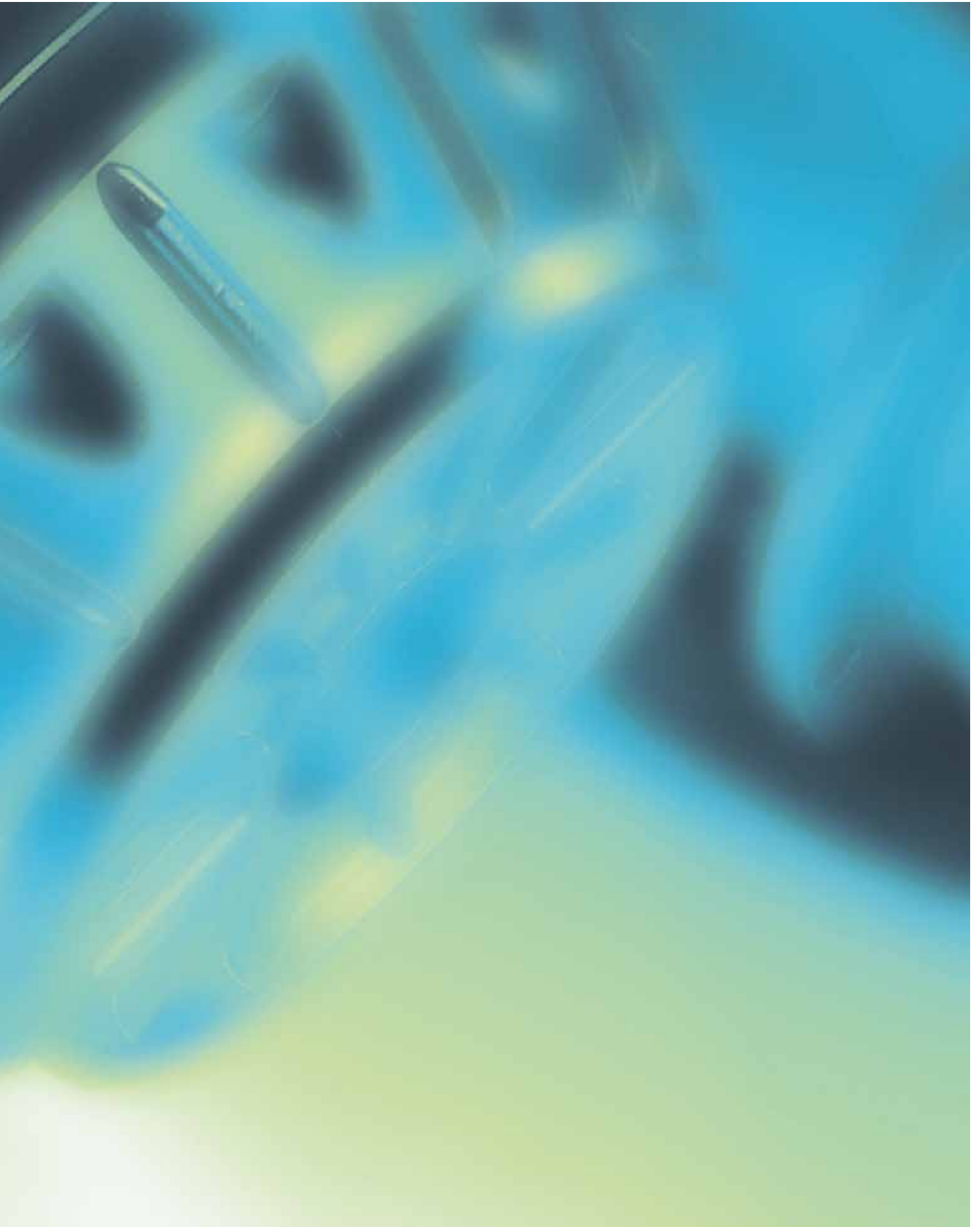
## Strong, robust, extraordinary

In all applications in which the material is exposed to immense stress, the AC fans from ZIEHL-ABEGG demonstrate their quality and ability. Their solid components and robust design and technology are able to withstand even the greatest stresses. The fans are therefore used in many different areas of industry or agriculture - wherever absolute insensitivity and stability is important.

The high quality motor technology is the result of decades of experience at ZIEHL-ABEGG. Intelligently used components such as the Fcontrol frequency inverter make them environmentally friendly and efficient key players. Maintenance-free and extraordinarily performant, AC fans from ZIEHL-ABEGG are a safe and rewarding investment.

AC motor technology, robust in operation





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# Expertise in ventilation

## ErP directive

With the Kyoto protocol, the European Union pledged to reduce CO<sub>2</sub> emissions by at least 20 per cent by the year 2020. One measure for achieving this is the ErP directive for improved energy efficiency and general environmental compatibility of energy-related products – also known in Germany as the Eco Design directive. It supports a resource-friendly and energy-efficient product design. The implementation of these requirements is carried out for electromotors according to the Implementing Regulation (EU) 2019/1781 and for fans according to the Implementing Regulation (EU) 327/2011.

With the implementation of the ErP directive, stricter efficiency requirements for **fans in the output range from 125 W to 500 kW** apply since 2013 and 2015 in two stages. The current ErP directive is under revision and a next stage with higher efficiency requirements is planned. Energy efficiency is thus given the same standing as the compliance with the low voltage or EMC directive. The system efficiency requirement is a prerequisite for a CE mark and is thus essential for a product to be used in EU member states.

## Notes on EN17166

Inlet nozzles and fan housing represent significant elements according to EN17166.

By using different significant elements to the ZIEHL-ABEGG SE measurement set-up, the exporter becomes the fan manufacturer according to Regulation 327/2011 and is responsible for the measurement data taking into account EN17166.

## Notes pertaining to the ErP evaluation

In order to meet ErP requirements, a fan must achieve a particular minimum efficiency (target energy efficiency). The directive sets out the corresponding formulae for calculating the limit value for the relevant fan type. The actual efficiency in the efficiency optimum of the fan, which is used for the ErP evaluation, is designated  $\eta_{\text{stetA}}$ . The efficiency  $\eta$  is a parameter in the calculation of the target energy efficiency of the ErP directive. As a reference value for the required efficiency  $\eta_{\text{nominal}}$ , ZIEHL-ABEGG specifies the actual efficiency  $\eta_{\text{actual}}$  relative to a motor input power of 10 kW.

All specifications relevant for ErP relate to the requirements in the 2nd stage of ErP 2015. The measured data was determined in line with measurement category A using an inlet nozzle without contact protection complying with ISO 5801.

The **European Ventilation Industry Association (EVIA)** represents the European ventilation industry in dealings with national and European institutions.

The EVIA is a key platform for fan manufacturers and provides an interface with politicians, decision-makers in the European Union and other associations that use fans in their products. The EVIA supports the use of high-efficiency fans in Europe, in order to implement the EU efficiency increase targets.

ZIEHL-ABEGG played a major role in establishing the EVIA and supports it through active participation in its working groups.



# Application cross flow fans

## General information

Crossflow fans are a special type of fan in which the air flow in the impeller is generally at right angles to the impeller axis both at the inlet and at the outlet on the periphery.

Due to the small ratio of roller diameter to roller length, a very flat, elongated design is possible. The large cross-section at the inlet and outlet of the roller results in low flow rates with high air flows and a high air throw and very low noise values.

Crossflow fans from ZIEHL-ABEGG have been successfully used in a wide variety of applications for decades, where a flat design is important. Whereas AC motors were often used in the past, EC motors are increasingly becoming established for crossflow fans as efficient drives with intelligent control and regulation options. With crossflow fans, we offer a powerful and efficient model range with special properties for various applications where a large-scale and uniform flow is required. The use of ZIEHL-ABEGG crossflow fans is particularly advantageous due to the use of 90° and 180° air feed. These reliable and durable fans are a good solution, especially in confined installation conditions.

## Areas of application

- Air conditioning technology (humidifiers, air curtains, compact air handling units, ceiling units, conservatories)
- Heating technology (heating fans, drying units, underfloor convectors)
- Refrigeration and cooling technology (transformer cooling, beverage coolers, freezers)
- Telecommunications (electronics cooling, control cabinets, 19" cabinets, EDP systems)
- Medical technology (diagnostic devices, X-ray devices, incubators), laboratory technology
- Laser technology



Example dry transformer



Split air handling unit



Air curtains



Control cabinet cooling

# Technical description

## Q series

### Product specification

EC crossflow fans with 78 mm to 125 mm roller diameter and 350 mm to 1180 mm length. AC crossflow fans with 60 mm to 125 mm roller diameter and 380 mm to 1180 mm length. Aluminium fan roller. Housing with flow at 180° made of stable extruded aluminium profile. Side plates made of galvanised steel. Air flows of EC crossflow fans up to 2100 m<sup>3</sup>/h and static pressure increases of up to 120 Pa can be achieved. Air flows of AC crossflow fans up to 3050 m<sup>3</sup>/h and static pressure increases of up to 375 Pa can be achieved.

### Characteristics and special features

- Crossflow fans are characterised by high air flows at low pressures
- The high number of blades results in very good sound characteristics with very little tonal noise of blades
- Medium temperature from -20 °C to 70 °C
- Motor ambient temperature from -20 °C to 40 °C
- Motor attachment as standard on the right; available on the left on request
- Balance quality G6.3

### Motor concepts

#### External rotor motors

- ECblue EC technology with integrated controller matched to the fan
- AC technology



Cross flow fan with ECblue



Cross flow fan with AC motors

# Type key

## Crossflow fans

Example

**QR 08A - 4 I M . 50 . B F**

Cross flow fan

Version

- with perforated guide vane **K**
- 90° flow **R**

Size (impeller diameter) approx.

- 06 cm**
- 08 cm**
- 10 cm**
- 12 cm**

Motor mounted on side A

Number of poles

- 2 pole **2**
- 4 pole **4**
- 10 pole **Z**

Type of current

- Single phase alternating current **E**
- Three phase alternating current **D**
- External rotor EC motor with controller **I**

External rotor motor

Component length

- in cm, starting from 100 cm alpha numeric
- example B8 = 118 cm

Motor size

Length of motor

Information

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# Selection program FANselect

The world's best selection program for fans



At [www.fanselect.info](http://www.fanselect.info), we are offering you FANselect, a selection program for axial and centrifugal fans with the matching system components.

With FANselect, you can, for instance, select and calculate the fans listed in this catalogue. FANselect provides you with an option to calculate the efficiency, the acoustics, the SFP and much more. In addition, you can also select the matching systems components. You can conveniently save your configuration in a file or print it out.

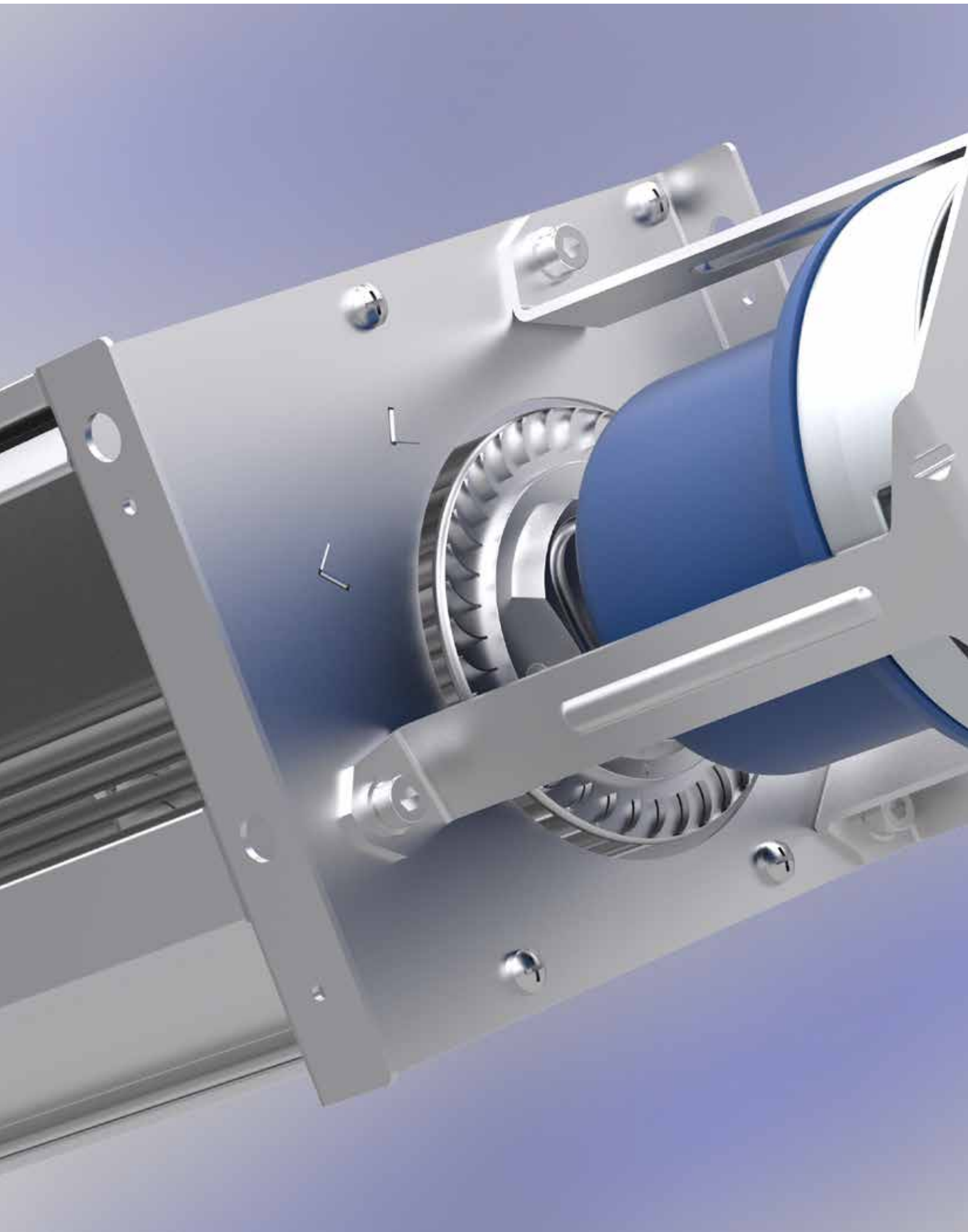
The FANselect selection program, including the customer DLL, is available for you to download at any time at [www.fanselect.info](http://www.fanselect.info).





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# Cross flow fan-ECblue

## EC-Technology

### Product overview

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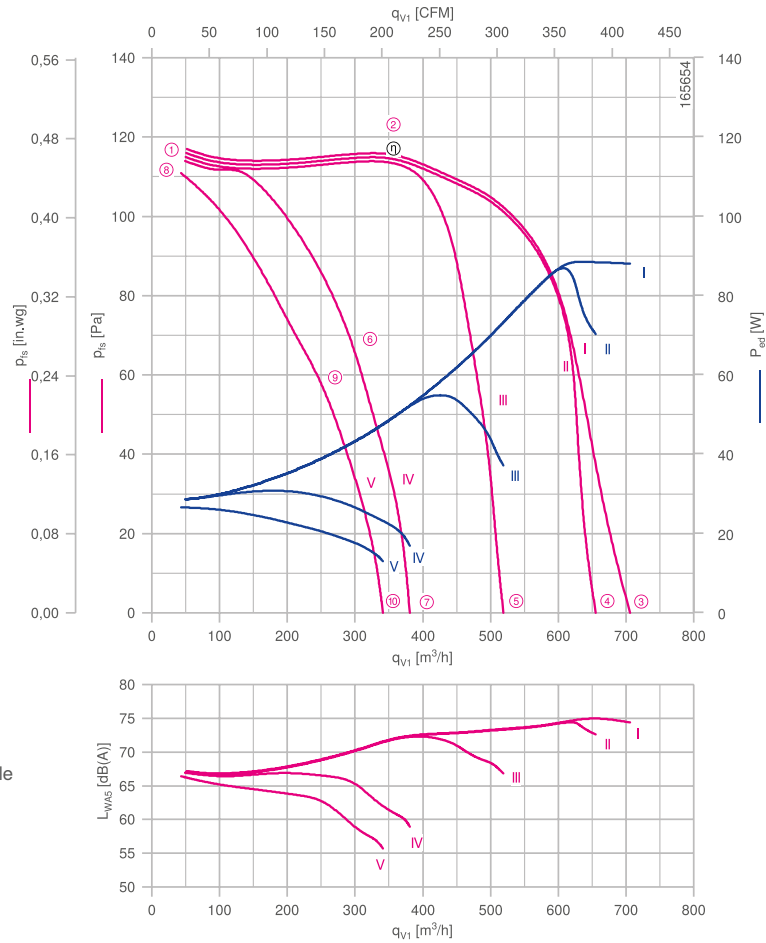
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QKOBA



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

### Description

Motor technology: EC  
 Rated voltage  $U_N$ : 1~200-240 V\*  
 Rated frequency  $f_N$ : 50/60 Hz\*  
 Input power  $P_{ed}$ : 90 W\*  
 Rated current  $I_N$ : 0.90-0.74 A\*  
 Rated speed  $n_N$ : 2650 min<sup>-1</sup>\*  
 Thermal class: THCL155\*  
 Min. permitted ambient temperature  $t_{amb}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C  
 Electrical connection: Connecting cable  
 Degree of protection: IP54  
 Motor protection: integrated active temperature management  
 Impeller made of aluminium  
 Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL

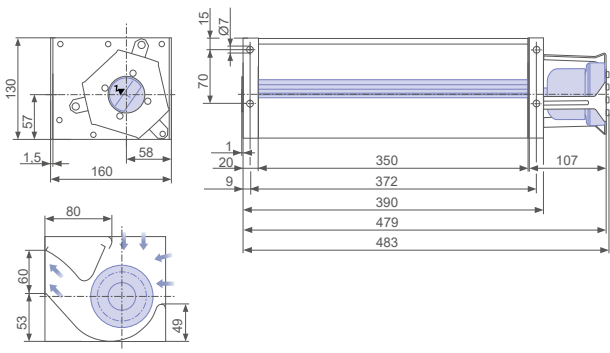
### ErP-data

Not subject to the regulations of ErP directive ( $P_{ed} < 125$  W)  
 \* Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

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## Dimensions mm

Cross flow fan in installation position H



Performance data

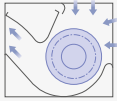
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK08A-4IM.35.BC	I	2710	①	0.31	28	67
		2700	②	0.50	50	72
		2150	③	0.78	90	74
	II	2010	④	0.68	70	73
		1610	⑤	0.40	38	67
	IV	2130	⑥	0.31	26	66
		1210	⑦	0.21	17	59
	V	2660	⑧	0.25	26	66
		1980	⑨	0.20	20	63
		1090	⑩	0.14	13	56

Current values determined at 230V

Fan ordering information

Design QK

Installation position H



Type **QK08A-4IM.35.BC**

Article no. **118250**

Weight kg 2.90

Control technology

Control modules



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Sensor control modules



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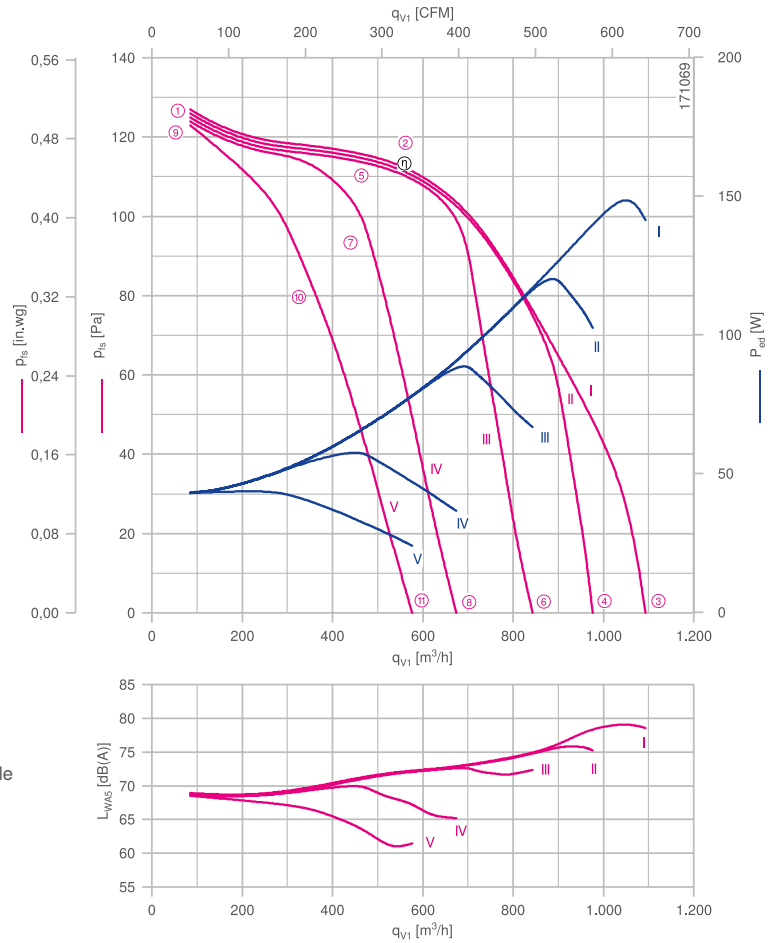
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QKOBA



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

### Description

Motor technology: EC  
 Rated voltage U<sub>N</sub>: 1~200-240 V\*  
 Rated frequency f<sub>N</sub>: 50/60 Hz\*  
 Input power P<sub>ed</sub>: 150 W\*  
 Rated current I<sub>N</sub>: 1.55-1.30 A\*  
 Rated speed n<sub>N</sub>: 2770 min<sup>-1</sup>\*  
 Thermal class: THCL155\*  
 Min. permitted ambient temperature t<sub>amb</sub>: -20 °C  
 Max. permitted ambient temperature t<sub>amb</sub> at n<sub>max</sub>: 70 °C  
 Electrical connection: Connecting cable  
 Degree of protection: IP54  
 Motor protection: integrated active temperature management  
 Impeller made of aluminium  
 Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL

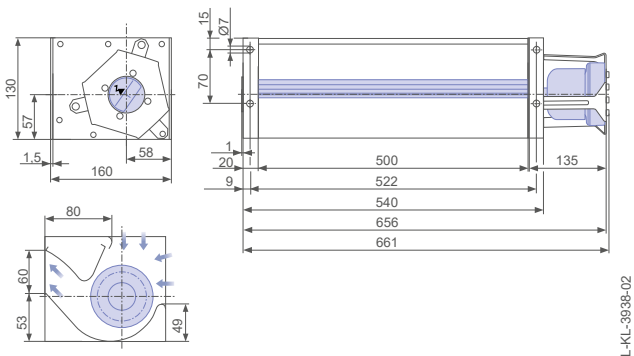
### ErP-data

Not subject to the regulations of ErP directive (P<sub>ed</sub> < 125 W)  
 \* Rated data: P<sub>ed</sub>, I<sub>N</sub> determined with 180° air deflector

Connection diagram 1360-404 Page 107

## Dimensions mm

Cross flow fan in installation position H



L-KL-3938-02

Performance data

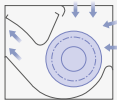
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK08A-4IM.50.BF	I	2800	①	0.46	44	69
			②	0.74	75	72
		2560	③	1.25	140	79
	II	2300	④	0.94	100	75
		2800	⑤	0.74	75	72
		1970	⑥	0.66	65	72
	III	2550	⑦	0.58	55	70
		1590	⑧	0.40	36	65
		2790	⑨	0.46	42	69
	IV	2330	⑩	0.42	40	66
		1350	⑪	0.28	24	62

Current values determined at 230V

Fan ordering information

Design QK

Installation position H



Type QK08A-4IM.50.BF

Article no. 118251

Weight kg 3.90

Control technology

Control modules



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Sensor control modules



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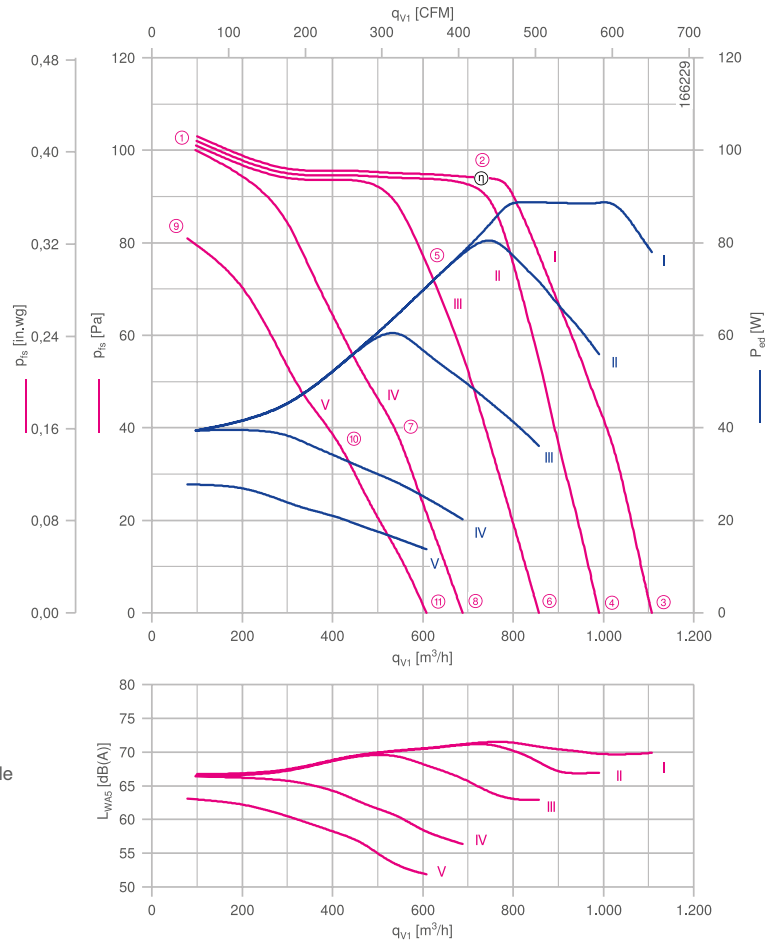
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QKOBA



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

## Description

Motor technology: EC

Rated voltage  $U_N$ : 1~200-240 V\*

Rated frequency  $f_N$ : 50/60 Hz\*

Input power  $P_{ed}$ : 90 W\*

Rated current  $I_N$ : 0.96-0.80 A\*

Rated speed  $n_N$ : 2460 min<sup>-1</sup>\*

Thermal class: THCL155\*

Min. permitted ambient temperature  $t_{amb}$ : -20 °C

Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C

Electrical connection: Connecting cable

Degree of protection: IP54

Motor protection: integrated active temperature management

Impeller made of aluminium

Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel

Conformity: CE, UL

## ErP-data

Not subject to the regulations of ErP directive ( $P_{ed} < 125$  W)

\* Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

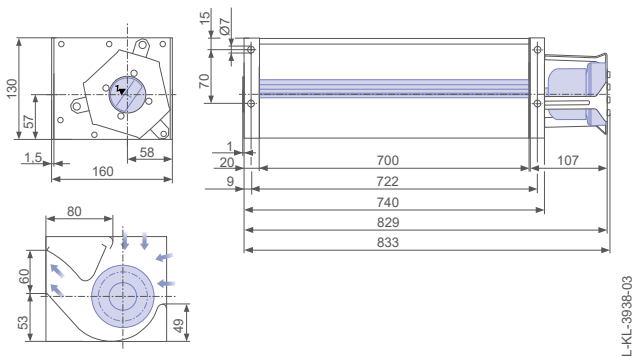
Connection diagram

1360-404

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## Dimensions mm

Cross flow fan in installation position H





Performance data

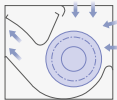
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK08A-4IM.70.BC	I	2500	①	0.37	40	67
		1710	③	0.76	80	72
		1530	④	0.52	55	67
	II	2260	⑤	0.52	55	68
		1300	⑥	0.34	36	63
	IV	1640	⑦	0.27	28	61
		1070	⑧	0.19	20	56
	V	2220	⑨	0.25	28	63
		1570	⑩	0.20	20	58
		930	⑪	0.14	14	52

Current values determined at 230V

Fan ordering information

Design QK

Installation position H



Type QK08A-4IM.70.BC

Article no. 118252

Weight kg 4.00

Control technology

Control modules



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Sensor control modules



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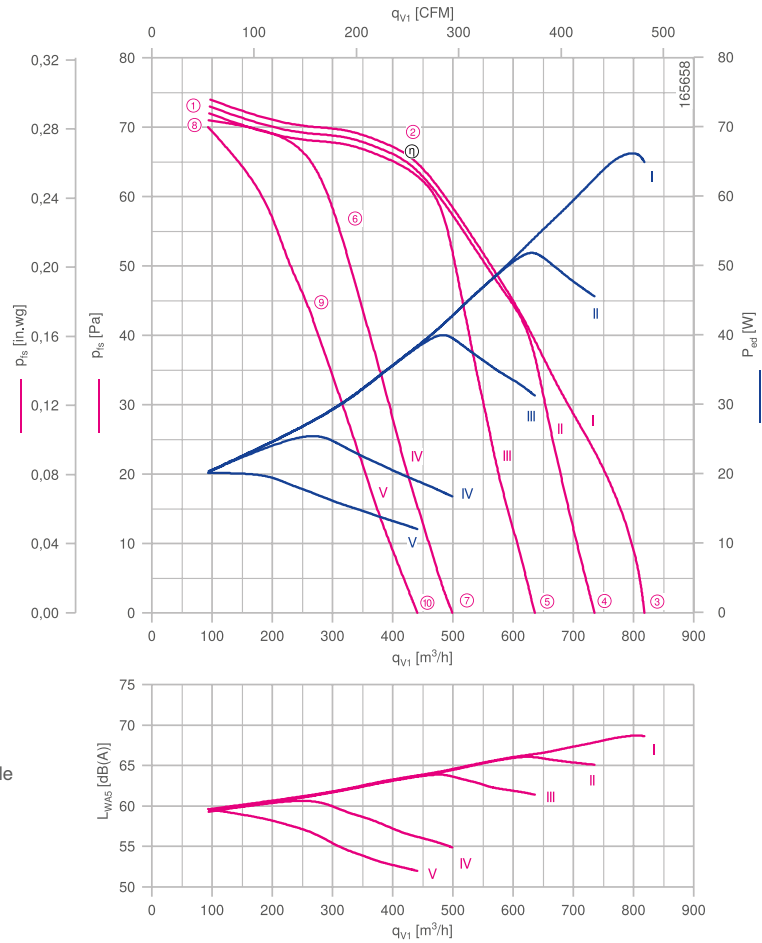
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QK10A



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

### Description

Motor technology: EC  
 Rated voltage  $U_N$ : 1~200-240 V\*  
 Rated frequency  $f_N$ : 50/60 Hz\*  
 Input power  $P_{ed}$ : 65 W\*  
 Rated current  $I_N$ : 0.78-0.66 A\*  
 Rated speed  $n_N$ : 1590 min<sup>-1</sup>\*  
 Thermal class: THCL155\*  
 Min. permitted ambient temperature  $t_{amb}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C  
 Electrical connection: Connecting cable  
 Degree of protection: IP54  
 Motor protection: integrated active temperature management  
 Impeller made of aluminium  
 Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL

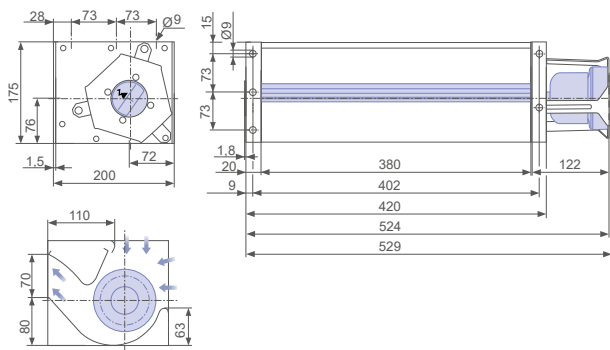
### ErP-data

Not subject to the regulations of ErP directive ( $P_{ed} < 125$  W)  
 \* Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

Connection diagram 1360-404 Page 107

## Dimensions mm

Cross flow fan in installation position H



Performance data

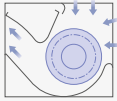
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK10A-4IM.38.BF	I	1620	①	0.20	20	60
		1540	②	0.56	55	66
		1360	③	0.66	65	69
	II	1200	④	0.48	46	65
	III	1470	⑤	0.31	32	61
	IV	1470	⑥	0.24	24	60
	V	940	⑦	0.18	17	55
		1620	⑧	0.21	20	60
		1300	⑨	0.18	18	57
		820	⑩	0.14	12	52

Current values determined at 230V

Fan ordering information

Design QK

Installation position H



Type **QK10A-4IM.38.BF**

Article no. **118253**

Weight kg 4.30

Control technology

Control modules



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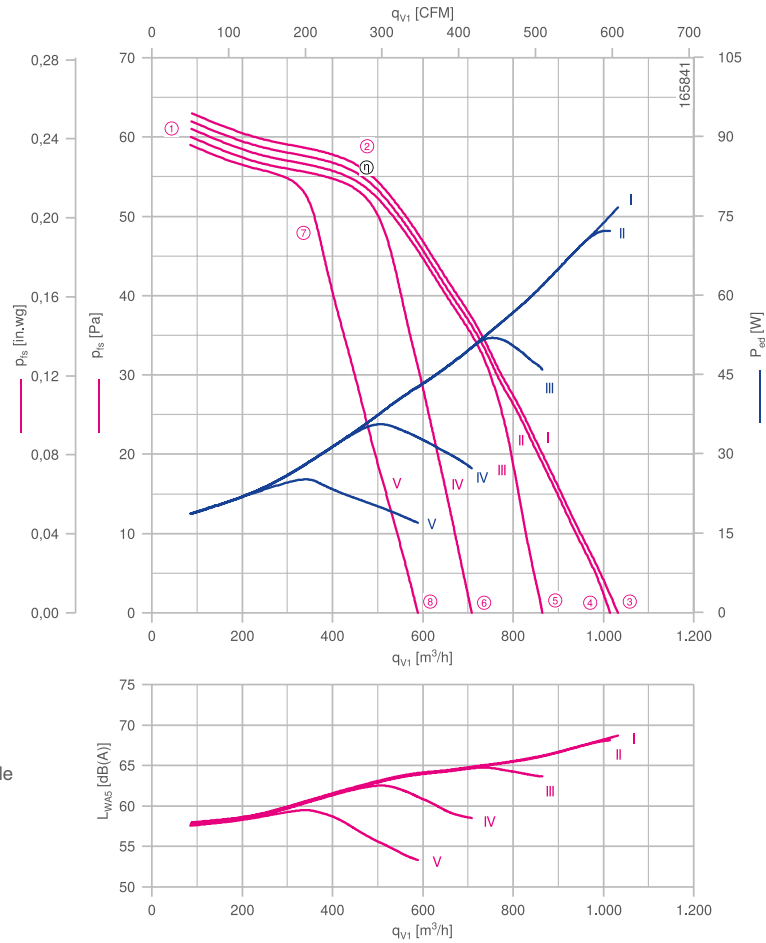
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QK10A



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

### Description

Motor technology: EC  
 Rated voltage  $U_N$ : 1~200-240 V\*  
 Rated frequency  $f_N$ : 50/60 Hz\*  
 Input power  $P_{ed}$ : 75 W\*  
 Rated current  $I_N$ : 0.80-0.66 A\*  
 Rated speed  $n_N$ : 1500 min<sup>-1</sup>\*  
 Thermal class: THCL155\*  
 Min. permitted ambient temperature  $t_{amb}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C  
 Electrical connection: Connecting cable  
 Degree of protection: IP54  
 Motor protection: integrated active temperature management  
 Impeller made of aluminium  
 Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL

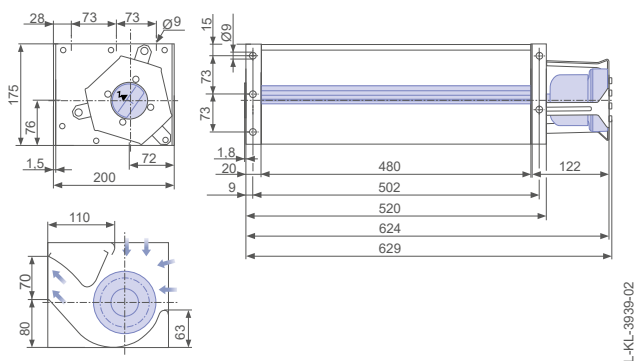
### ErP-data

Not subject to the regulations of ErP directive ( $P_{ed} < 125$  W)  
 \* Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

Connection diagram 1360-404 Page 107

## Dimensions mm

Cross flow fan in installation position H



Performance data

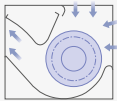
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK10A-4IM.48.BF	I	1500	①	0.20	19	58
			②	0.37	36	63
			③	0.70	75	69
	II	1470	④	0.66	70	68
	III	1260	⑤	0.46	46	64
	IV	1040	⑥	0.28	28	59
	V	1360	⑦	0.26	24	59
		870	⑧	0.17	17	53

Current values determined at 230V

Fan ordering information

Design QK

Installation position H



Type **QK10A-4IM.48.BF**

Article no. **118254**

Weight kg 4.70

Control technology

Control modules



Page 94

Sensor control modules



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Information

Cross flow fan, EC-Technology

Cross flow fan

System components

Control technology

Appendix



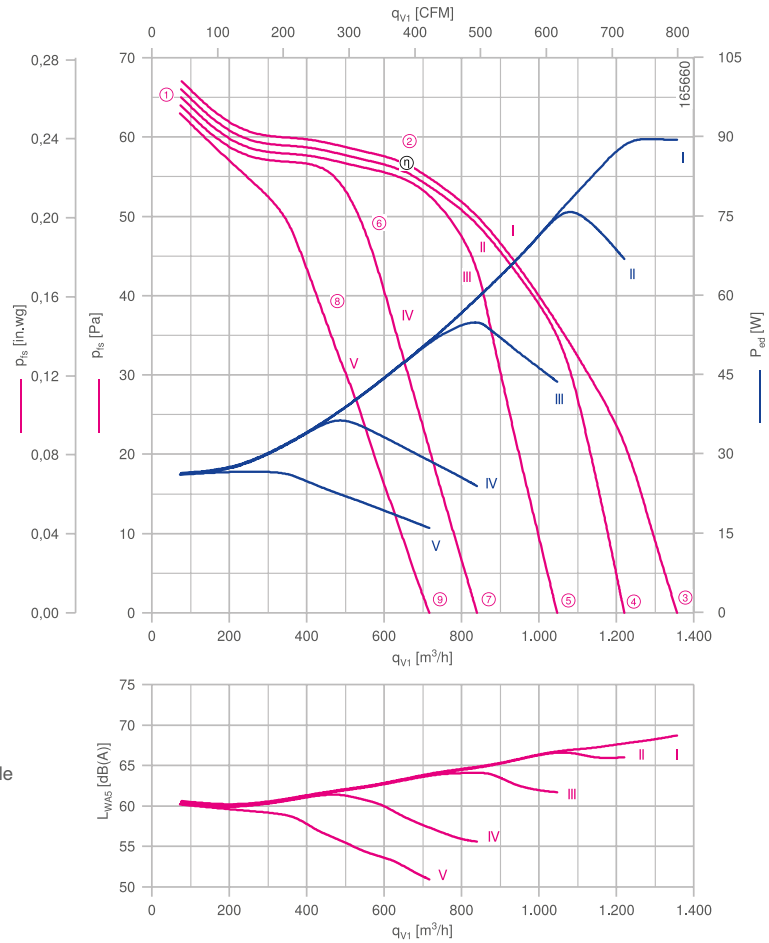
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QK10A



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

## Description

Motor technology: EC  
 Rated voltage  $U_N$ : 1~200-240 V\*  
 Rated frequency  $f_N$ : 50/60 Hz\*  
 Input power  $P_{ed}$ : 90 W\*  
 Rated current  $I_N$ : 0.86-0.72 A\*  
 Rated speed  $n_N$ : 1440 min<sup>-1</sup>\*  
 Thermal class: THCL155\*  
 Min. permitted ambient temperature  $t_{amb}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C  
 Electrical connection: Connecting cable  
 Degree of protection: IP54  
 Motor protection: integrated active temperature management  
 Impeller made of aluminium  
 Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL

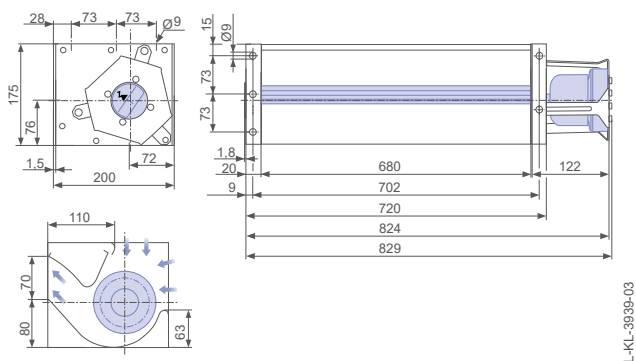
## ErP-data

Not subject to the regulations of ErP directive ( $P_{ed} < 125$  W)  
 \* Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

Connection diagram 1360-404 Page 107

## Dimensions mm

Cross flow fan in installation position H



L-KL-3939-03

Performance data

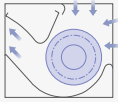
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK10A-4IM.68.BF	I	1500	①	0.27	26	61
		1380	②	0.46	48	63
		1250	③	0.74	90	69
	II	1080	④	0.62	65	66
	III	1380	⑤	0.44	44	62
	IV	1380	⑥	0.35	36	61
		870	⑦	0.25	24	56
	V	1220	⑧	0.25	24	57
		740	⑨	0.17	16	51

Current values determined at 230V

Fan ordering information

Design QK

Installation position H



Type **QK10A-4IM.68.BF**

Article no. **118255**

Weight kg 5.50

Control technology

Control modules



Page 94

Sensor control modules



Page 96

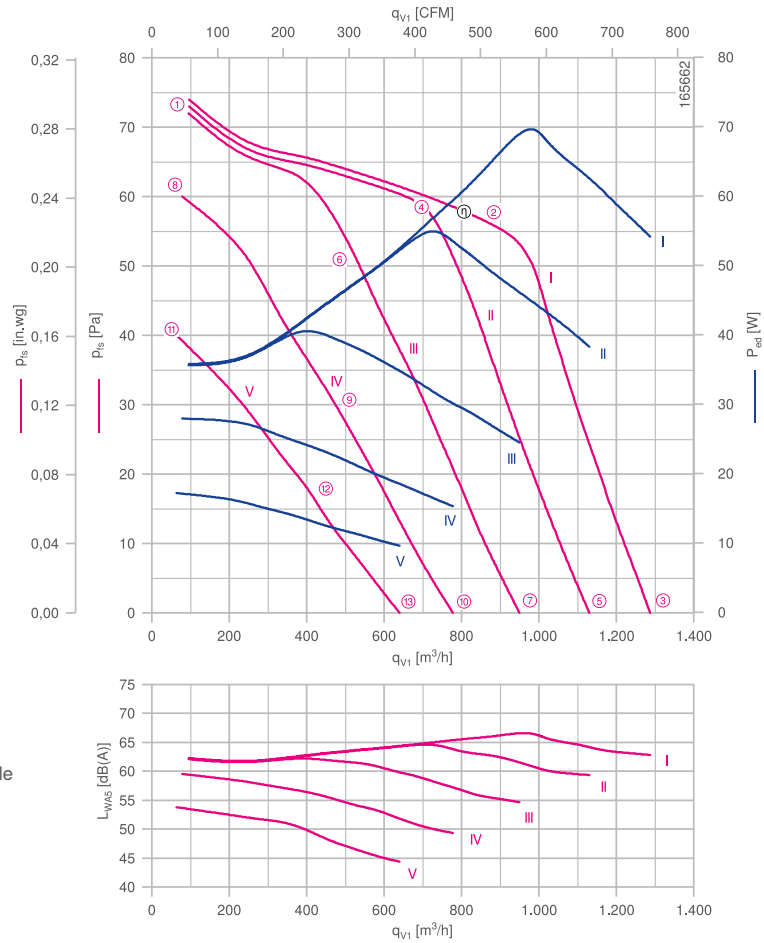
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QK10A



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

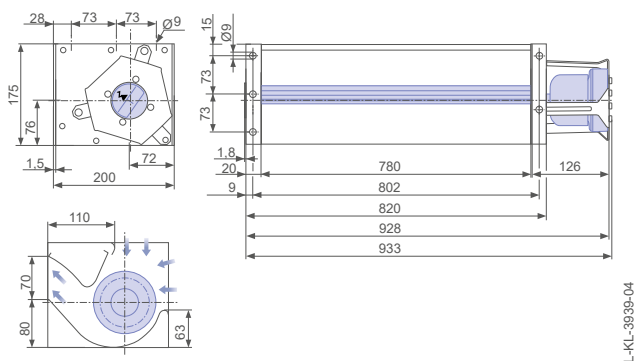
### Description

- Motor technology: EC
- Rated voltage  $U_N$ : 1~200-240 V\*
- Rated frequency  $f_N$ : 50/60 Hz\*
- Input power  $P_{ed}$ : 70 W\*
- Rated current  $I_N$ : 0.78-0.64 A\*
- Rated speed  $n_N$ : 1570 min<sup>-1</sup>\*
- Thermal class: THCL155\*
- Min. permitted ambient temperature  $t_{amb}$ : -20 °C
- Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C
- Electrical connection: Connecting cable
- Degree of protection: IP54
- Motor protection: integrated active temperature management
- Impeller made of aluminium
- Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel
- Conformity: CE, UL
- ErP-data**
- Not subject to the regulations of ErP directive ( $P_{ed} < 125$  W)
- \* Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

Connection diagram 1360-404 Page 107

## Dimensions mm

Cross flow fan in installation position H





Performance data

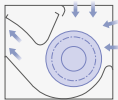
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK10A-ZIM.78.DD	I	1590	①	0.36	36	62
			②	0.58	60	66
		1180	③	0.52	55	63
	II	1590	④	0.52	55	65
		1040	⑤	0.39	38	59
	III	1440	⑥	0.38	38	62
		870	⑦	0.26	24	55
	IV	1430	⑧	0.29	28	60
		1140	⑨	0.24	22	55
	V	720	⑩	0.17	15	49
		1190	⑪	0.19	17	54
		880	⑫	0.15	13	50
		590	⑬	0.12	10	44

Current values determined at 230V

Fan ordering information

Design QK

Installation position H



Type QK10A-ZIM.78.DD

Article no. 118256

Weight kg 6.60

Control technology

Control modules



Page 94

Sensor control modules



Page 96

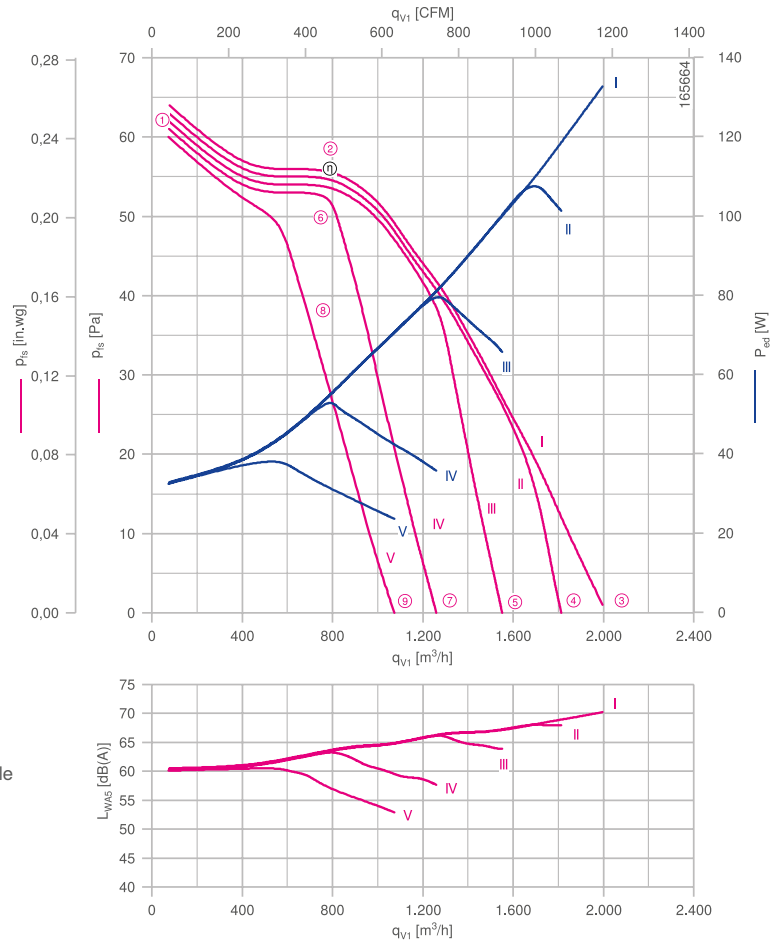
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QK10A



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

## Description

Motor technology: EC  
 Rated voltage  $U_N$ : 1~200-240 V\*  
 Rated frequency  $f_N$ : 50/60 Hz\*  
 Input power  $P_{ed}$ : 130 W\*  
 Rated current  $I_N$ : 1.40-1.15 A\*  
 Rated speed  $n_N$ : 1450 min<sup>-1</sup>\*  
 Thermal class: THCL155\*  
 Min. permitted ambient temperature  $t_{amb}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C  
 Electrical connection: Connecting cable  
 Degree of protection: IP54  
 Motor protection: integrated active temperature management  
 Impeller made of aluminium  
 Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL

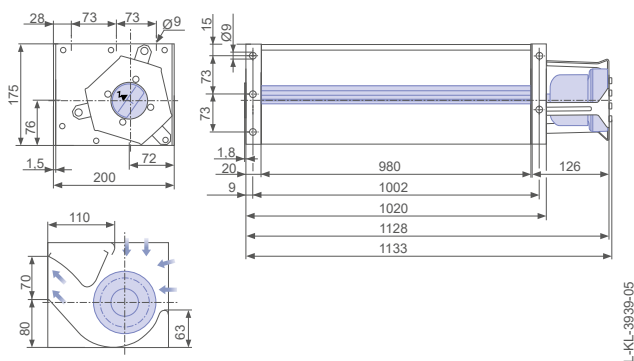
## ErP-data

Not subject to the regulations of ErP directive ( $P_{ed} < 125$  W)  
 \* Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

Connection diagram 1360-404 Page 107

## Dimensions mm

Cross flow fan in installation position H



Performance data

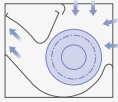
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK10A-ZIM.98.DD	I	1450	①	0.33	32	61
			②	0.94	100	67
			③	1.20	130	70
	II	1320	④	0.92	100	68
	III	1140	⑤	0.62	65	64
	IV	1390	⑥	0.48	50	63
		920	⑦	0.35	36	58
	V	1200	⑧	0.35	34	60
		780	⑨	0.25	24	53

Current values determined at 230V

Fan ordering information

Design QK

Installation position H



Type QK10A-ZIM.98.DD

Article no. 118257

Weight kg 7.40

Control technology

Control modules



Page 94

Sensor control modules



Page 96

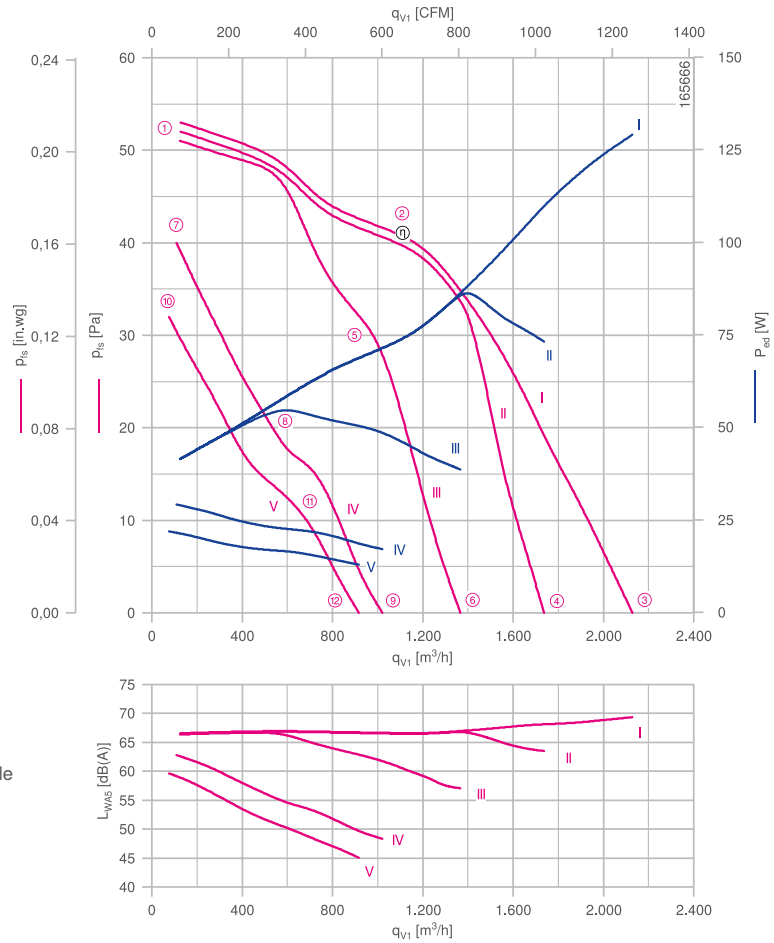
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QK10A



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

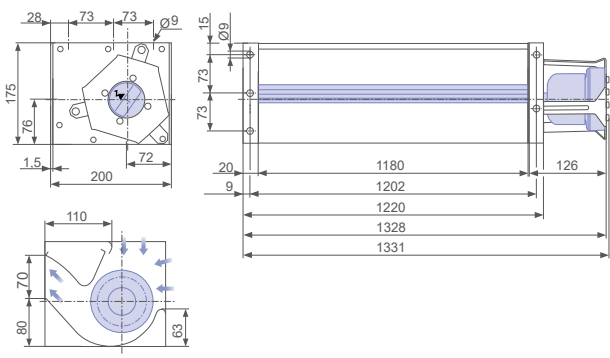
### Description

- Motor technology: EC
- Rated voltage  $U_N$ : 1~200-240 V\*
- Rated frequency  $f_N$ : 50/60 Hz\*
- Input power  $P_{ed}$ : 130 W\*
- Rated current  $I_N$ : 1.35-1.15 A\*
- Rated speed  $n_N$ : 1380 min<sup>-1</sup>\*
- Thermal class: THCL155\*
- Min. permitted ambient temperature  $t_{amb}$ : -20 °C
- Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C
- Electrical connection: Connecting cable
- Degree of protection: IP54
- Motor protection: integrated active temperature management
- Impeller made of aluminium
- Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel
- Conformity: CE, UL
- ErP-data**
- Not subject to the regulations of ErP directive ( $P_{ed} < 125$  W)
- \* Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

Connection diagram 1360-404 Page 107

## Dimensions mm

Cross flow fan in installation position H



L-KL-3940-01

Performance data

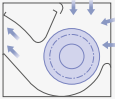
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK10A-ZIM.B8.DD	I	1400	①	0.42	42	67
		1380	②	0.82	85	67
		1140	③	1.20	130	69
	II	1140	④	0.70	75	64
		1210	⑤	0.48	50	62
		910	⑥	0.39	38	57
	IV	1220	⑦	0.31	30	63
		890	⑧	0.24	22	53
		670	⑨	0.19	17	48
	V	1090	⑩	0.24	22	60
		790	⑪	0.19	16	50
		600	⑫	0.15	13	45

Current values determined at 230V

Fan ordering information

Design QK

Installation position H





**Type** QK10A-ZIM.B8.DD  
**Article no.** 118258

Weight kg 8.30

Control technology

Control modules      Sensor control modules

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Information

Cross flow fan, EC-Technology

Cross flow fan

System components

Control technology

Appendix

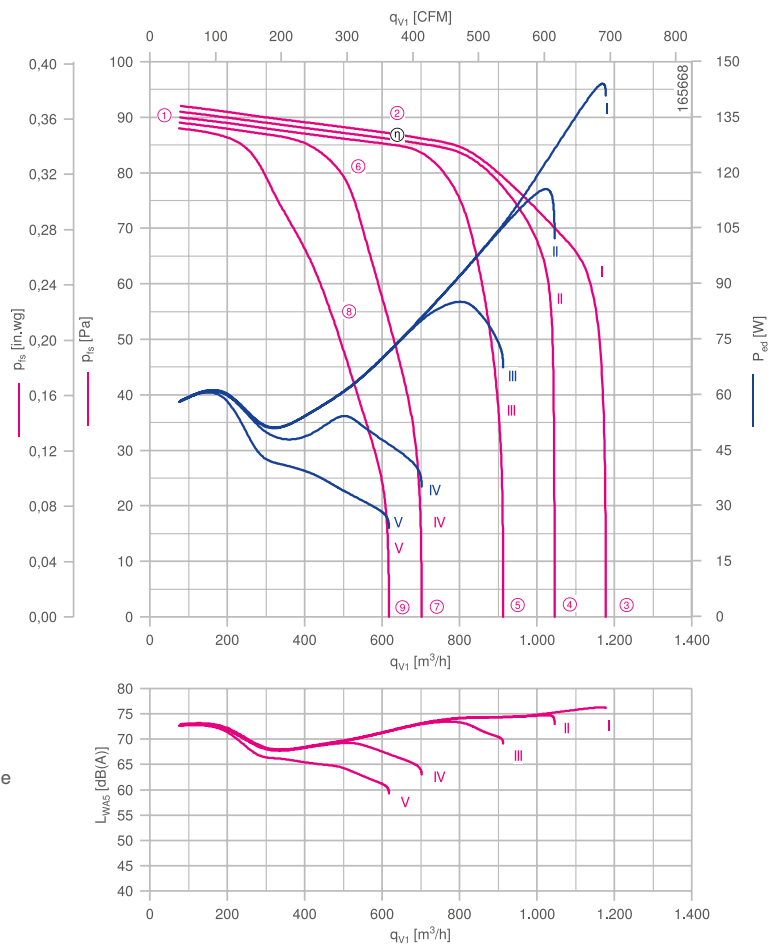
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QK12A



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

## Description

Motor technology: EC  
 Rated voltage  $U_N$ : 1~200-240 V\*  
 Rated frequency  $f_N$ : 50/60 Hz\*  
 Input power  $P_{ed}$ : 150 W\*  
 Rated current  $I_N$ : 1.65-1.40 A\*  
 Rated speed  $n_N$ : 1400 min<sup>-1</sup>\*  
 Thermal class: THCL155\*  
 Min. permitted ambient temperature  $t_{amb}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C  
 Electrical connection: Connecting cable  
 Degree of protection: IP54  
 Motor protection: integrated active temperature management  
 Impeller made of aluminium  
 Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL

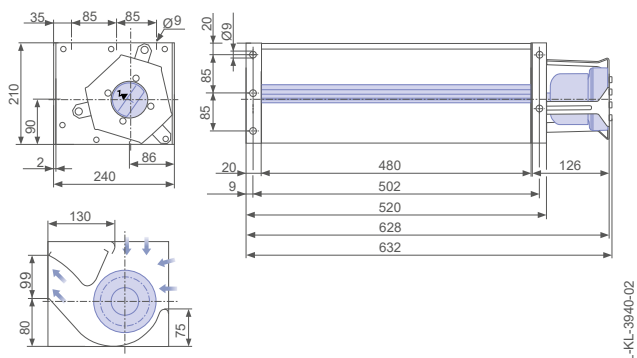
## ErP-data

Not subject to the regulations of ErP directive ( $P_{ed} < 125$  W)  
 \* Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

Connection diagram 1360-404 Page 107

## Dimensions mm

Cross flow fan in installation position H



Performance data

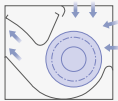
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK12A-ZIM.48.DD	I	1400	①	0.60	60	73
		1280	②	0.78	75	72
		1150	③	1.35	140	76
	II	1150	④	0.98	100	73
	III	1000	⑤	0.66	65	69
	IV	1300	⑥	0.50	55	69
		800	⑦	0.34	36	63
	V	1110	⑧	0.35	36	65
		700	⑨	0.26	24	59

Current values determined at 230V

Fan ordering information

Design QK

Installation position H



Type **QK12A-ZIM.48.DD**

Article no. **118259**

Weight kg 7.00

Control technology

Control modules



Page 94

Sensor control modules



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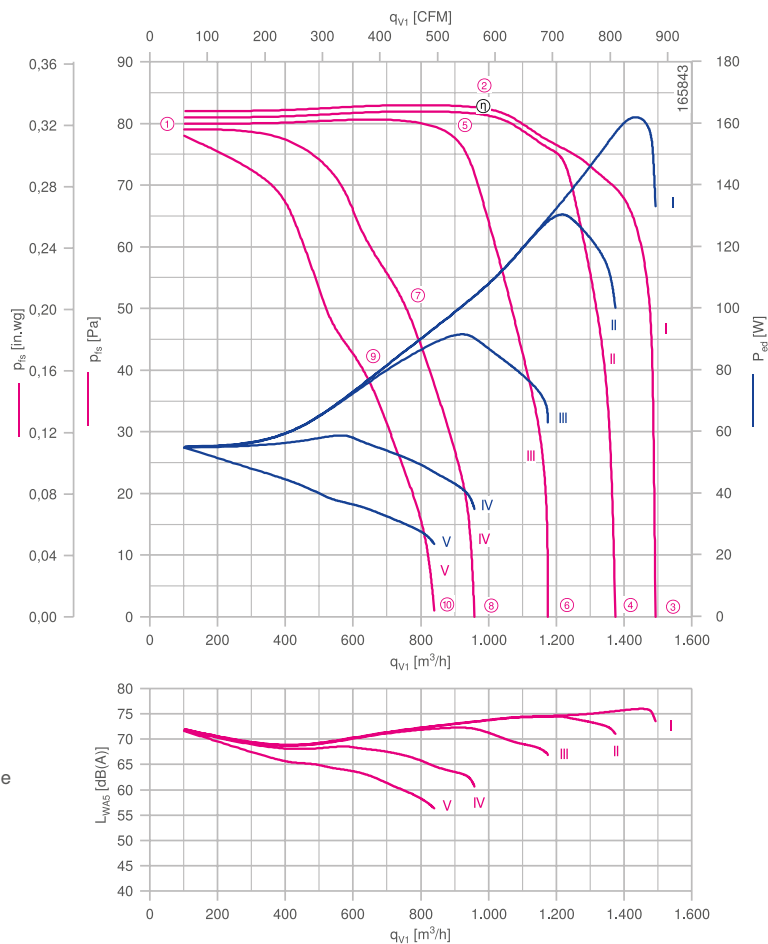
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QK12A



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

## Description

Motor technology: EC  
 Rated voltage  $U_N$ : 1~200-240 V\*  
 Rated frequency  $f_N$ : 50/60 Hz\*  
 Input power  $P_{ed}$ : 160 W\*  
 Rated current  $I_N$ : 1.75-1.45 A\*  
 Rated speed  $n_N$ : 1360 min<sup>-1</sup>\*  
 Thermal class: THCL155\*  
 Min. permitted ambient temperature  $t_{amb}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C  
 Electrical connection: Connecting cable  
 Degree of protection: IP54  
 Motor protection: integrated active temperature management  
 Impeller made of aluminium  
 Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL

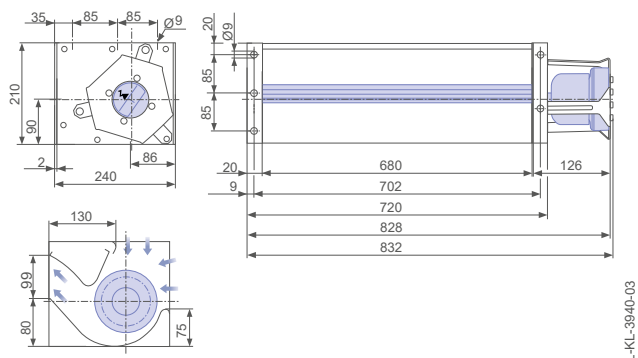
## ErP-data

Not subject to the regulations of ErP directive ( $P_{ed} < 125$  W)  
 \* Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

Connection diagram 1360-404 Page 107

## Dimensions mm

Cross flow fan in installation position H





### Performance data

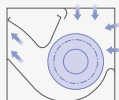
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK12A-ZIM.68.DD	I	1360	①	0.66	55	72
		1060	②	1.05	110	74
	II	970	③	1.20	130	74
		830	④	1.00	100	71
	III	1340	⑤	0.90	95	73
		830	⑥	0.64	65	67
	IV	1080	⑦	0.54	50	67
		690	⑧	0.40	34	61
	V	990	⑨	0.38	36	64
		580	⑩	0.26	24	56

Current values determined at 230V

### Fan ordering information

Design QK

Installation position H



**Type** QK12A-ZIM.68.DD

**Article no.** 118260

Weight kg 8.10

### Control technology

Control modules



Page 94

Sensor control modules



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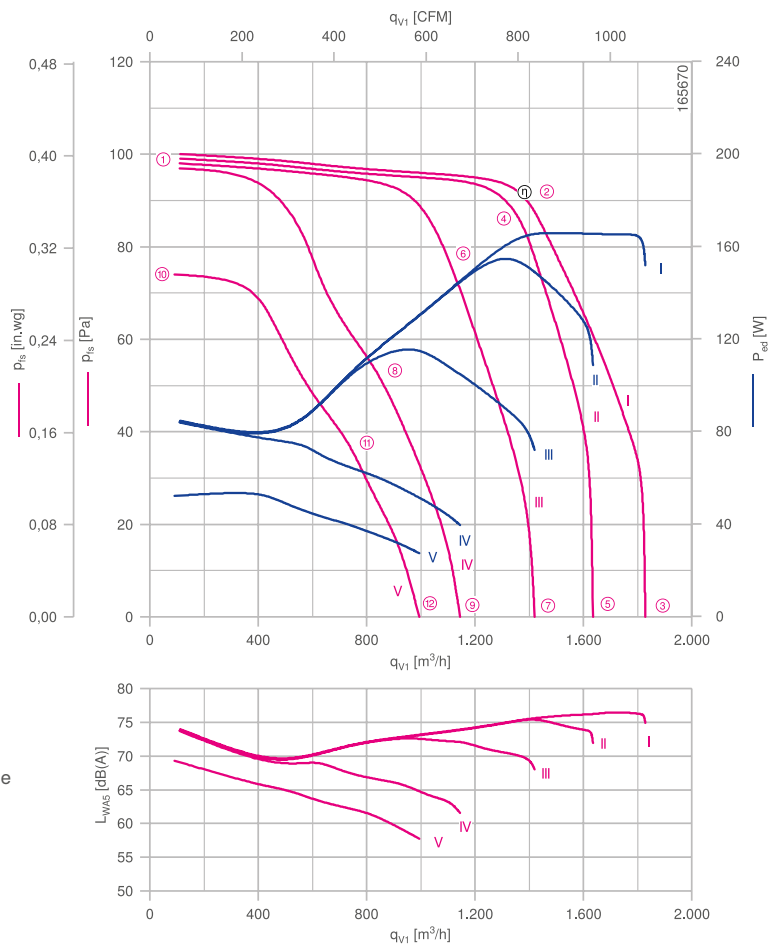
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QK12A



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

## Description

Motor technology: EC  
 Rated voltage  $U_N$ : 1~200-240 V\*  
 Rated frequency  $f_N$ : 50/60 Hz\*  
 Input power  $P_{ed}$ : 170 W\*  
 Rated current  $I_N$ : 1.70-1.45 A\*  
 Rated speed  $n_N$ : 1470 min<sup>-1</sup>\*  
 Thermal class: THCL155\*  
 Min. permitted ambient temperature  $t_{amb}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C  
 Electrical connection: Connecting cable  
 Degree of protection: IP54  
 Motor protection: integrated active temperature management  
 Impeller made of aluminium  
 Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL

## ErP-data

Efficiency  $\eta_{tot}$ : 31.4 %  
 Efficiency grade:  $N_{actual} = 36.1 / N_{target} = 21^{**}$   
 EC controller integrated

\*Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

\*\* ErP 2015

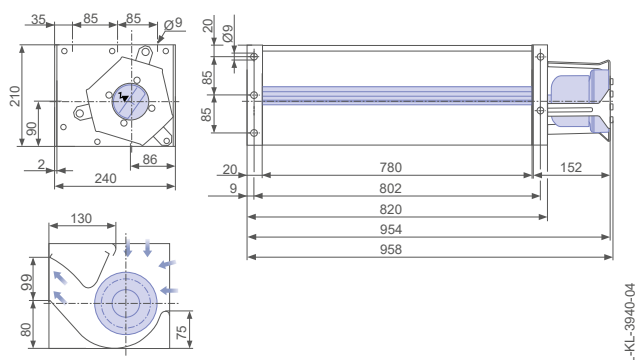
Connection diagram

1360-404

Page 107

## Dimensions mm

Cross flow fan in installation position H



Performance data

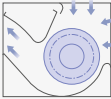
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK12A-ZIM.78.DK	I	1500	①	0.80	85	74
		1470	②	1.50	170	76
		1080	③	1.40	150	75
	II	1430	④	1.40	150	75
		970	⑤	1.05	110	72
	III	1330	⑥	1.00	110	72
		840	⑦	0.70	70	68
	IV	1100	⑧	0.58	60	67
		660	⑨	0.40	40	62
	V	1250	⑩	0.52	50	69
		930	⑪	0.40	40	62
			610	⑫	0.29	28

Current values determined at 230V

Fan ordering information

Design QK

Installation position H





**Type** QK12A-ZIM.78.DK  
**Article no.** 118261

Weight kg 9.80

Control technology

Control modules      Sensor control modules

Page 94      Page 96

Information

Cross flow fan, EC-Technology

Cross flow fan

System components

Control technology

Appendix

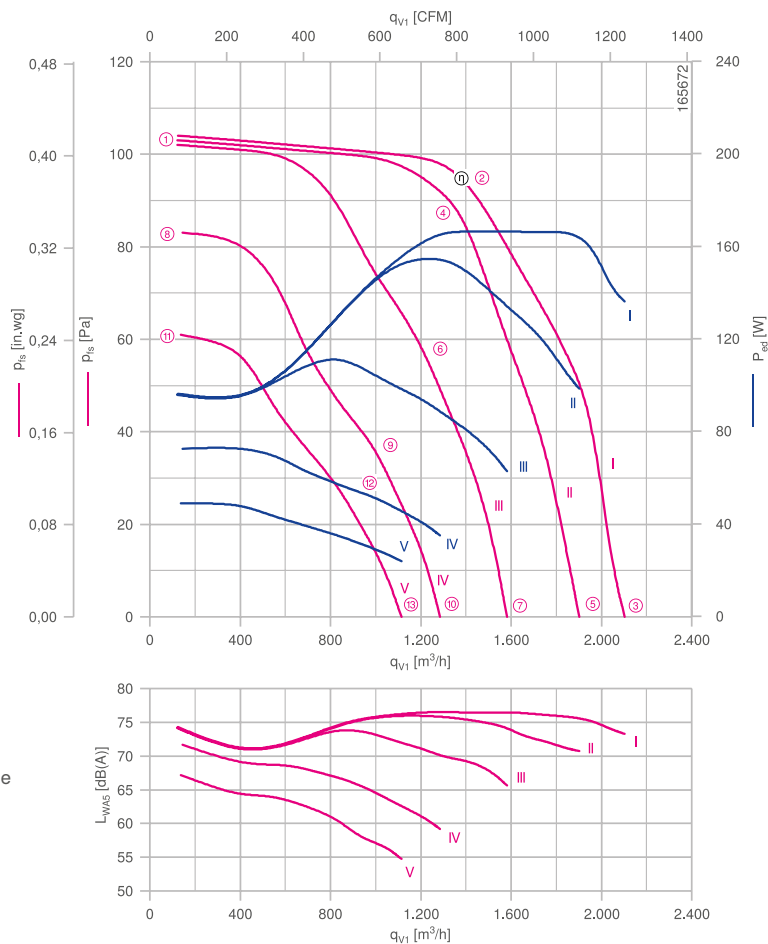
# Cross flow fan-ECblue

for single phase alternating current, 200-240 V

QK12A



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

### Description

Motor technology: EC  
 Rated voltage  $U_N$ : 1~200-240 V\*  
 Rated frequency  $f_N$ : 50/60 Hz\*  
 Input power  $P_{ed}$ : 170 W\*  
 Rated current  $I_N$ : 1.65-1.35 A\*  
 Rated speed  $n_N$ : 1430 min<sup>-1</sup>\*  
 Thermal class: THCL155\*  
 Min. permitted ambient temperature  $t_{amb}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb}$  at  $n_{max}$ : 70 °C  
 Electrical connection: Connecting cable  
 Degree of protection: IP54  
 Motor protection: integrated active temperature management  
 Impeller made of aluminium  
 Housing unpainted, Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL

### ErP-data

Efficiency  $\eta_{tot}$ : 30.7 %  
 Efficiency grade:  $N_{actual} = 35.3 / N_{target} = 21^{**}$   
 EC controller integrated

\*Rated data:  $P_{ed}$ ,  $I_N$  determined with 180° air deflector

\*\* ErP 2015

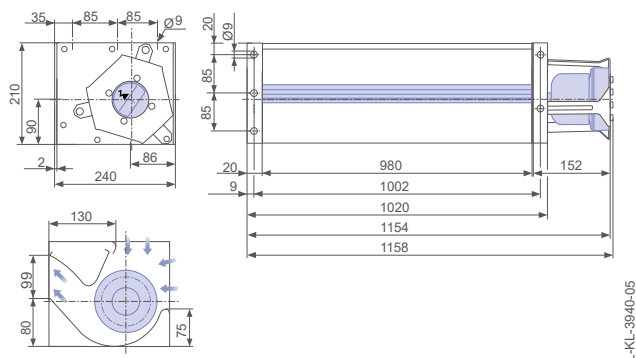
Connection diagram

1360-404

Page 107

## Dimensions mm

Cross flow fan in installation position H



Performance data

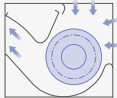
Type	Characteristic curve	Speed	Operating point	Current	Input power	Suction side sound power level
		n min <sup>-1</sup>		I A	P <sub>ed</sub> W	L <sub>WA5</sub> dB(A)
QK12A-ZIM.98.DK	I	1500	①	0.92	95	74
		1430	②	1.45	170	76
		960	③	1.25	140	73
	II	1380	④	1.30	150	76
		850	⑤	0.92	100	71
	III	1150	⑥	0.86	95	71
		730	⑦	0.58	65	66
	IV	1330	⑧	0.68	70	72
		920	⑨	0.50	50	65
	V	590	⑩	0.35	34	59
		1150	⑪	0.46	48	67
		820	⑫	0.35	36	61
			510	⑬	0.26	24

Current values determined at 230V

Fan ordering information

Design QK

Installation position H



Type QK12A-ZIM.98.DK

Article no. 118262

Weight kg 11.00

Control technology

Control modules

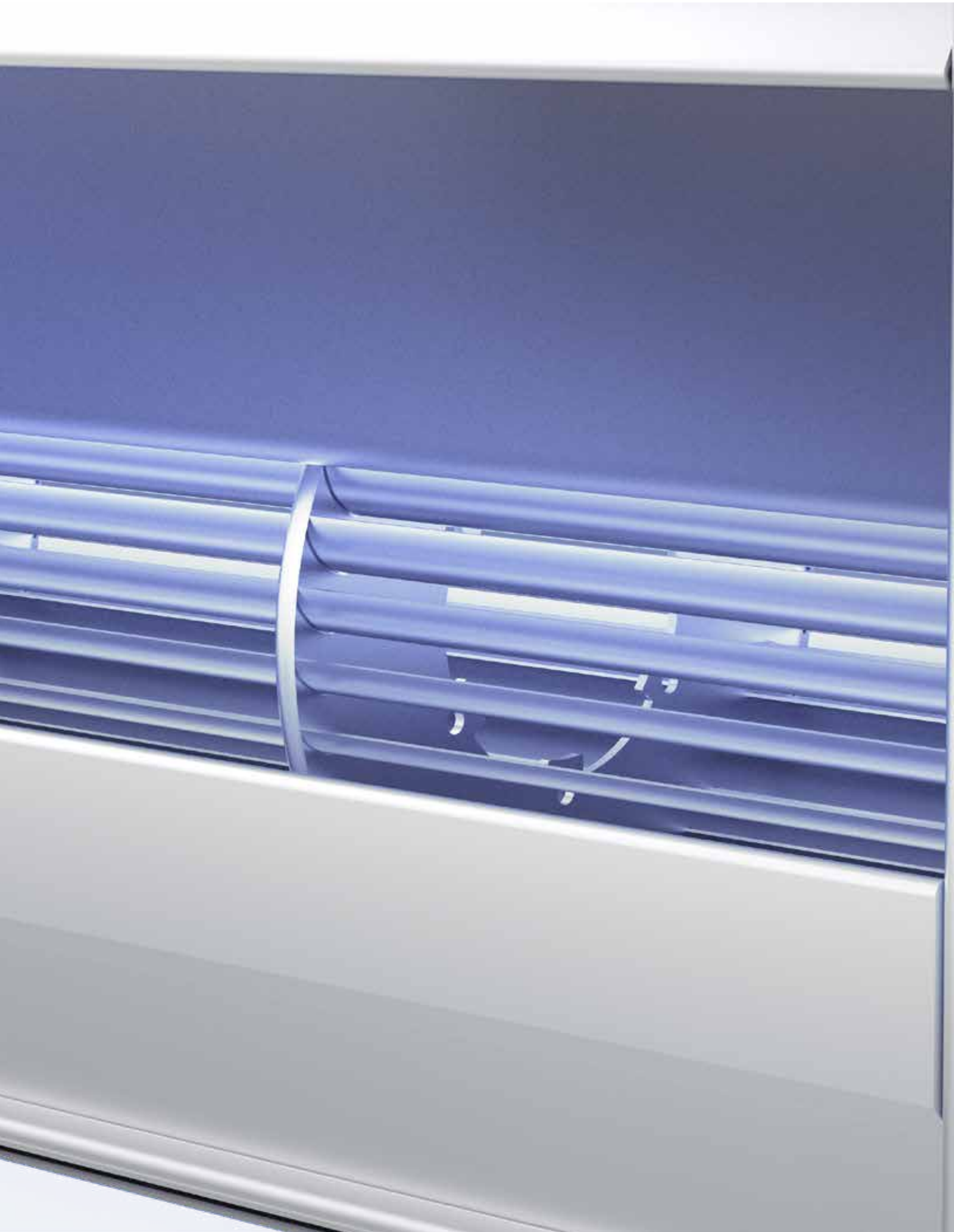


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Sensor control modules



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# Cross flow fan

## AC-Technology

### Product overview

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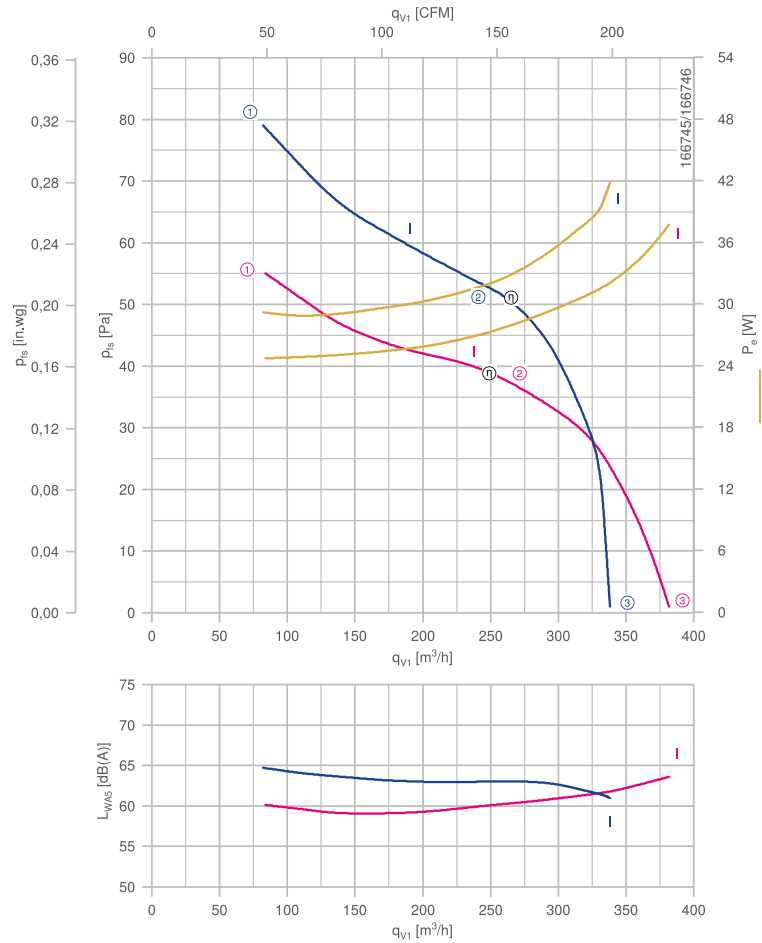
# Cross flow fan

for single phase alternating current, 2 pole

QR06A-2E



## Characteristic curve



Measured according to ISO 5801.  
The fan should only be used with the filter fitted.

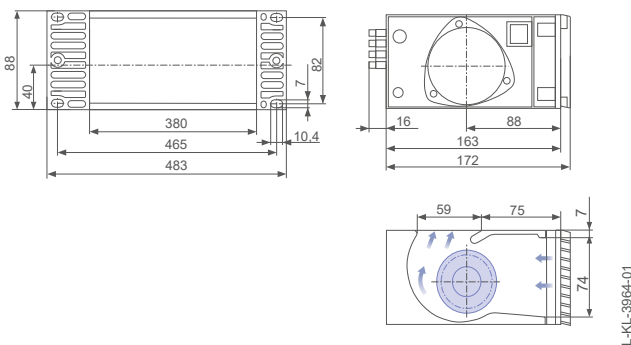
## Description

Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V  $\pm 10\%$ \*  
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 40 W | 50 W\*  
 Rated current  $I_N$ :  
 0.17 A | 0.22 A\*  
 Rated speed  $n_N$ :  
 2450 min<sup>-1</sup> | 2500 min<sup>-1</sup>\*  
 Service capacitor  $C_{400V}$ : 1.0  $\mu F$   
 Thermal class: **THCL105\***  
 Min. permitted ambient temperature  $t_{amb(min)}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb(max)}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Degree of protection: IP10  
 Motor protection: Thermal contact switched in coil, clockwise  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL  
**ErP-data**  
 Not subject to the regulations of ErP directive ( $P_e < 125$  W)  
 \*Rated data

Connection diagram 1360-167XA Page 108  
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## Dimensions mm

Cross flow fan in installation position H





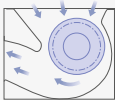
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QR06A-2EM.38.AB		230	50	①	0.11	24	2750	60
		230		②	0.12	28	2610	60
		230		③	0.16	38	1850	64
		230	60	①	0.13	30	3170	65
		230		②	0.14	32	2960	63
		230		③	0.18	42	1710	61

Fan ordering information

Design QR

Installation position H




**Type** QR06A-2EM.38.AB  
**Article no.** 104724

Weight kg 1.50

Control technology

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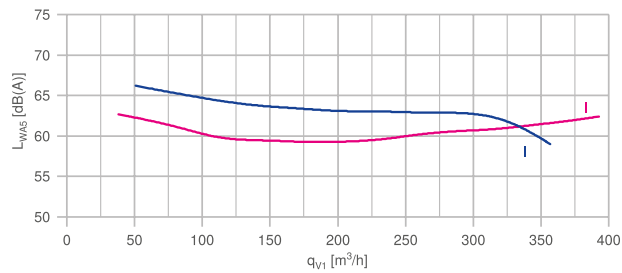
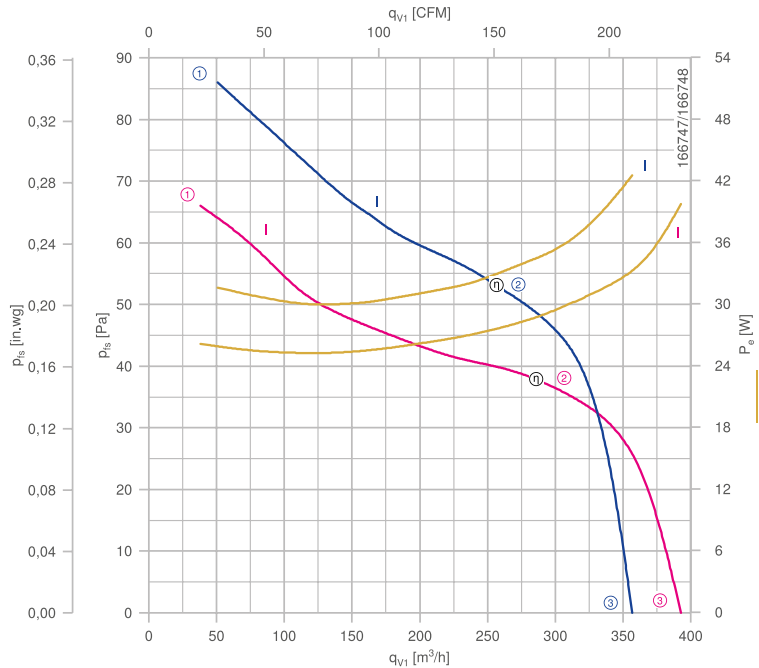
# Cross flow fan

for single phase alternating current, 2 pole

QR06A-2E



## Characteristic curve



Measured according to ISO 5801.  
The fan should only be used with the filter fitted.

### Description

Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V ±10%\*  
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 40 W | 50 W\*  
 Rated current  $I_N$ :  
 0.17 A | 0.22 A\*  
 Rated speed  $n_N$ :  
 2450 min⁻¹ | 2500 min⁻¹\*  
 Service capacitor  $C_{400V}$ : 1.0 µF  
 Thermal class: **THCL105\***  
 Min. permitted ambient temperature  $t_{amb(min)}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb(max)}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Degree of protection: IP10  
 Motor protection: Thermal contact switched in coil, clockwise  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE, UL

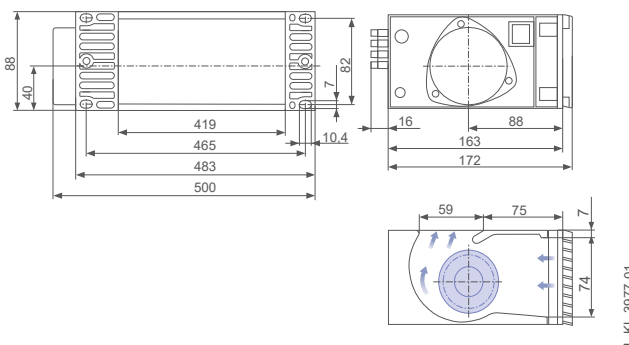
### ErP-data

Not subject to the regulations of ErP directive ( $P_e < 125$  W)  
 \*Rated data

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 System components Page 80

## Dimensions mm

Cross flow fan in installation position H



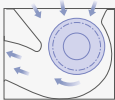
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QR06A-2EM.42.AB		230	50	①	0.11	26	2680	63
		230		②	0.12	28	2560	61
		230		③	0.17	40	1690	62
		230	60	①	0.14	32	3060	66
		230		②	0.14	32	3060	63
		230		③	0.18	42	1480	59

Fan ordering information

Design QR

Installation position H




**Type** QR06A-2EM.42.AB  
**Article no.** 104725

Weight kg 1.60

Control technology

Transformer-based controllers 1~



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Appendix

# Cross flow fan

for single phase alternating current, 2 pole

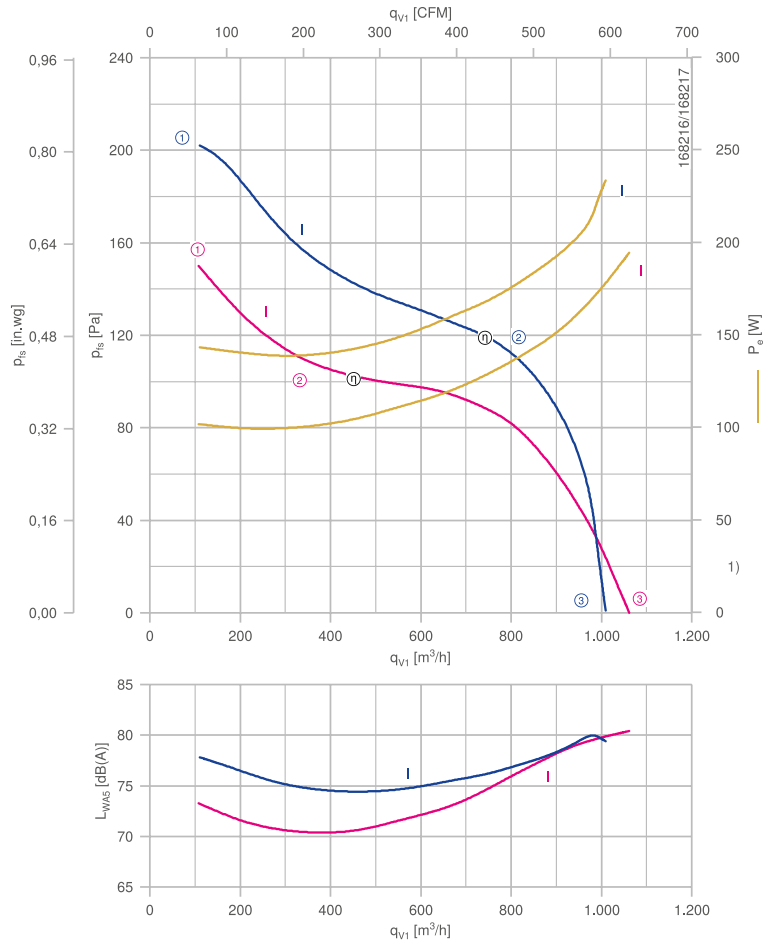
QR08A-2E



## Description

Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V  $\pm 10\%$ \*  
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 190 W | 230 W\*  
 Rated current  $I_N$ :  
 0.85 A | 1.00 A\*  
 Rated speed  $n_N$ :  
 2100  $\text{min}^{-1}$  | 2040  $\text{min}^{-1}$ \*  
 Current increase  $\Delta I$ : 0 %  
 Service capacitor  $C_{400V}$ : 4.0  $\mu\text{F}$   
 Thermal class: **THCL130\***  
 Min. permitted ambient temperature  $t_{\text{amb(min)}}$ : -20 °C  
 Max. permitted ambient temperature  $t_{\text{amb(max)}}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE  
**ErP-data**  
 Not subject to the regulations of ErP directive ( $P_e < 125 \text{ W}$ )  
 \*Rated data

## Characteristic curve

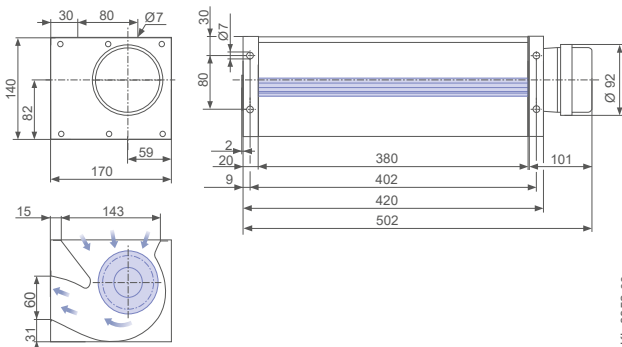


Measured according to ISO 5801.

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## Dimensions mm

Cross flow fan in installation position H



L-KL-3952-03

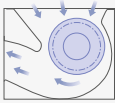
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QR08A-2EM.38.CF		230	50	①	0.48	100	2760	73
		230		②	0.54	120	2670	73
		230		③	0.84	190	2090	80
		230	60	①	0.64	140	3230	78
		230		②	0.74	170	3040	76
		230		③	1.00	230	2040	79

Fan ordering information

Design QR

Installation position H



Type **QR08A-2EM.38.CF**

Article no. **118573**

Weight kg 4.10

Control technology

Transformer-based controllers 1~



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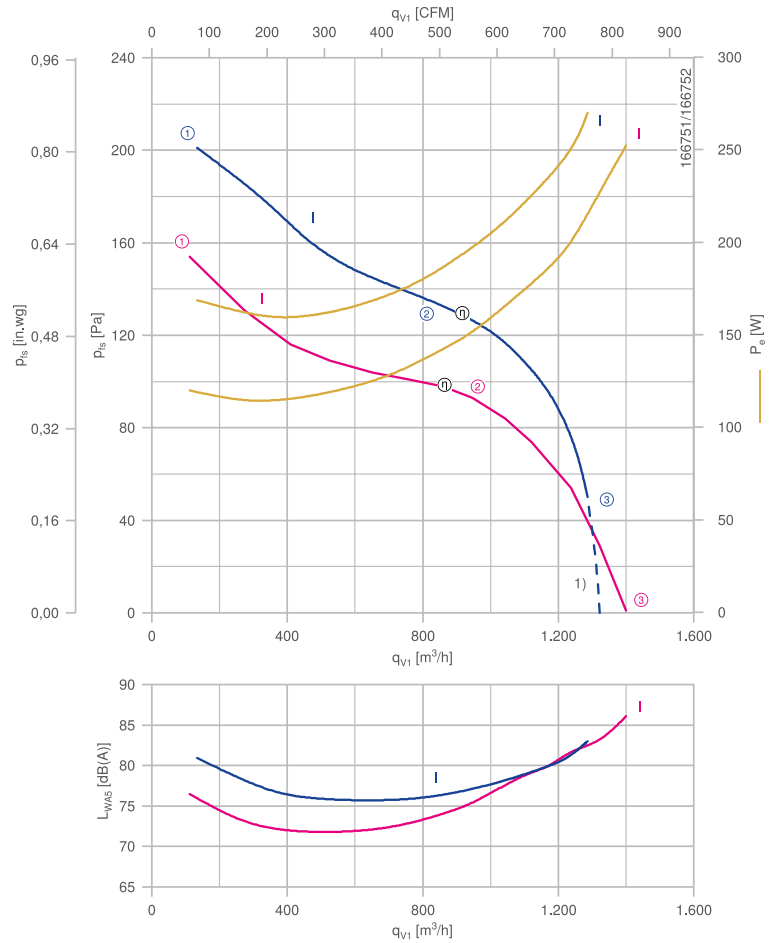
# Cross flow fan

for single phase alternating current, 2 pole

QR08A-2E



## Characteristic curve



1) Do not operate in this area  
Measured according to ISO 5801.

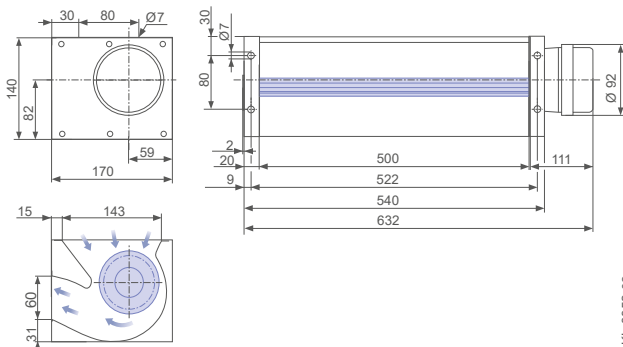
### Description

Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V  $\pm 10\%$ \*  
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 240 W | 280 W\*  
 Rated current  $I_N$ :  
 1.05 A | 1.15 A\*  
 Rated speed  $n_n$ :  
 2300 min<sup>-1</sup> | 2450 min<sup>-1</sup>\*  
 Service capacitor  $C_{400V}$ : 5.0  $\mu F$   
 Thermal class: **THCL130\***  
 Min. permitted ambient temperature  $t_{amb(min)}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb(max)}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Minimum pressing  $p_{st(min)}$ : 50PA  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: ErP 2015, CE  
**ErP-data**  
 Efficiency  $\eta_{tot}$ : 23.7 %  
 Efficiency grade:  $N_{actual} = 28.4 / N_{target} = 21^{**}$   
 \*Rated data  
 \*\*ErP 2015

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## Dimensions mm

Cross flow fan in installation position H



L-KL-3952-02

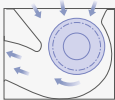
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QR08A-2EM.50.CH		230	50	①	0.56	120	2810	77
		230		②	0.64	140	2700	74
		230		③	1.10	250	2130	86
		230	60	①	0.74	170	3230	81
		230		②	0.86	190	3110	77
		230		③	1.20	270	2450	83

Fan ordering information

Design QR

Installation position H




**Type** QR08A-2EM.50.CH  
**Article no.** 113240

Weight kg 4.90

Control technology

Transformer-based controllers 1~



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# Cross flow fan

for single phase alternating current, 2 pole

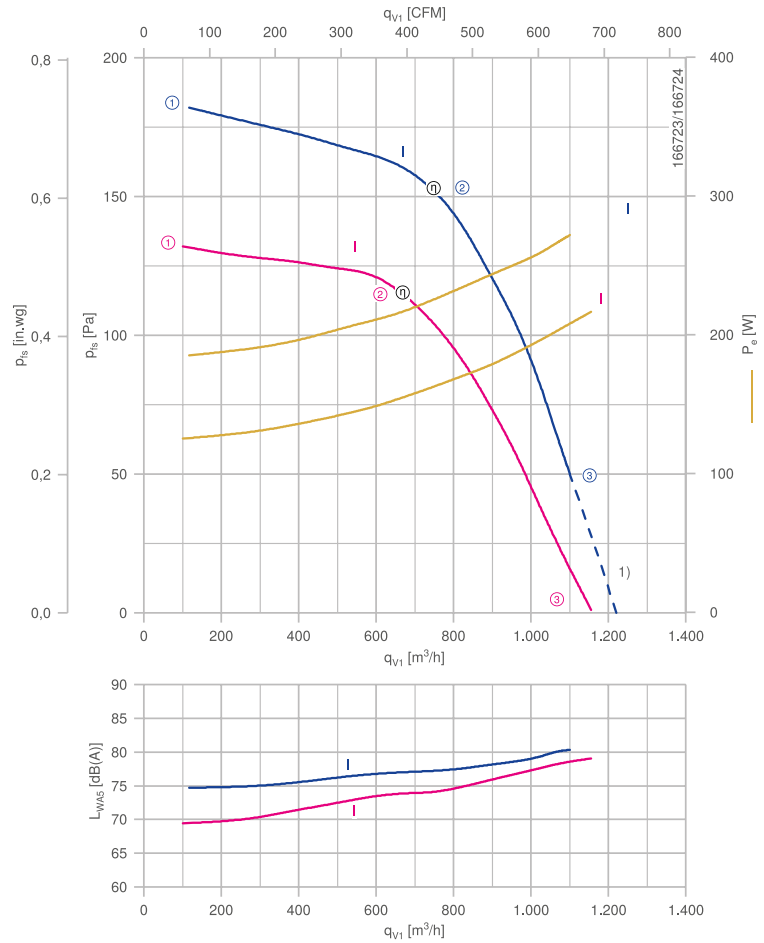
QK08A-2E



## Description

Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V  $\pm 10\%^*$   
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 270 W | 280 W\*  
 Rated current  $I_N$ :  
 1.20 A | 1.20 A\*  
 Rated speed  $n_N$ :  
 2470 min<sup>-1</sup> | 2600 min<sup>-1</sup>\*  
 Service capacitor  $C_{400V}$ : 6.0  $\mu F$   
 Thermal class: **THCL130\***  
 Min. permitted ambient temperature  $t_{amb(min)}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb(max)}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Minimum pressing  $p_{st(min)}$ : 50PA  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: ErP 2015, CE  
**ErP-data**  
 Efficiency  $\eta_{tot}$ : 19.1 %  
 Efficiency grade:  $N_{actual} = 23.7 / N_{target} = 21^{**}$   
 \*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector  
 \*\*ErP 2015

## Characteristic curve



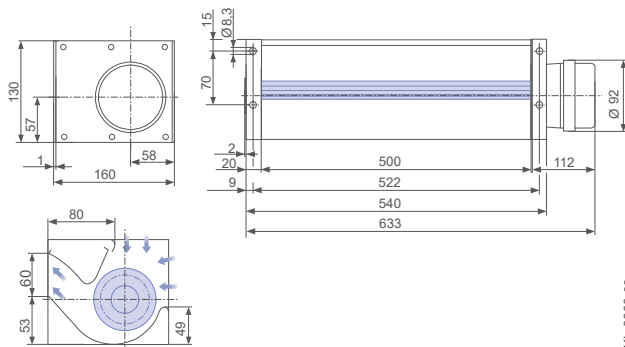
Measured without guide plate 180° according to ISO 5801.

1) Do not operate in this area

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## Dimensions mm

Cross flow fan in installation position H





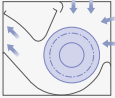
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QK08A-2EM.50.CH		230	50	①	0.58	130	2860	69
		230		②	0.68	160	2740	74
		230		③	0.94	220	2440	79
		230	60	①	0.84	190	3360	75
		230		②	1.00	230	3110	77
		230		③	1.00	270	2780	81

Fan ordering information

Design QK

Installation position H




**Type** QK08A-2EM.50.CH  
**Article no.** 205157

Weight kg 4.60

Control technology

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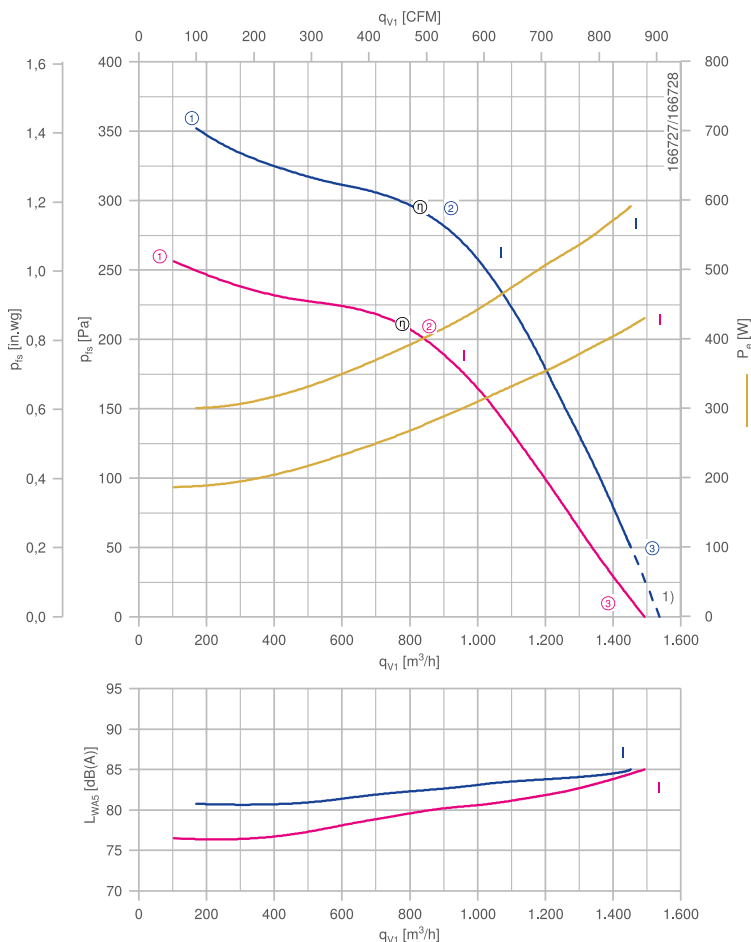
# Cross flow fan

for single phase alternating current, 2 pole

QK10A-2E



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

1) Do not operate in this area

### Description

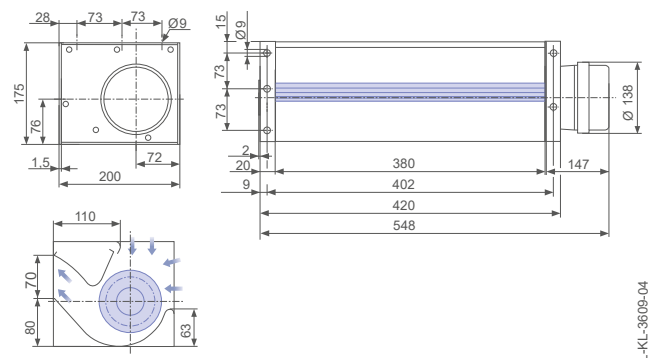
Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V  $\pm 10\%$ \*  
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 580 W | 680 W\*  
 Rated current  $I_N$ :  
 2.50 A | 3.05 A\*  
 Rated speed  $n_N$ :  
 2710  $\text{min}^{-1}$  | 2850  $\text{min}^{-1}$ \*  
 Service capacitor  $C_{400V}$ : 8.0  $\mu\text{F}$   
 Thermal class: **THCL155\***  
 Min. permitted ambient temperature  $t_{\text{amb}(\text{min})}$ : -20 °C  
 Max. permitted ambient temperature  $t_{\text{amb}(\text{max})}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Minimum pressing  $p_{\text{st}(\text{min})}$ : 50PA  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: ErP 2015, CE  
**ErP-data**  
 Efficiency  $\eta_{\text{tot}}$ : 23.5 %  
 Efficiency grade:  $N_{\text{actual}} = 27.5 / N_{\text{target}} = 21$ \*\*  
 \*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector  
 \*\*ErP 2015

Connection diagram  
 System components

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 Page 80

## Dimensions mm

Cross flow fan in installation position H



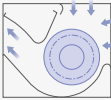
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n $min^{-1}$	
QK10A-2EM.38.FK		230	50	①	0.84	190	2920	77
		230		②	1.15	260	2850	79
		230		③	1.85	420	2680	85
		230	60	①	1.45	300	3430	81
		230		②	1.80	400	3300	82
		230		③	3.00	600	2910	85

Fan ordering information

Design QK

Installation position H




**Type** QK10A-2EM.38.FK  
**Article no.** 211010

Weight kg 9.10

Control technology

Transformer-based controllers 1~



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# Cross flow fan

for single phase alternating current, 4 pole

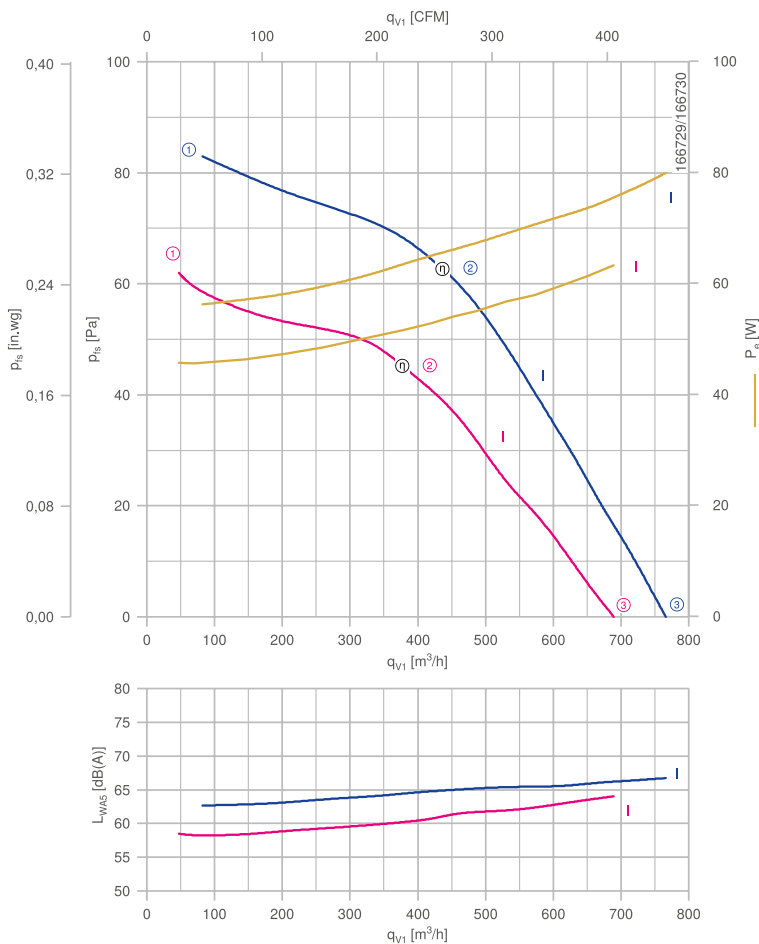
QK10A-4E



## Description

Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V  $\pm 10\%^*$   
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 70 W | 90 W\*  
 Rated current  $I_N$ :  
 0.36 A | 0.40 A\*  
 Rated speed  $n_N$ :  
 1260 min<sup>-1</sup> | 1310 min<sup>-1</sup>\*  
 Service capacitor  $C_{400V}$ : 2.0  $\mu F$   
 Thermal class: **THCL130\***  
 Min. permitted ambient temperature  $t_{amb(min)}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb(max)}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE  
**ErP-data**  
 Not subject to the regulations of ErP directive ( $P_e < 125$  W)  
 \*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector

## Characteristic curve

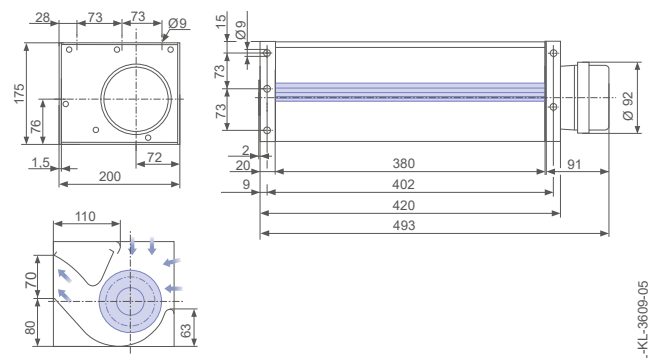


Measured without guide plate 180° according to ISO 5801.

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## Dimensions mm

Cross flow fan in installation position H



L-KL-3609-05

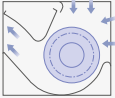
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QK10A-4EM.38.CD		230	50	①	0.22	46	1440	59
		230		②	0.24	50	1380	60
		230		③	0.28	65	1250	64
		230	60	①	0.25	55	1700	63
		230		②	0.29	65	1600	65
		230		③	0.35	80	1370	67

Fan ordering information

Design QK

Installation position H




**Type** QK10A-4EM.38.CD  
**Article no.** 210958

Weight kg 4.40

Control technology

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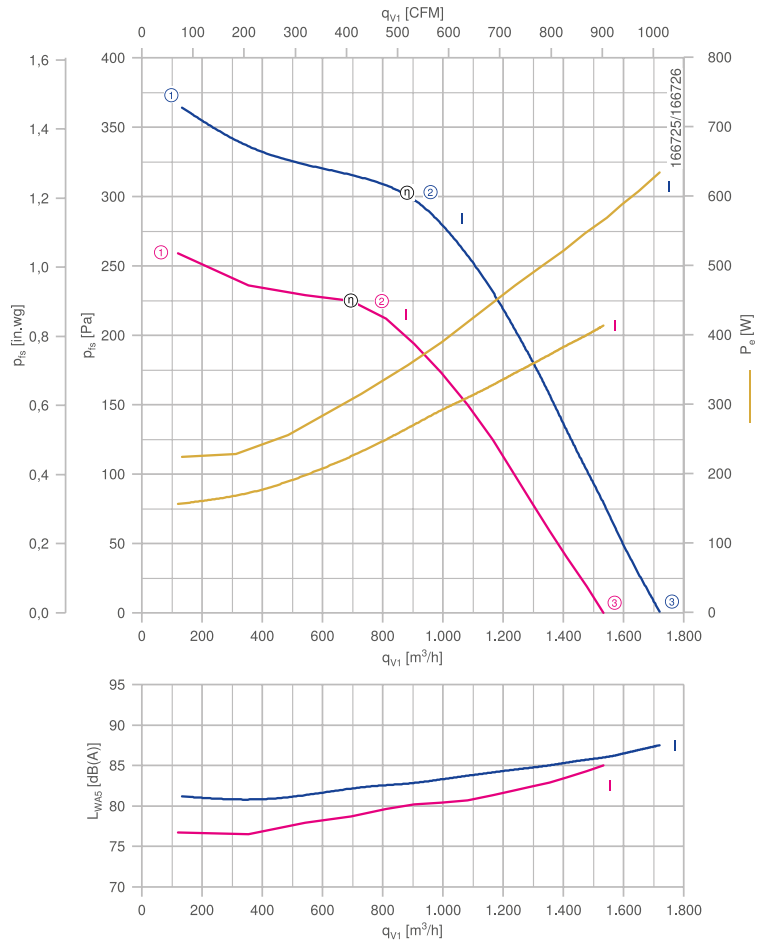
# Cross flow fan

for three phase alternating current, 2 pole

QK10A-2D



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

### Description

Motor technology: AC  
 Rated voltage  $U_N$ :  
 3~ 230/400 V (D/Y)\*  
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 550 W | 610 W\*  
 Rated current  $I_N$ :  
 1.82/1.05 A | 1.90/1.10 A\*  
 Rated speed  $n_N$ :  
 2790 min<sup>-1</sup> | 3230 min<sup>-1</sup>\*  
 Thermal class: **THCL155\***  
 Min. permitted ambient temperature  $t_{amb(min)}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb(max)}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: ErP 2015, CE

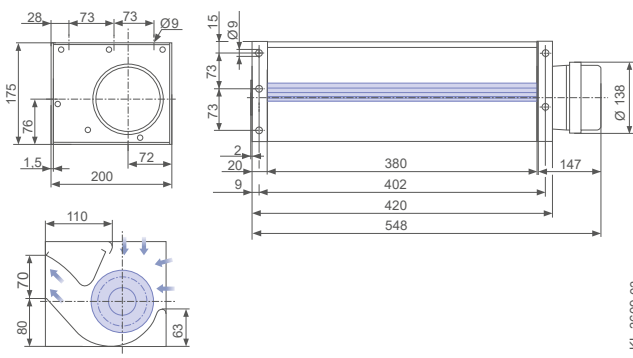
### ErP-data

Efficiency  $\eta_{tot}$ : 27.8 %  
 Efficiency grade:  $N_{actual} = 31.8 / N_{target} = 21^{**}$   
 \*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector  
 \*\*ErP 2015

Connection diagram 1360-106XA Page 108

## Dimensions mm

Cross flow fan in installation position H



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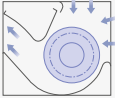
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QK10A-2DM.38.FK		400	50	①	0.62	160	2940	77
		400		②	0.66	220	2900	79
		400		③	0.82	420	2790	85
		400	60	①	0.50	220	3470	81
		400		②	0.66	360	3380	83
		400		③	1.05	640	3150	88

Fan ordering information

Design QK

Installation position H



**Type** QK10A-2DM.38.FK  
**Article no.** 110178

Weight kg 9.10

- Information
- Cross flow fan, EC-Technology
- Cross flow fan
- System components
- Control technology
- Appendix

# Cross flow fan

for single phase alternating current, 4 pole

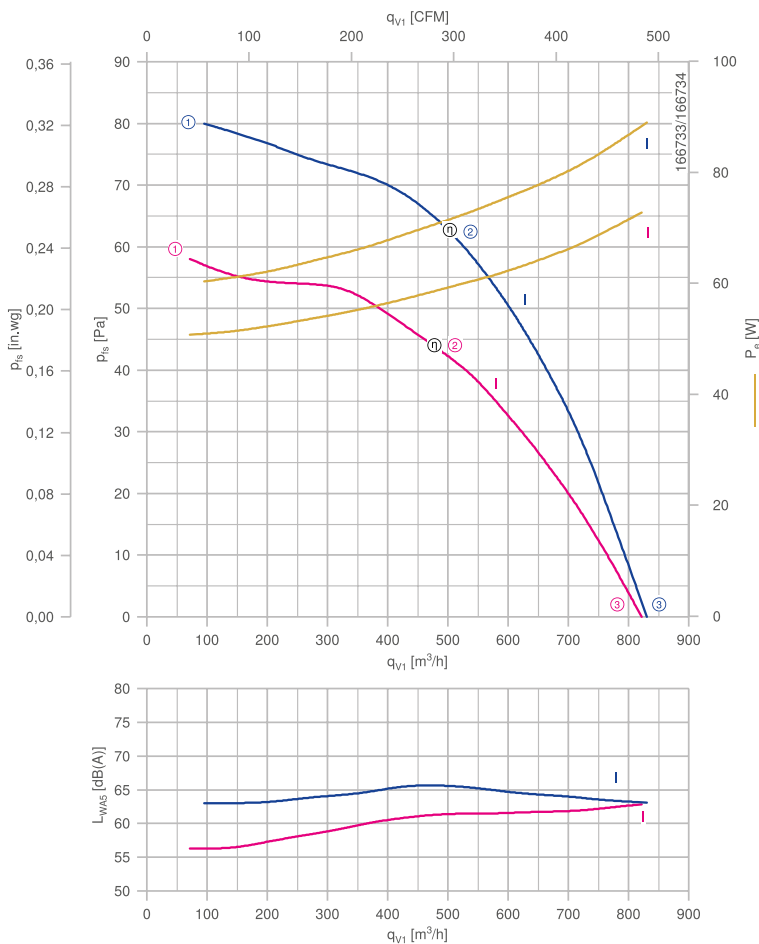
QK10A-4E



## Description

Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V  $\pm 10\%$ \*  
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 80 W | 90 W\*  
 Rated current  $I_N$ :  
 0.34 A | 0.45 A\*  
 Rated speed  $n_n$ :  
 1140  $\text{min}^{-1}$  | 1230  $\text{min}^{-1}$ \*  
 Service capacitor  $C_{400V}$ : 2.0  $\mu\text{F}$   
 Thermal class: **THCL130\***  
 Min. permitted ambient temperature  $t_{\text{amb}(\text{min})}$ : -20 °C  
 Max. permitted ambient temperature  $t_{\text{amb}(\text{max})}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE  
**ErP-data**  
 Not subject to the regulations of ErP directive ( $P_e < 125$  W)  
 \*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector

## Characteristic curve

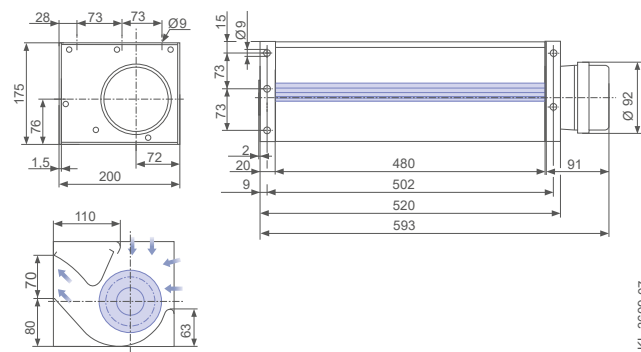


Measured without guide plate 180° according to ISO 5801.

Connection diagram 1360-161XA Page 108  
 System components Page 80

## Dimensions mm

Cross flow fan in installation position H



L-KL-3609-07



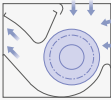
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QK10A-4EM.48.CD		230	50	①	0.23	50	1430	56
		230		②	0.26	60	1340	61
		230		③	0.32	75	1160	63
		230	60	①	0.27	60	1680	63
		230		②	0.32	70	1550	66
		230		③	0.39	90	1150	63

Fan ordering information

Design QK

Installation position H




**Type** QK10A-4EM.48.CD  
**Article no.** 210843

Weight kg 4.80

Control technology

Transformer-based controllers 1~



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Information

Cross flow fan, EC-Technology

Cross flow fan

System components

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Appendix

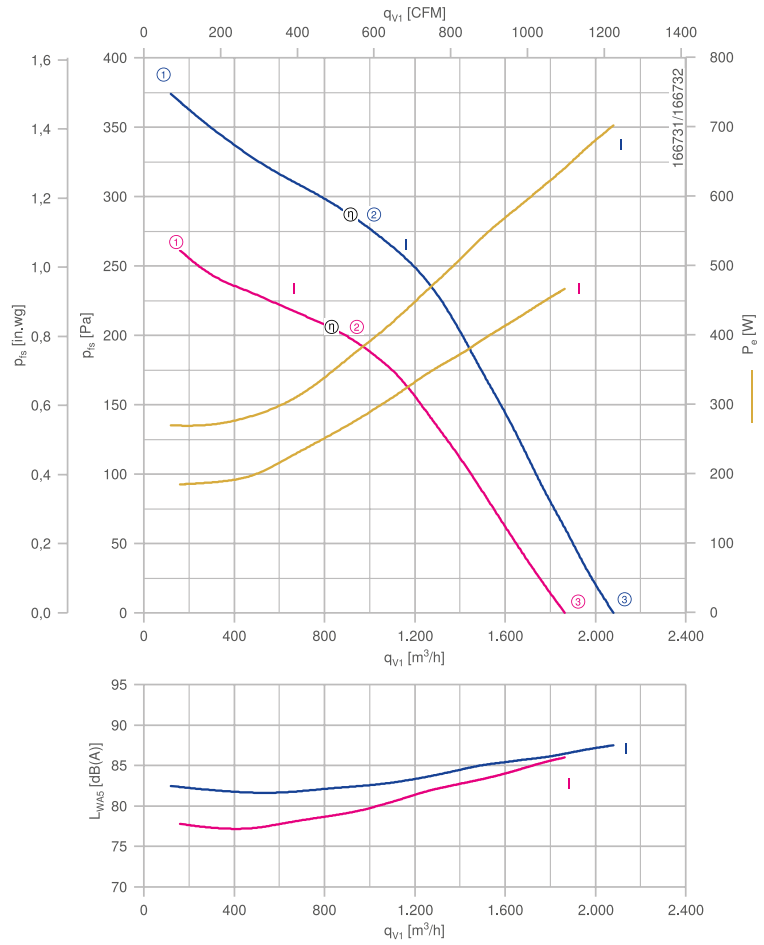
# Cross flow fan

for three phase alternating current, 2 pole

QK10A-2D



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

### Description

Motor technology: AC  
 Rated voltage  $U_N$ :  
 3~ 230/400 V (D/Y)\*  
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 670 W | 860 W\*  
 Rated current  $I_N$ :  
 2.13/1.23 A | 2.77/1.60 A\*  
 Rated speed  $n_N$ :  
 2730 min<sup>-1</sup> | 3000 min<sup>-1</sup>\*  
 Thermal class: **THCL155\***  
 Min. permitted ambient temperature  $t_{amb(min)}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb(max)}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: ErP 2015, CE

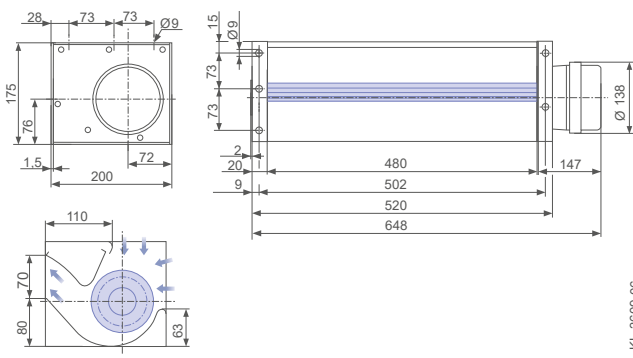
### ErP-data

Efficiency  $\eta_{tot}$ : 30.5 %  
 Efficiency grade:  $N_{actual} = 34.3 / N_{target} = 21^{**}$   
 \*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector  
 \*\*ErP 2015

Connection diagram 1360-106XA Page 108

## Dimensions mm

Cross flow fan in installation position H



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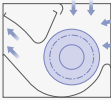
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n $min^{-1}$	
QK10A-2DM.48.FK		400	50	①	0.64	180	2920	78
		400		②	0.68	260	2880	79
		400		③	0.88	460	2760	86
		400	60	①	0.56	270	3440	83
		400		②	0.68	370	3370	82
		400		③	1.15	700	3100	88

Fan ordering information

Design QK

Installation position H



**Type** QK10A-2DM.48.FK  
**Article no.** 210917

Weight kg 9.50

- Information
- Cross flow fan, EC-Technology
- Cross flow fan
- System components
- Control technology
- Appendix

# Cross flow fan

for single phase alternating current, 4 pole

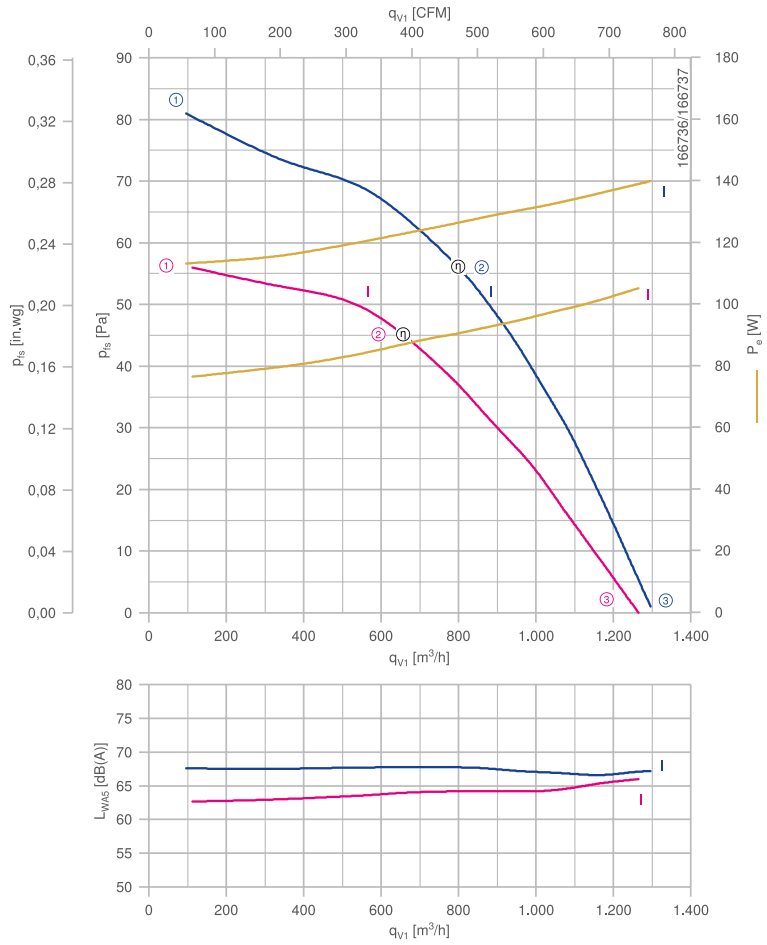
QK10A-4E



## Description

Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V  $\pm 10\%^*$   
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 120 W | 150 W\*  
 Rated current  $I_N$ :  
 0.50 A | 0.64 A\*  
 Rated speed  $n_n$ :  
 1270  $\text{min}^{-1}$  | 1370  $\text{min}^{-1}$ \*  
 Service capacitor  $C_{400V}$ : 3.0  $\mu\text{F}$   
 Thermal class: **THCL130\***  
 Min. permitted ambient temperature  $t_{\text{amb}(\text{min})}$ : -20 °C  
 Max. permitted ambient temperature  $t_{\text{amb}(\text{max})}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE  
**ErP-data**  
 Not subject to the regulations of ErP directive ( $P_e < 125$  W)  
 \*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector

## Characteristic curve

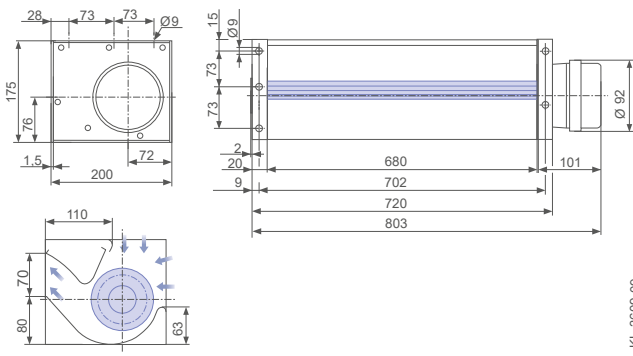


Measured without guide plate 180° according to ISO 5801.

Connection diagram 1360-161XA Page 108  
 System components Page 80

## Dimensions mm

Cross flow fan in installation position H



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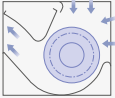
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QK10A-4EM.68.CF		230	50	①	0.34	75	1440	63
		230		②	0.38	85	1380	64
		230		③	0.46	110	1250	66
		230	60	①	0.50	110	1670	68
		230		②	0.56	130	1560	68
		230		③	0.60	140	1310	67

Fan ordering information

Design QK

Installation position H




**Type** QK10A-4EM.68.CF  
**Article no.** 210949

Weight kg 6.00

Control technology

Transformer-based controllers 1~



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Cross flow fan

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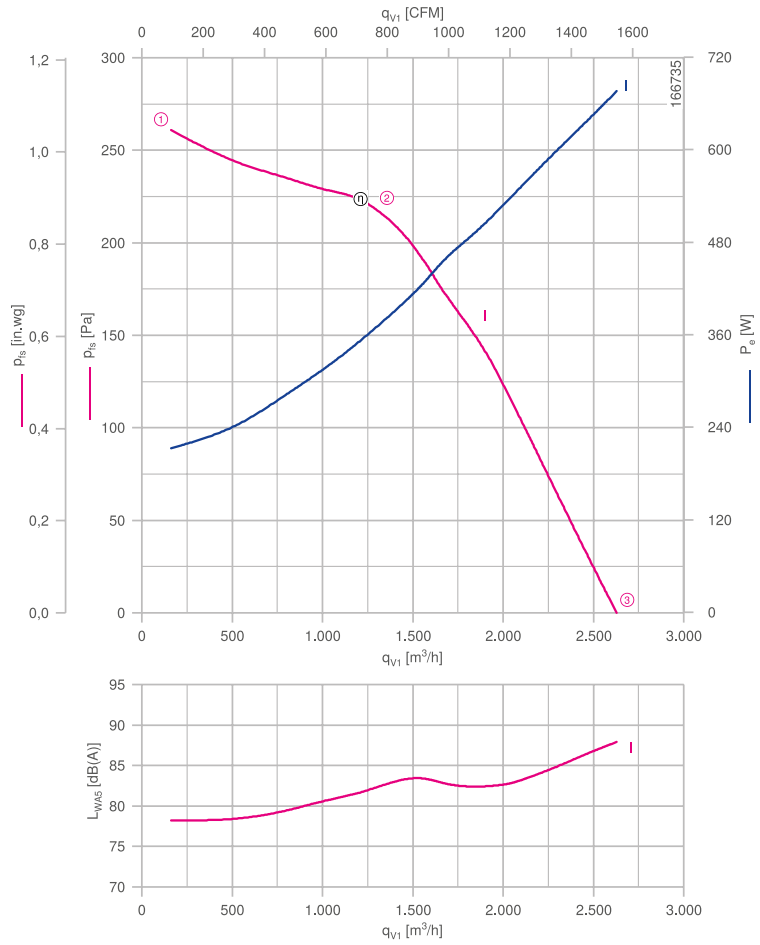
# Cross flow fan

for three phase alternating current, 2 pole

QK10A-2D



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

## Description

Motor technology: AC

Rated voltage  $U_N$ :

3~ 230/400 V (D/Y)\*

Rated frequency  $f_N$ : 50 Hz\*

Input power  $P_e$ :

870 W\*

Rated current  $I_N$ :

2.46/1.42 A\*

Rated speed  $n_N$ :

2630 min<sup>-1</sup>\*

Thermal class: THCL155\*

Min. permitted ambient temperature  $t_{amb(min)}$ : -20 °C

Max. permitted ambient temperature  $t_{amb(max)}$ : 70 °C

Electrical connection: Prewired to a terminal strip

Degree of protection: IP10

Impeller made of aluminium

Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel

Conformity: ErP 2015, CE

## ErP-data

Efficiency  $\eta_{tot}$ : 30.9 %

Efficiency grade:  $N_{actual} = 34.4 / N_{target} = 21^{**}$

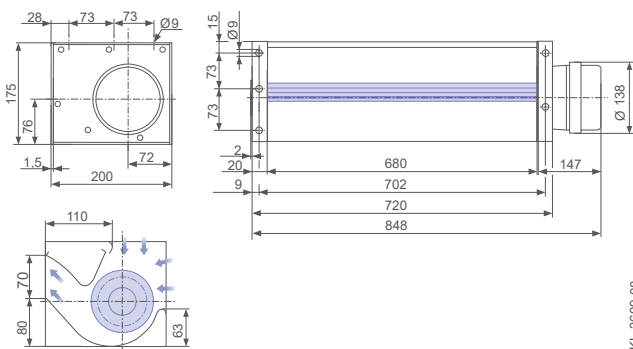
\*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector

\*\*ErP 2015

Connection diagram 1360-106XA Page 108

## Dimensions mm

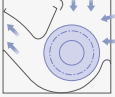
Cross flow fan in installation position H



Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QK10A-2DM.68.FK	I	400	50	①	0.66	210	2910	78
	I	400		②	0.76	350	2820	82
	I	400		③	1.15	680	2600	88

Fan ordering information

Design	QK
Installation position	H
	
<b>Type</b>	<b>QK10A-2DM.68.FK</b>
<b>Article no.</b>	<b>210991</b>
Weight kg	10.50

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# Cross flow fan

for single phase alternating current, 4 pole

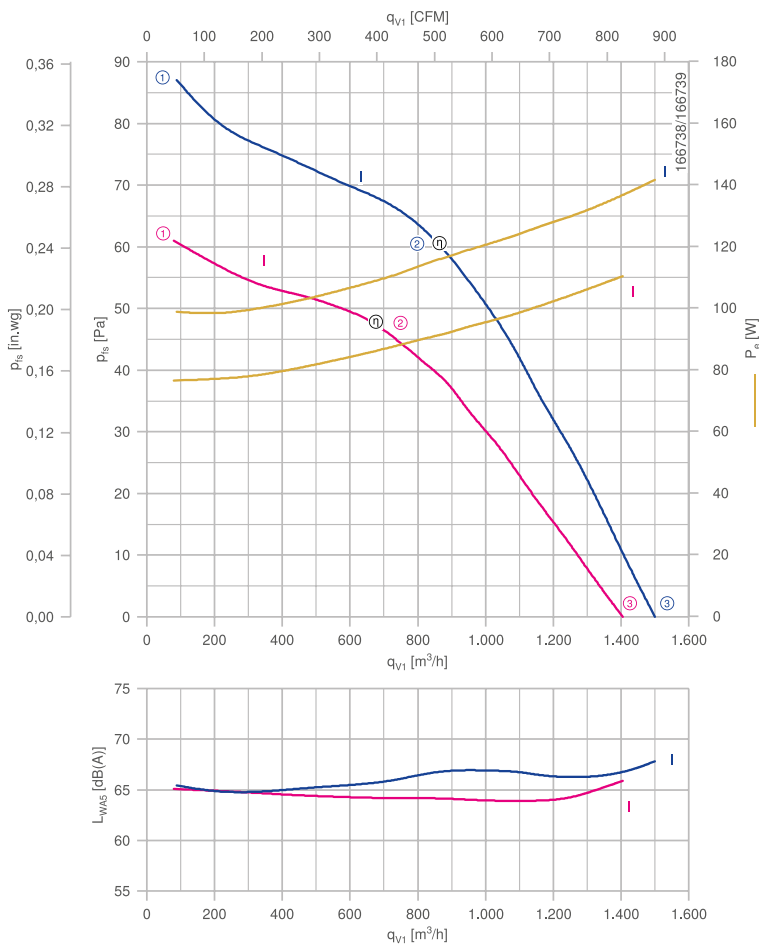
QK10A-4E



## Description

Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V  $\pm 10\%$ \*  
 Rated frequency  $f_N$ : 50 Hz | 60 Hz\*  
 Input power  $P_e$ :  
 130 W | 180 W\*  
 Rated current  $I_N$ :  
 0.60 A | 0.82 A\*  
 Rated speed  $n_N$ :  
 1280  $\text{min}^{-1}$  | 1350  $\text{min}^{-1}$ \*  
 Service capacitor  $C_{400V}$ : 4.0  $\mu\text{F}$   
 Thermal class: **THCL130\***  
 Min. permitted ambient temperature  $t_{\text{amb(min)}}$ : -20 °C  
 Max. permitted ambient temperature  $t_{\text{amb(max)}}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE  
**ErP-data**  
 Not subject to the regulations of ErP directive ( $P_e < 125$  W)  
 \*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector

## Characteristic curve

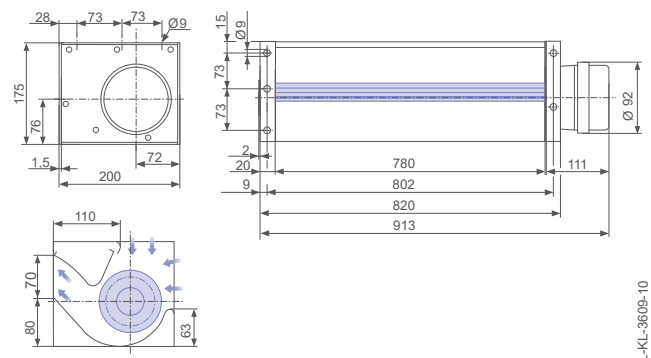


Measured without guide plate 180° according to ISO 5801.

Connection diagram 1360-161XA Page 108  
 System components Page 80

## Dimensions mm

Cross flow fan in installation position H



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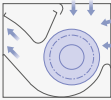
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n $min^{-1}$	
QK10A-4EM.78.CH		230	50	①	0.35	75	1430	65
		230		②	0.38	85	1380	64
		230		③	0.48	110	1250	66
		230	60	①	0.44	100	1690	65
		230		②	0.52	120	1580	67
		230		③	0.62	140	1350	68

Fan ordering information

Design QK

Installation position H




**Type** QK10A-4EM.78.CH  
**Article no.** 210800

Weight kg 6.80

Control technology

Transformer-based controllers 1~



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Cross flow fan, EC-Technology

Cross flow fan

System components

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Appendix

# Cross flow fan

for single phase alternating current, 4 pole

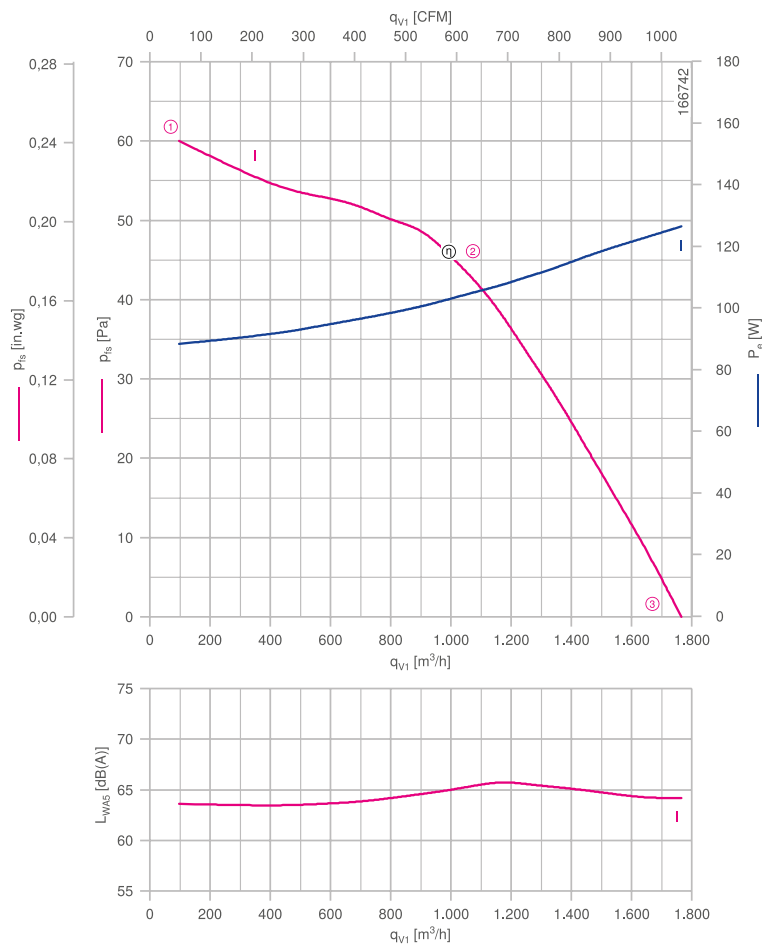
QK10A-4E



## Description

Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V  $\pm 10\%$ \*  
 Rated frequency  $f_N$ : 50 Hz\*  
 Input power  $P_e$ :  
**140 W\***  
 Rated current  $I_N$ :  
**0.60 A\***  
 Rated speed  $n_n$ :  
**1110 min<sup>-1</sup>\***  
 Service capacitor  $C_{400V}$ : 4.0  $\mu F$   
 Thermal class: **THCL130\***  
 Min. permitted ambient temperature  $t_{amb(min)}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb(max)}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: CE  
**ErP-data**  
 Not subject to the regulations of ErP directive ( $P_e < 125 W$ )  
 \*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector

## Characteristic curve

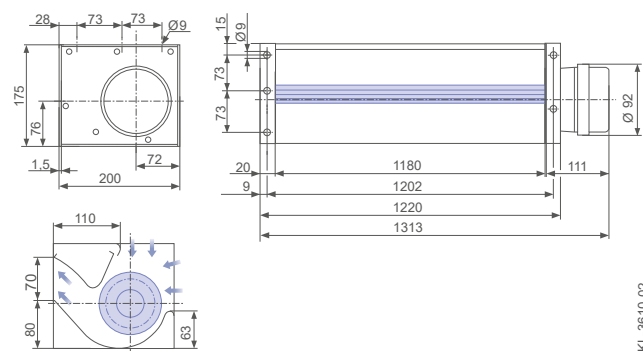


Measured without guide plate 180° according to ISO 5801.

Connection diagram 1360-161XA Page 108  
 System components Page 80

## Dimensions mm

Cross flow fan in installation position H



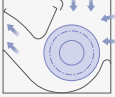
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QK10A-4EM.B8.CH	I	230	50	①	0.40	90	1410	64
	I	230		②	0.46	100	1330	65
	I	230		③	0.56	130	1110	64

Fan ordering information

Design QK

Installation position H




**Type** QK10A-4EM.B8.CH  
**Article no.** 110182

Weight kg 8.80

Control technology

Transformer-based controllers 1~



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- Cross flow fan, EC-Technology
- Cross flow fan
- System components
- Control technology
- Appendix

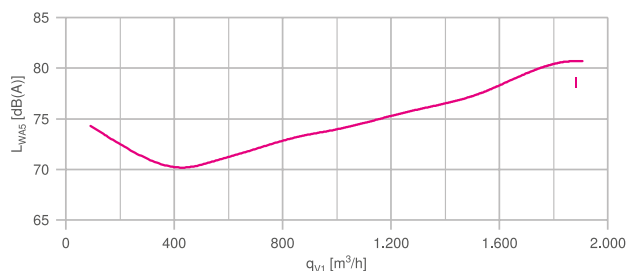
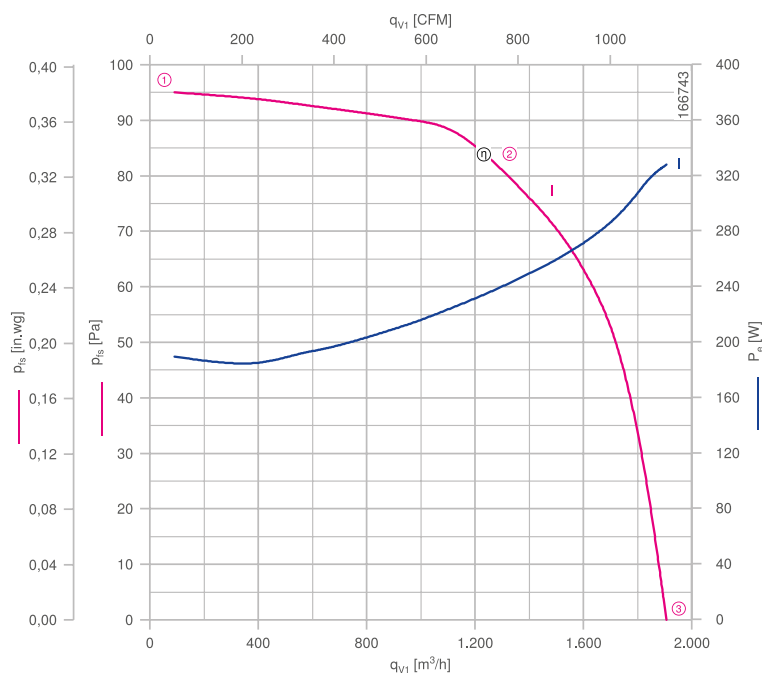
# Cross flow fan

for single phase alternating current, 4 pole

QK12A-4E



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

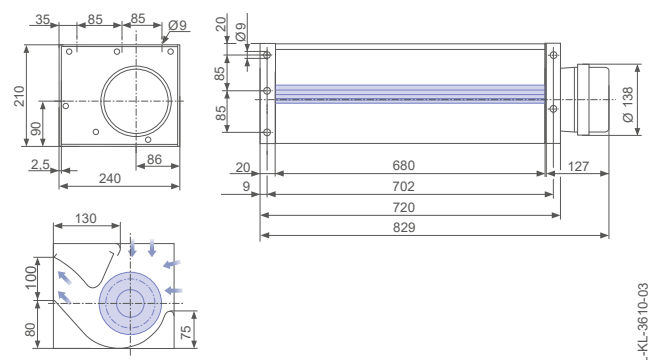
## Description

Motor technology: AC  
 Rated voltage  $U_N$ : 1~ 230 V ±10%\*  
 Rated frequency  $f_N$ : 50 Hz\*  
 Input power  $P_e$ :  
**370 W\***  
 Rated current  $I_N$ :  
**1.70 A\***  
 Rated speed  $n_n$ :  
**1360 min<sup>-1</sup>\***  
 Service capacitor  $C_{400V}$ : 8.0 µF  
 Thermal class: **THCL155\***  
 Min. permitted ambient temperature  $t_{amb(min)}$ : -20 °C  
 Max. permitted ambient temperature  $t_{amb(max)}$ : 70 °C  
 Electrical connection: Prewired to a terminal strip, capacitor fitted and connected  
 Degree of protection: IP10  
 Impeller made of aluminium  
 Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel  
 Conformity: ErP 2015, CE  
**ErP-data**  
 Efficiency  $\eta_{tot}$ : 16.8 %  
 Efficiency grade:  $N_{actual} = 21.0 / N_{target} = 21$ \*\*  
 \*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector  
 \*\*ErP 2015

Connection diagram 1360-104XA Page 108  
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## Dimensions mm

Cross flow fan in installation position H



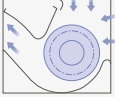
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QK12A-4EM.68.GF	I	230	50	①	0.98	190	1450	74
	I	230		②	1.10	230	1420	76
	I	230		③	1.50	330	1330	81

Fan ordering information

Design QK

Installation position H




**Type** QK12A-4EM.68.GF  
**Article no.** 205944

Weight kg 10.90

Control technology

Transformer-based controllers 1~



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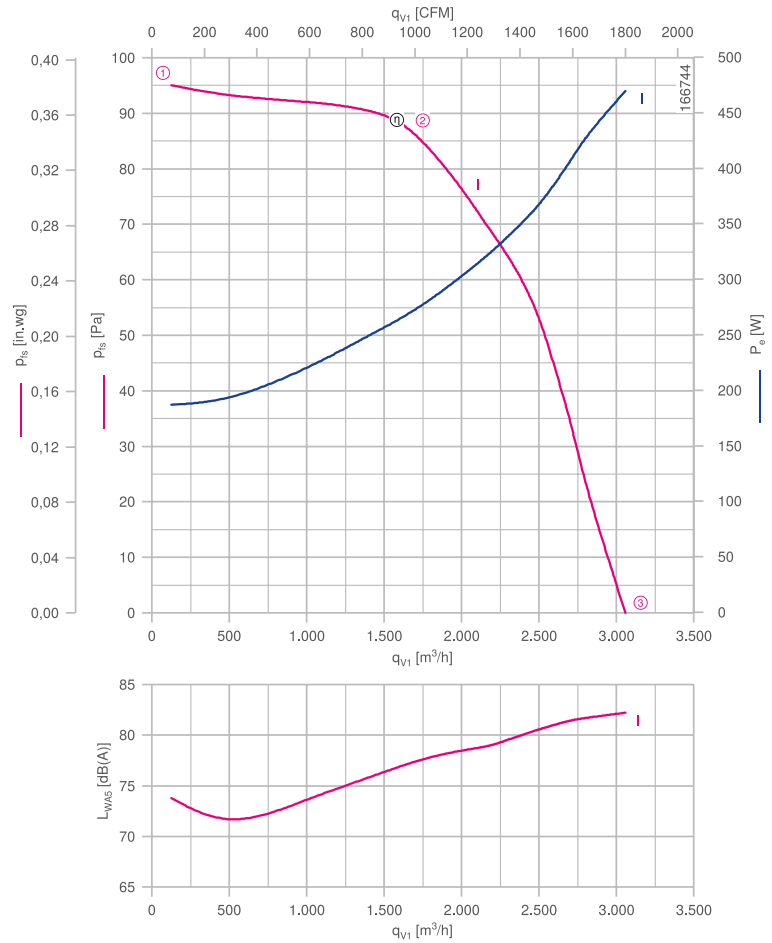
# Cross flow fan

for single phase alternating current, 4 pole

QK12A-4E



## Characteristic curve



Measured without guide plate 180° according to ISO 5801.

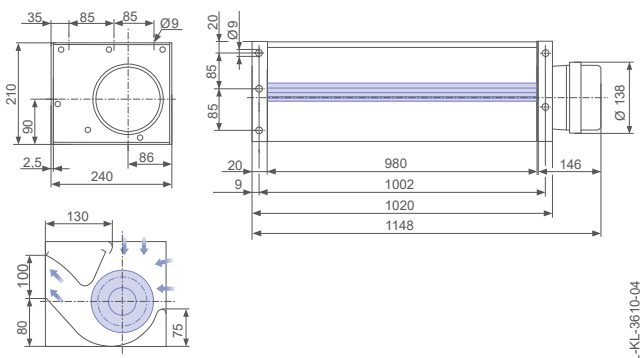
### Description

- Motor technology: AC
- Rated voltage  $U_N$ : 1~ 230 V  $\pm 10\%$ \*
- Rated frequency  $f_N$ : 50 Hz\*
- Input power  $P_e$ : 550 W\*
- Rated current  $I_N$ : 2.60 A\*
- Rated speed  $n_N$ : 1370  $min^{-1}$ \*
- Service capacitor  $C_{400V}$ : 8.0  $\mu F$
- Thermal class: THCL155\*
- Min. permitted ambient temperature  $t_{amb(min)}$ : -20 °C
- Max. permitted ambient temperature  $t_{amb(max)}$ : 70 °C
- Electrical connection: Prewired to a terminal strip, capacitor fitted and connected
- Degree of protection: IP10
- Impeller made of aluminium
- Housing: Side plates galvanised steel, casing profile aluminium, guide vane steel
- Conformity: ErP 2015, CE
- ErP-data**
- Efficiency  $\eta_{tot}$ : 18.7 %
- Efficiency grade:  $N_{actual} = 22.7 / N_{target} = 21$ \*\*
- \*Rated data:  $P_e$ ,  $I_N$  determined with 180° air deflector
- \*\*ErP 2015

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System components Page 80

## Dimensions mm

Cross flow fan in installation position H



L-KL-3610-04

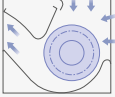
Performance data

Type	Characteristic curve	Voltage	Frequency	Operating point	Current	Input power	Speed	Suction side sound power level $L_{WAS}$ dB(A)
		U V	f Hz		I A	$P_e$ W	n min <sup>-1</sup>	
QK12A-4EM.98.GK	I	230	50	①	1.20	190	1470	74
	I	230		②	1.40	260	1440	77
	I	230		③	2.20	460	1340	82

Fan ordering information

Design QK

Installation position H




**Type** QK12A-4EM.98.GK  
**Article no.** 110216

Weight kg 14.00

Control technology

Transformer-based controllers 1~



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# System components

Product overview

Service capacitor

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Cross flow fan

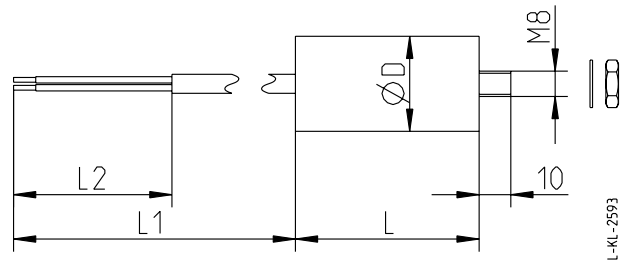
System  
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Appendix

# Service capacitor

- Material: plastic housing
- Wiring: AWG18 or AWG20
- Max. Voltage:  $U_{max} = 400V$
- Ambient temperature:  $-25\text{ °C}$  to  $+85\text{ °C}$



L-KL-2593

Service capacitor					
Capacity $\mu F$	Article no.	D mm	L mm	L1 mm	L2 mm
1,0	<a href="#">02006926</a>	26	53	350	50
1,5	<a href="#">02006927</a>	26	53	180	50
2,0	<a href="#">02006930</a>	26	53	350	50
2,5	<a href="#">02006931</a>	26	53	350	50
3,0	<a href="#">02006932</a>	26	53	350	50
3,5	<a href="#">02011670</a>	30	49	210	210
4,0	<a href="#">02006933</a>	30	58	350	50
5,0	<a href="#">02006934</a>	30	58	350	50
6,0	<a href="#">02006935</a>	30	72	350	50
7,0	<a href="#">02006936</a>	30	78	350	50
8,0	<a href="#">02006937</a>	30	98	350	50
10,0	<a href="#">02006938</a>	35	71	350	50
12,0	<a href="#">02006939</a>	35	71	350	50
14,0	<a href="#">02006940</a>	40	68	350	50
16,0	<a href="#">02006941</a>	40	68	350	50
20,0	<a href="#">02006942</a>	40	93	350	50
25,0	<a href="#">02006943</a>	40	92	350	50
30,0	<a href="#">02006944</a>	40	133	350	50
35,0	<a href="#">02006945</a>	40	133	350	50
40,0	<a href="#">02006961</a>	45	119	350	50
50,0	<a href="#">02018401</a>	50	117	250	40

## 19" rack mounting blower unit

- Front plastic lamellar grille with fastening screws Art. no. 106 618
- Substitute filter for QR06A-2EM.38/42 (3 pieces) Art. no. 106 619



Information

Cross flow fan,  
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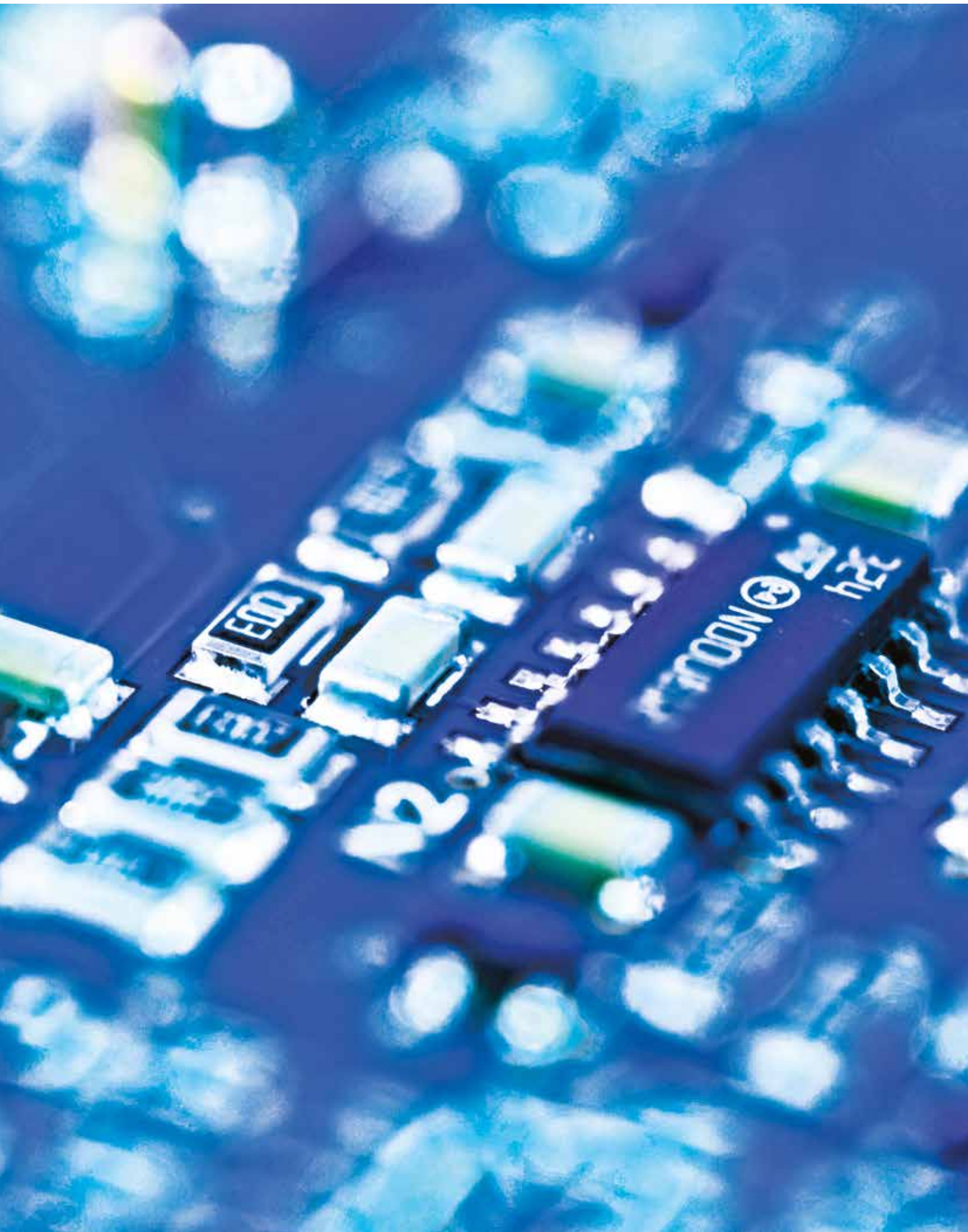
Cross flow fan

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# Control technology

## Product overview

ZAcode - Products and philosophy	Page 86
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UNIcon control modules	Page 94
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# ZAcode

## The unique fan control philosophy

### Market challenge

Manufacturers of products which involve moving air are confronted with a variety of products and technologies.

In addition to fans with asynchronous motors, which are mainly controlled by frequency inverters, the proportion of EC motors (highly efficient motors with permanent magnets and integrated power electronics) is rising.

Solutions are increasingly available involving mounting frequency inverters on internal rotor motors according to the IEC standard.

That is why companies rely on different manufacturers and technologies to cover the power range of smaller than 1 kW to 30 kW.

This involves a great effort in terms of design, documentation and storage of parts as well as employee training.

Interface problems, e.g. the interaction of frequency inverters and fans of different manufacturers, involve effort and expenditure which may delay projects and lead to complaints.

### ZIEHL-ABEGG's philosophy

Simple products and solutions.

From the planner via production to installation and maintenance - everyone involved with the system should have an easy time and be able to understand it.

ZIEHL-ABEGG has been busy with this challenge adapting products which cover the decisive power range accordingly. Products have been reduced to the essential, but can be easily expanded to meet requirements at any time.

ZIEHL-ABEGG's products are 100% matched to one another. This means ZIEHL-ABEGG fans and frequency inverters create an energy-saving, quiet and reliably functioning system. The same is true of the combination of control modules with ECblue fans and other products.

At ZIEHL-ABEGG, you have only one contact person for fans, motors and the perfectly matching one-stop control engineering.

This philosophy makes the effort involved easier in terms of planning, production, installation and maintenance.

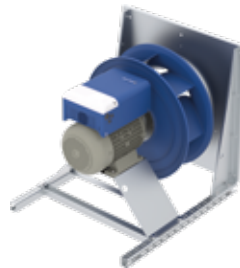
## Covering the big power range from < 1 kW up to 30 kW



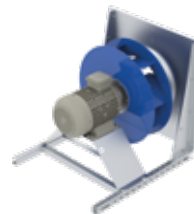
ECblue Basic  
Power: < 1 kW up to 6 kW



AMblue / PMblue  
Power: 2.2 kW up to 22 kW



Frequenzumrichter Fcontrol Basic /  
lcontrol Basic  
Power: 1.1 kW up to 30 kW



## ZAcode - the solution - your advantages

### On a cross-product basis - ZAcode encompasses the key technologies on the market

- Axial and centrifugal fans
- EC technology and AC technology
- Integrated electronics and external electronics for speed control
- Communication and control intelligence

### Simplicity

- Can be operated and understood by everyone

### Uniformity

- Identical connection concept of the various products and technologies
- Identical communication (add-on modules for required bus systems)
- Identical functionality
- Modular expandability, thus providing a cost-effective basis
- Expandable on demand - sustainable
- Available in a wide power range of smaller than 1 kW to 30 kW

### Safety and reliability

- courtesy of perfectly matched systems
- courtesy of error prevention during installation, start-up, operation and maintenance

### Speed

- Uniformity ensures speed in relation to engineering. Hence, the short time to market in relation to product development. Fast start-up and service.

### Cost savings

- Your processes will become more efficient, e.g. with regard to engineering
- Basic equipment of ZIEHL-ABEGG products = Buy basic equipment and pay, buy add-ons if necessary - buy only what you need!

### Flexibility

- Modular system, expandable and customisable
- Customisable to current and future bus systems
- Basic expandability

# ZAcode

Simple, cross-product, uniform

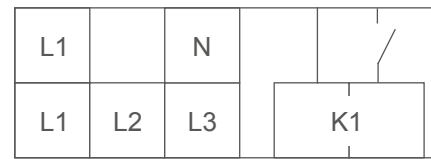
Fans with ECblue Basic  
< 1 kW to approx. 6 kW

Highly efficient external rotor motors with permanent magnets and integrated power electronics



The unique fan co

Same con



Easily expandable for inte

AM-MODBUS

AM-CAN-OPEN

AM-LON



Fans with asynchronous motors

< 1 kW to approx. 30 kW

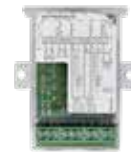
Control via mounted Fcontrol Basic or Icontrol Basic frequency inverters



Expandable and combin

AM-PREMIUM

UNIcon control modules





Control philosophy

Connectivity

E1	D1	GND	10V	24V
----	----	-----	-----	-----

Integration into bus systems

AM-PROFIBUS AM-ETHERCAT ...



Variable control intelligence



PMblue centrifugal fans with mounted PMcontrol Basic-M

< 2.2 kW to approx. 22 kW

PMblue combines PM motor with permanent magnets and mounted frequency inverter (optionally mountable PMcontrol)



AMblue centrifugal fans with mounted PMcontrol Basic-M

< 2.2 kW to 22 kW

AMblue combines AC motor (asynchronous motor) and mounted frequency inverter



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# Transformer-based controllers

## Description

Most ZIEHL-ABEGG external rotor motors are voltage controllable. For simple and cost-effective speed control of these motors and fans, transformer-based controllers are available. These can be supplied in various versions. In addition to versions that only generate the corresponding voltage by setting the 5-stage switch, there are also devices that can control dampers or valves.

Versions, that switch between two adjustable stages via an external contact, are also available. Versions, that are controlled via a 5-step thermostat, are also available. Another, great advantage of transformer-based control devices is speed control without electromagnetic excitation in the motors. The products are therefore also recommended for areas that are sensitive of noise.

Correspondingly, we supply thermostats which can be combined without the need of transformer-based controllers.

## Equipment/Characteristics

### Operating indicator lamp

for status indication. Device on/off.

### Speed setting

The desired speed is set via the integrated 5-step switch. Devices with two adjustable speeds or devices with 0-10 V control can also be supplied.

### Output voltage:

1~ units: 65 - 110 - 135 - 170 - 230 V

3~ units: 95 - 145 - 190 - 240 - 400 V

Please refer to the respective device connection diagram, depending on model.

### Digitale Input

For external, floating contact to issue an authorisation for the preselected step (on/off); e.g. connect room thermostat SRE1G.

### Digital input for frost protection

For external, floating contact. If a frost protection thermostat responds, the device switches off. Resetting to switch position 0 required to restore.

### Integrated motor protection function

Connection facility for thermostat "TB"

### Switched output in operation

Switched phase 1~ 230 V, max. 1 A, e.g. for damper servo-motor.

### Change-over relay

Floating change-over relay, max. load 250 V AC, 2 A, to control external devices.

## Optional supply of individual transformers

The type of transformers that are predominantly used in our control devices, can also be supplied individually. Please note that they are designed as special versions intended for control cabinet integration, including installation pad and connection terminal. There are 1~ 230 V transformers and 3~ 400 V transformers. For 3~ 400 V, two transformers are connected in a V-circuit.



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# Transformer-based controllers

1~ with 5-step switch

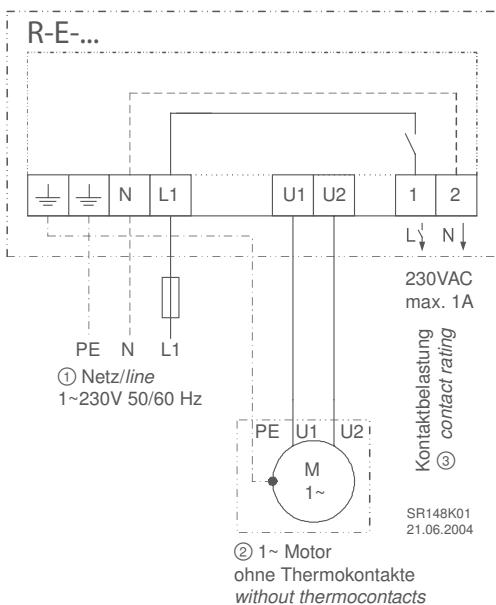


## Transformer based controllers 1~ with 5- step-switch

1~ 230V 50/60Hz

Type	Article no.	Rated current A	Rated temperature °C	Max. line fuse A	Max. heat dissipation W	Maximum ambient temperature °C	Protection class	Weight kg	mm
R-E-1.5G	302001	1.5	40	4	20	40	IP54	1.74	105 x 180 x 98
R-E-2G	302107	2	40	16	20	40		2.10	166 x 230 x 118
R-E-3.5G	302108	3.5	40	16	30	40		3.50	166 x 230 x 118
R-E-6G	302109	6	40	16	35	40		4.90	166 x 230 x 118
R-E-7.5G	302053	7.5	40	8	40	40		6.00	240 x 284 x 132
R-E-9G	302055	9	40	16	50	40	IP21	10.50	270 x 323 x 162
R-E-12	302056	12	40	20	80	40		9.10	270 x 323 x 162
R-E-14G	302057	14	40	20	105	40		IP54	10.80

Connections / equipment see connection diagram



- ① Line
- ② 1~motor without thermal contacts
- ③ Contact load

# Transformer-based controllers

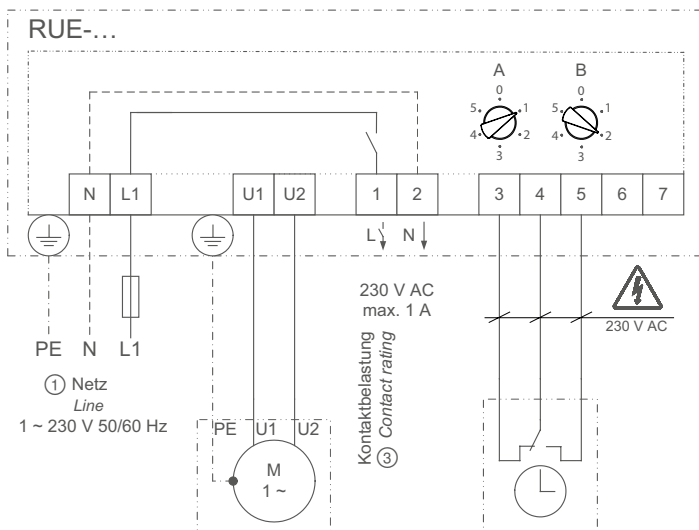
1~ with two 5-step switches, two speeds can be externally switched



**Transformer based controllers 1~ with two 5-step-switch, two speeds external changing**  
 1~ 230V 50/60Hz

Type	Article no.	Rated current A	Rated temperature °C	Max. line fuse A	Max. heat dissipation W	Maximum ambient temperature °C	Protection class	Weight kg	Dimensions (W x H x D) mm
<b>RUE-2G</b>	<b>302063</b>	2	40	4	25	40	IP54	3.55	240 x 284 x 132
<b>RUE-4G</b>	<b>302064</b>	4	40	6	35	40		4.80	240 x 284 x 132
<b>RUE-7.5G</b>	<b>302065</b>	7.5	40	8	45	40		6.30	240 x 284 x 132

**Connections / equipment see connection diagram**



SR154K01  
13.11.2007

- ① Line
- ② 1~ Motor without thermal contacts
- ③ Contact rating
- ④ Timer

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# Control modules


## UNIcon universal control module with MODBUS Master function





All ZIEHL-ABEGG sensors can be combined with the UNIcon CXE/CXG universal control module. The actual value measured at the sensor is compared with the setpoint. This results in the 0-10 V output signal. Two 0-10 V outputs are integrated. These serve to activate EC fans, frequency inverters and other devices. Optionally, connected field devices can be activated by MODBUS-RTU. ZIEHL-ABEGG frequency inverters or ECblue fans can be conveniently addressed quickly and automatically. Universal control module also contains two separate control circuits, a real time clock and timer functions. UNIcon universal control modules are especially suitable for the following applications: Refrigeration, air conditioning, general ventilation tasks, clean room technology. For applications in the areas mentioned, fast start-up is possible by selecting preset operating modes.


### Input for sensors or speed settings through


- 

Setting of the desired speed through device or by external default, e.g. 0...10 V
- 

Connecting pressure sensors (refrigeration), e.g. type MBG.. sensors, measuring range 0...30 bar, 0...50 bar
- 

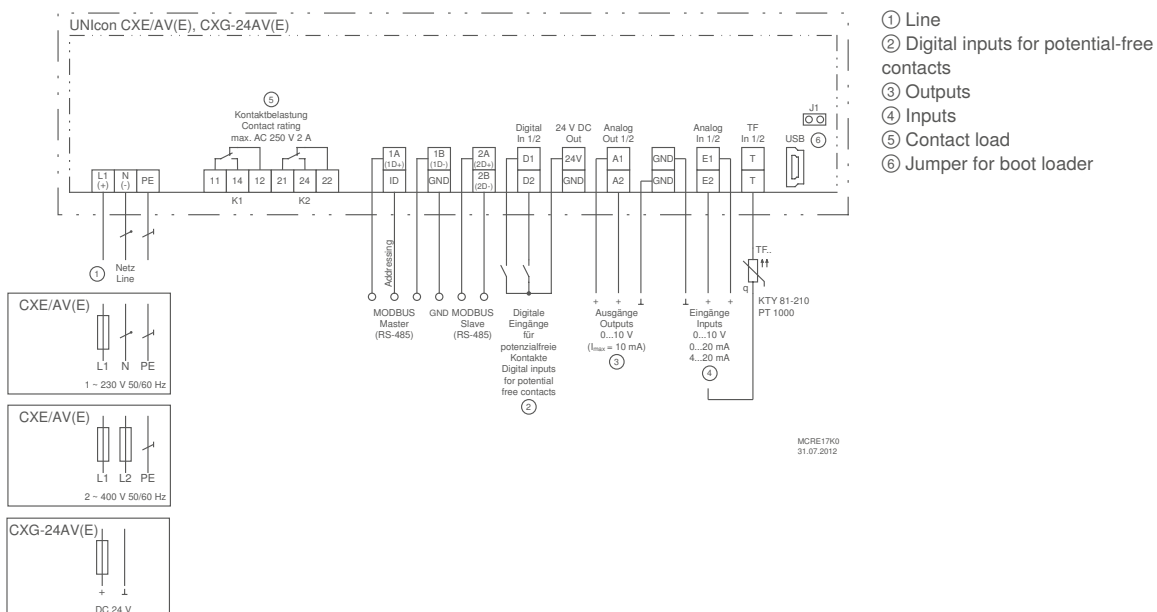
Connection of thermistors, e. g. sensors type TF.. e. g. active sensor type MTG..
- 

Connecting differential pressure sensors (air conditioning), e.g. type MPG.. sensors, measuring range 0...6000 Pa, acquisition of volume flows up to 65000 m³/h
- 

Connecting air velocity sensors, e.g. type MAL.. sensors, measuring range 0...1 m/s, 0...10 m/s
- 

Connecting additional sensors, e.g. combination sensors, CO<sub>2</sub>, sensor signal 0...10 V / 0...20 mA / 4...20 mA

### Connection diagram



**Standard conformity**

Interference emission according to EN 61000-6-3 (domestic)  
Interference immunity according to EN 61000-6-2 (industrial)

**Equipment/properties**

**Multifunction display with clear text display:**

Different menu languages are selectable

**Simple commissioning by operating modes:**

Typical operating modes, e.g. for air-conditioning, refrigeration or ventilation technology can be selected.

**Activation of a second control circuit in the selected operating mode:**

By assignment of the sensor function input 2 (E2) for the second control circuit.

**Simple programmability:**

e. g. setting of a minimum speed, limitation of the maximum speed, inversions and limits.  
Setting, e.g. for 2-step mode

**2 analog inputs for sensors or setting signals:**

Analog input E1 and E2: Setting by operating modes or manually programmable, e.g. 0-10 V, 0-20 mA, 4-20 mA  
Analog input E2: programmable, e.g. comparison with sensor 1, difference to sensor 1, average value formation, setpoint setting, setpoint adaptation (e.g. outside temperature-dependent)

**2 digital inputs D1, D2:**

Programmable, e.g. enable, switch over setpoint 1 or 2, switchover control or manual mode, switchover E1 or E2, control function reversal, output limitation, display of external fault

**2 analog outputs for controlling external speed controllers, EC fans, other devices:**

Analog output A1 and A2: Setting by operating modes or manually programmable, e.g. output signal proportional to modulation, output signal proportional to input signal, invertible, 10 V constant voltage, group control

**2 digital outputs (relays) K1 and K2:**

Setting by operating modes or manually programmable, e.g. operating indication, fault indication, limits, external fault at digital input, activation of external devices, e.g. heating, group control fans, etc.

**2 interfaces RS485:**

a) For connecting ZIEHL-ABEGG field devices with MODBUS RTU interface (e.g. field devices with integrated add-on module "AM-MODBUS"). With the possibility of automatic addressing of these field devices.  
b) MODBUS Slave function of the UNIcon, for connection to a master control station (GLT).

**Set protection/memory for settings:**

Activation of set protection against unauthorised access, restoration of made settings

**Event memory:**

Query of occurred events, operating times etc.

**Integrated real-time clock with timer:**

The timer function behaves like a digital input, the desired function can be selected accordingly. Up to four switching times per day can be set for the desired function.

**Optional equipment**

- Z-Modul-B02, article no. 380099, as additional I/O expansion.
- Two additional inputs E3 + E4 (0-10 V), option to program as digital inputs (see inputs D1,D2)
- One additional analog output (0-10 V), adjustable (see output A1, A2)

UNIcon universal control module								
Line	Type	Article no.	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
			A	W	°C		kg	mm
1PH 230V 50/60Hz	<b>CXE/AV</b>	<b>320053</b>	10	10	55	IP54	0.90	223 x 200 x 115
1PH 230V 50/60Hz	<b>CXE/AVE</b>	<b>320056</b>	10	10	55	IP00	0.65	166 x 106 x 55 mm / mounting depth: max. 105
2PH 400V 50/60Hz	<b>CXE/AV</b>	<b>320055</b>	10	10	55	IP54	0.90	223 x 200 x 115

Panel-mounting AVE (when installed IP54)

UNIcon universal control module							
DC 24 V							
Type	Article no.	Max. line fuse	Max. heat dissipation	Maximum ambient temperature	Protection class	Weight	Dimensions (W x H x D)
		A	W	°C		kg	mm
<b>CXG-24AV</b>	<b>320057</b>	10	10	55	IP54	0.75	223 x 200 x 115
<b>CXG-24AVE</b>	<b>320058</b>	10	10	55	IP00	0.50	166 x 106 x 55 mm / mounting depth: max. 105

Panel-mounting AVE (when installed IP54)

# Control modules

## UNICon temperature control module (2nd edition)



The CTG temperature control module can be combined with various temperature sensors.

The actual value measured on the sensor is compared with the set-point. That produces the 0-10 V output signal. This is used to trigger EC fans, frequency inverters or other devices.

The control module is supplied with 10-24 V DC from the fan or frequency inverter it is triggering. No additional power supply necessary.

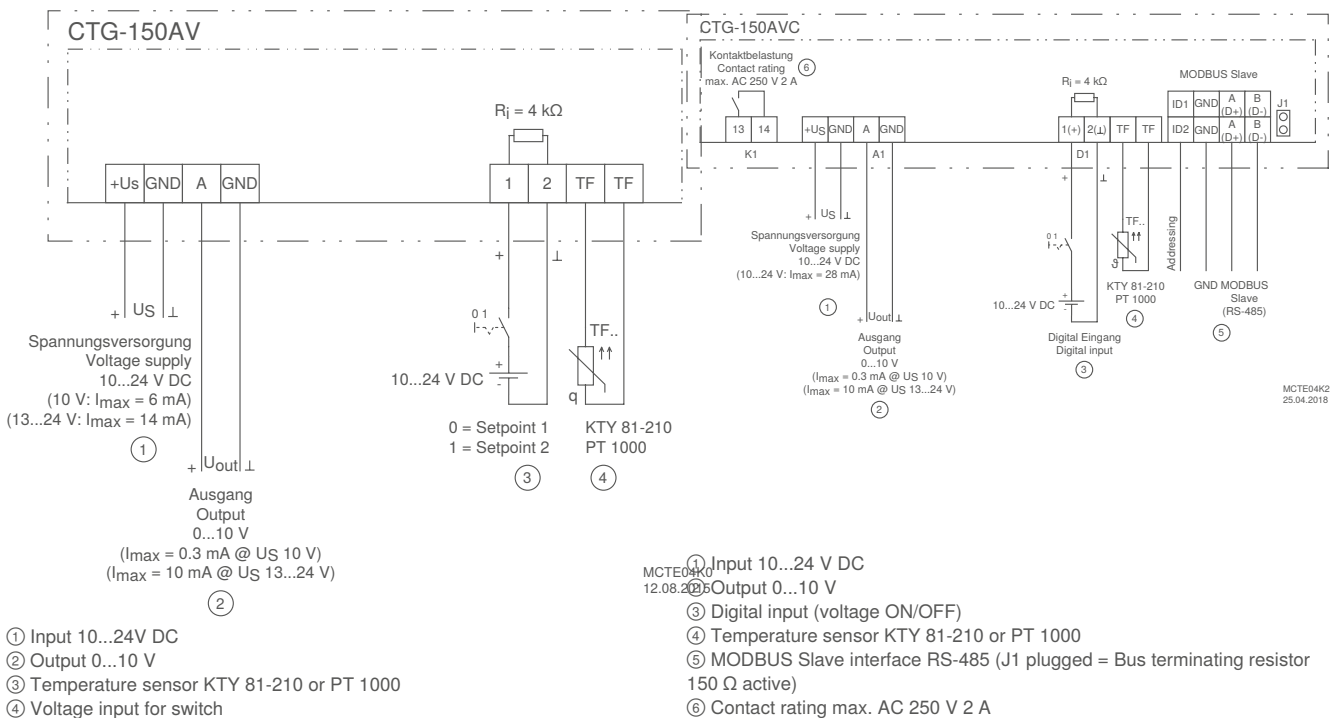
Optionally, the module can also be used as a temperature display. The 0-10 V output signal is then proportional to the set measurement range.

### Input for sensors or speed settings through



Connection of temperature sensors, e.g. Type TF.. sensors, device measurement range -50...+150°C

### Connection diagram





## Standard conformity

Interference emission according to EN 61000-6-3 (domestic)  
Interference immunity according to EN 61000-6-1 (domestic)

## Equipment/Characteristics

### Integrated display:

For temperature display and for programming

### Simple commissioning of the operating modes:

Operation as temperature sensor or temperature controller

### Easy to program using 3 buttons:

Select measurement range, enter setpoint (1/2), control range,  
Minimum or maximum output signal

### Adjustable measurement range when using as temperature sensor:

-50 °C...+150 °C

### Voltage input D1 (digital input)

Versions CTG-150AV: Switchover setpoint 1 or 2

Extended versions: CTG-150AVC:

Enable, display of external fault, switch over setpoint 1 or 2

### 1 analogue output:

To control EC fans, frequency inverters, other devices

### Additional CTG-150AVC:

Digital output K1 in CPG-150AVC:

Operating indication, fault indication, external fault at digital input,  
indication of limits two-position controller "heating/cooling"

Real-time clock with timer in CTG-150AVC:

For example automatic setpoint switch over

CTG-150AVC with interface RS485 for MODBUS RTU:

Integration into network, manually or automatic addressing possible

UNIcon temperature control module						
DC 10...24 V						
Type	Article no.	Minimum ambient temperature °C	Maximum ambient temperature °C	Protection class	Weight kg	Dimensions (W x H x D) mm
<b>CTG-150AV</b>	<b>320073</b>	-10	60	IP54	0.21	106.3 x 137 x 56
<b>CTG-150AVC</b>	<b>320074</b>	-10	60	IP54	0.22	106.3 x 137 x 56

Dimensions with cable gland

# Potentiometer 5-step



Potentiometer with 5 steps for activating EC fans and controllers. The potentiometer is supplied with a supply voltage of (10 V) from the EC fan or the controller producing a control voltage of 0-10 V depending on the switch position.

The operating status can be displayed via an integrated LED.

### Equipment/characteristics:

#### 5-step switch

For setting five output voltages. Factory settable: Step 0/1/2/3/4/5 = 0/2/4/6/8/10 V

#### Internal potentiometer offset

Control voltage reduction option. The max. control voltage of 10 V is factory set. It can be selected to only move down the control voltage of steps 1 - 4, or to move down step 5, too.

#### Activation options via LED

Internal activation: LED lights up in position 1 - 5.

External activation: By means of a potential-free contact or via an open collector output, the status of an external device can be displayed via the LED.

### Standard conformity

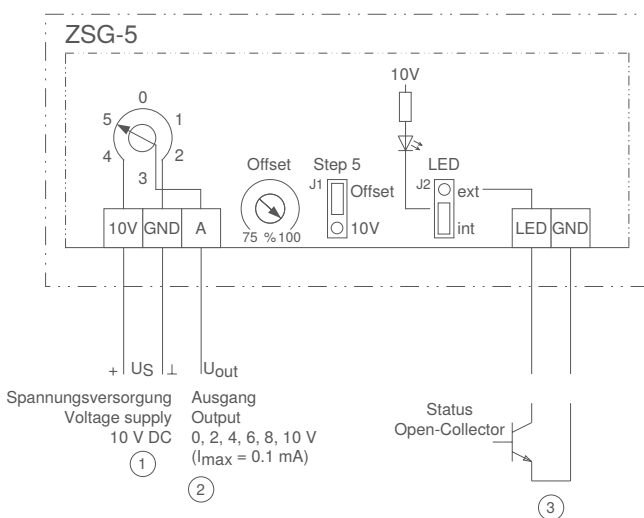
Interference emission according to EN 61000-6-3 (domestic)  
Interference immunity according to EN 61000-6-2 (industrial)

### Potentiometers

#### DC 10 V

Type	Article no.	Mounting type	Protection class	Weight kg	Dimensions (W x H x D) mm
ZSG-5	349073	Wall mounting	IP54	0.20	106.3 x 137 x 72.5

### Connection diagram



SGSW04K0  
05.02.2016



# Potentiometer



Infinitely variable potentiometers for activating EC fans and controllers. The potentiometers are supplied with a supply voltage (10 V) from the EC fan or controller with a control voltage output of 0 - 10 V depending on the rotary knob setting. Alternatively, the control voltage can be preset as a nominal value setting (external setpoint for the control) 0 - 10 V.

### Equipment/Characteristics:

#### Rackmount version:

e.g. for installation in control cabinet doors  
Axis length 50 mm, Ø 6 mm  
Included front plate: 40 x 40 mm  
Included rotary knob

#### Design version in housing:

Surface mounting or mounting in existing flush receptacles. Device with additional switch contact.

#### Simple control via rotary knob

Set the desired resistance

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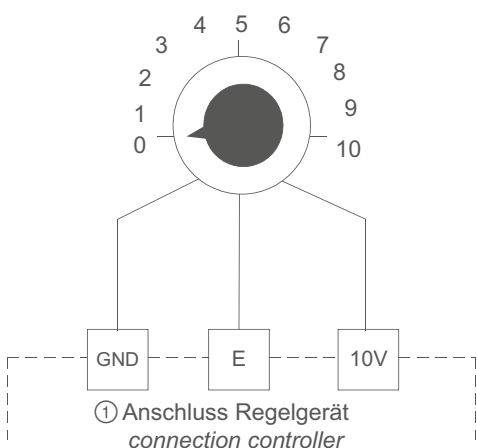
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Potentiometers						
Type	Article no.	Mounting type	Setpoint range	Protection class	Weight	Dimensions (W x H x D)
					kg	mm
Potentiometer 1K	00153986	Panel mounting	0...1kOhm	IP00	0.04	Shaft d 6 x 50
Potentiometer 10K	00153989	Panel mounting	0...10kOhm	IP00	0.04	Shaft d 6 x 50
Potentiometer 10K (IP54)	380058	Wall mounting	0...10kOhm	IP54	0.15	82 x 82 x 65

### Connections



① Connection control unit

① Anschluss Regelgerät  
connection controller





# General notes

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# Explanation of technical details

## Symbols, Units of measure

Symbol	Unit	Description
$P_{is}$	Pa	Static pressure increase
$P_{id}$	Pa	Dynamic pressure
$q_{V1}$	m <sup>3</sup> /h	Air flow
$n_N$	min-1	Rated speed
$P_e$	kW	Input power
$P_{ed}$	kW	Input power system (including controller)
$U_N$	V	Rated voltage
$f_N$	Hz	Rated frequency
$I_N$	A	Rated current
$I_A$	A	Starting current
$\Delta I$	%	Percentage increase of current based on rated current for speed control by voltage reduction
$C_{400V}$	$\mu$ F	Capacity
$t_{amb (min)}$	°C	Minimum permitted ambient temperature
$t_{amb (max)}$	°C	Maximum permitted ambient temperature
$L_{WA5}$	dB(A)	A-rated suction-side sound power level
$\eta_{statA}$	%	Overall efficiency, static according to measurement category A at optimum duty point without losses of electronic speed control according to calculation method ErP-commission regulation No. 327/2011 annex II
$N_{actual}$	-	Actual efficiency grade of the fan based on an electrical input power of 10 kW at its point of optimum energy efficiency
$N_{target}$	-	Target efficiency grade at motor input power 10 kW
$L_{pA}$	dB(A)	A-weighted suction-side or pressure-side acoustic pressure level related to a certain measurement distance
$P_{spez}$	Wh/1000m <sup>3</sup>	Specific power

## Conversion factors

### Pressure

		SI-unit	Additional units		
		Pa (N/m <sup>2</sup> )	mbar	in.wg	psi (lbf./in <sup>2</sup> )
SI-unit	Pa (N/m <sup>2</sup> )	1	0,01	0,004015	0,000145
Additional units	mbar	100	1	0,401463	0,014504
	in.wg	249,10	2,49	1	0,036127
	psi (lbf./in <sup>2</sup> )	6894,76	68,95	27,68	1

### Air flow

		SI-unit	Additional units		
		m <sup>3</sup> /s	m <sup>3</sup> /h	l/s	cfm
SI-unit	m <sup>3</sup> /s	1	3600	1000	2118,9
Additional units	m <sup>3</sup> /h	0,000278	1	0,277778	0,588578
	l/s	0,001	3,6	1	2,1189
	cfm	0,000472	1,699011	0,471947	1

### Temperature

		°C	°F
SI-unit	°C	1	(°C × 1,8) + 32
Additional units	°F	(°F – 32) / 1,8	1



# Aerodynamics and acoustics

## Measurement method

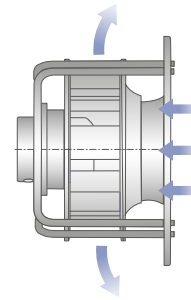
The characteristic curve diagram shows the pressure increase  $\Delta p_{is}$  in Pa as a function of the air flow rate  $q_{v1}$  in  $m^3/h$ .

### Technical conditions of supply

The specified performance data meet the respective requirements for accuracy

- AN2 for impellers without motor
- AN3 for fans with standard motors
- AN2 for impellers with ECblue motors (except EC055)
- AN3 for impellers with EC motor EC055 (see type key)
- AN4 for 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.



L-KL-3679-1

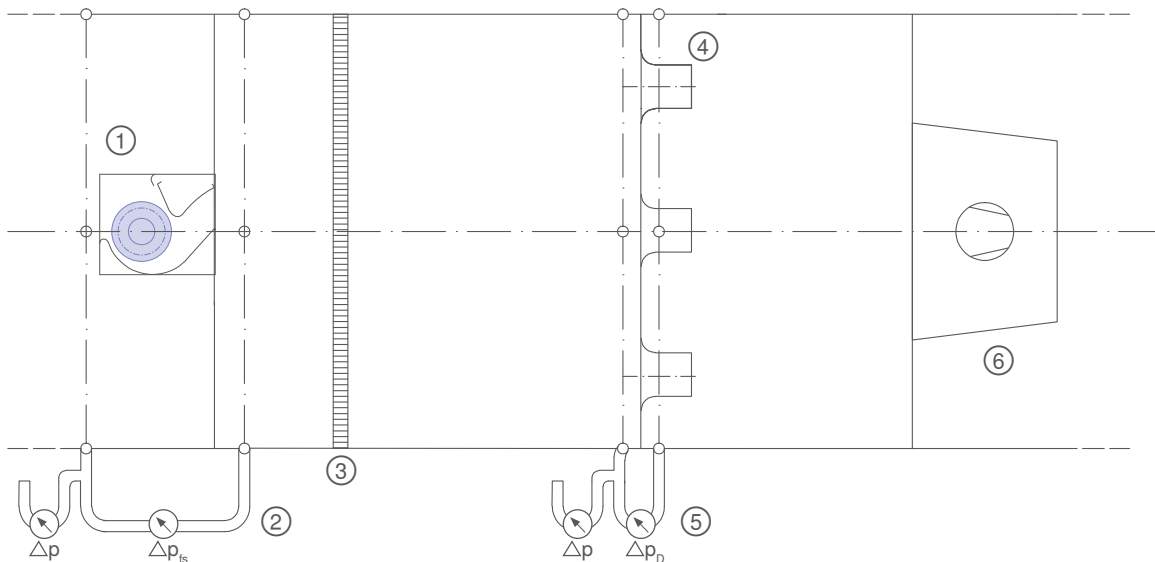
### Fan test bench

The fan characteristic curves are determined on a combined air performance and acoustic test bench. The fan characteristic curves are measured in compliance to **DIN EN ISO 5801**, respectively **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. The figure below shows an example of the measuring setup. The fan intake is installed in the measuring chamber at free inlet and free exhaust (installation type A as per **DIN EN ISO 5801** respectively **AMCA 210-99**).



### Air density

The air temperature and humidity are conditioned during the measurement using heat exchangers and kept largely constant. The characteristic curves shown refer to the measuring density. The mean measuring density is  $1.16 \text{ kg/m}^3$ .



- ① Test fan
- ②  $p_{is}$  static pressure increase
- ③ Flow straightener
- ④ Nozzles
- ⑤  $\Delta p_D$  Differential pressure measuring nozzle
- ⑥ Auxiliary fan

# Aerodynamics and acoustics

## Noise level data

Unless otherwise indicated, this catalogue specifies the suction side, A-evaluated sound power levels  $L_{WA5}$ . 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  $L_p$  of the individual third-octave bands at 12 points on the enveloping surface (Fig. 1a). 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  $LW_5$ . 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.

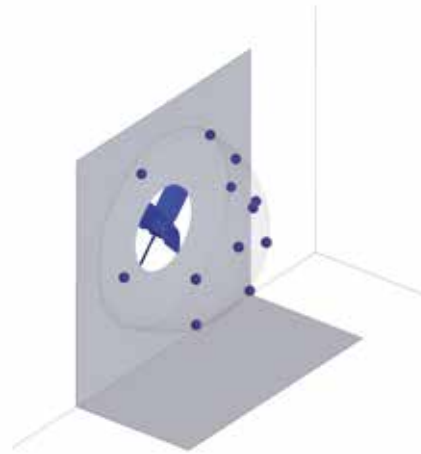


Fig. 1a: Position of microphones



Fig. 1b: Fan test-bench



# Aerodynamics and Acoustics

## Noise level data

### 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  $L_{pA}$  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  $L_{WA5}$ . 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.

Absorption of the sound pressure level, depending on the distance with partial reflection, is shown in Fig. IV.

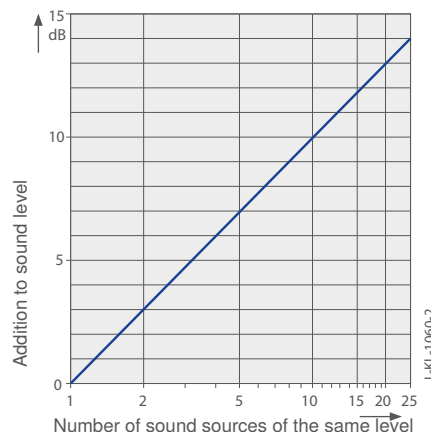


Fig. II: Addition of several sound sources

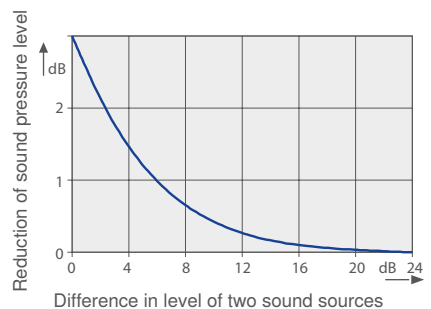


Fig. III: Sound sources of different levels

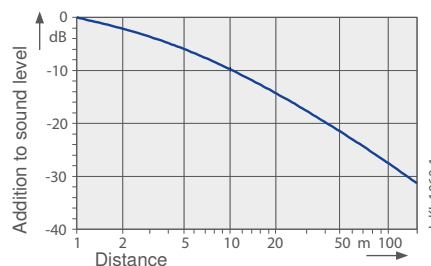


Fig. IV: Reduction of sound pressure level

# Electrical connection and motor

## Fan drive

The three phase (3~) or single phase (1~) external motor integrated into the fan hub meets the requirements for circulating electric machines set forth in **DIN EN 60 034-1** (VDE 0530 Part 1).

AC technology:

The rated voltage for three phase alternating current motors is 400 V, for single phase alternating current motors it is 230 V.

EC technology:

The centrifugal fans with ECblue technology are powered by a highly efficient EC-motor with integrated commutation technology. Depending on the version, the ECblue motors have a broad voltage range.

1~ 200-240 V, 50/60 Hz

1~ 200-277 V, 50/60 Hz

## Electrical connection

### Voltage

The three phase or single phase alternating current motors are suitable for 400 V  $\pm$  10 % or 230 V  $\pm$  10 % and for 50/60 Hz. For details please refer to data sheet.

### Motor connection

Mains connection via terminal box or outgoing connection cable as shown in dimension drawings. Cable length tolerance  $\pm$  3 cm.

### Operating capacitor

See chapter System components.

## Conditions for use and service life

### Operating mode

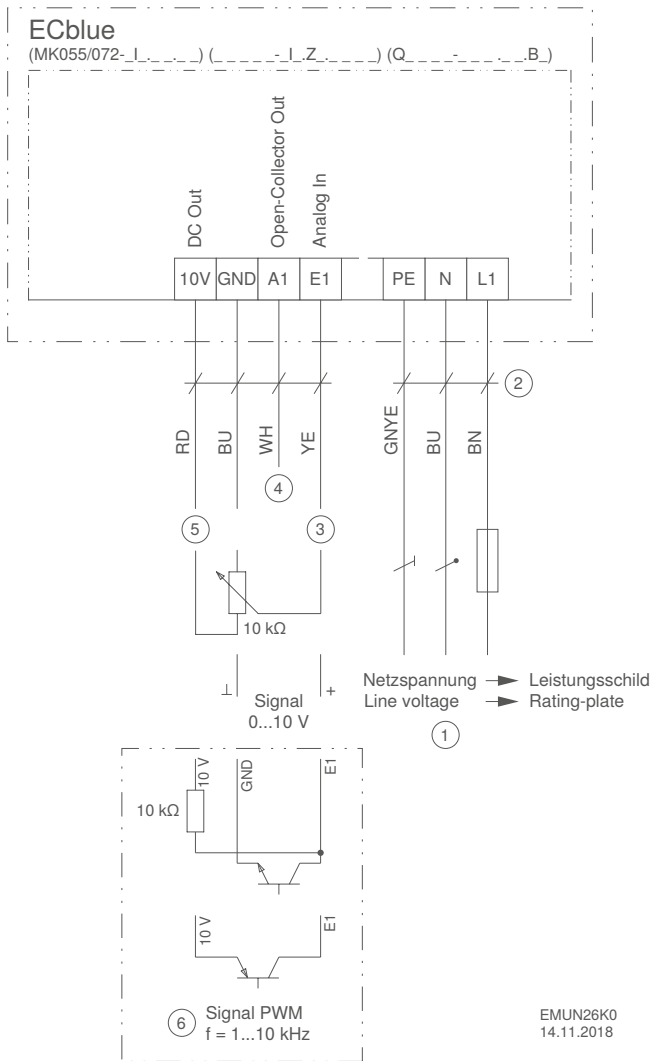
Continuous operation with occasional starts (S1) according to DIN EN 60034-1:2011-02.

### Ball-bearing service life

The according to standard calculation methods determined bearing service life expectation of the motor-integrated ball bearings is mainly determined by the grease service life F10h and amounts for standard application to approx. 30.000 – 40.000 operating hours. The fan is maintenance-free due to the use of ball bearings with „lifetime lubrication“. Once the grease operating life F10h has been reached, it may be necessary to replace the bearing. The bearing service life expectation may change compared to the specified value, if operating conditions such as increased vibrations or shocks, increased or too low temperatures, humidity, dirt in the ball bearing or unfavourable control modes are present. A service life calculation for special applications can be provided on request.

# Connection diagrams

1360-404 (EC055 / EC072)



- ① Mains voltage, see rating plate
- ② Version with connection cables
- ③ Input for speed setting via 0...10 V signal / potentiometer ( $R_1 > 150 \text{ k}\Omega$ )
- ④ Tachometer output, open collector ( $I_{\text{max}} 10\text{mA}$ )
- ⑤ Voltage supply 10 V DC ( $I_{\text{max}} 10 \text{ mA}$ )
- ⑥ Speed setting via PWM signal ( $f = 1 \dots 10 \text{ kHz}$ )

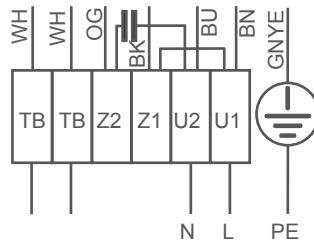
# Connection diagrams

## AC-Technology

### 104XA

For 1~motor with capacitor and thermostatic switch (if built in).

**Direction of rotation:** clockwise  
 Please keep the wiring diagram in the terminal box.

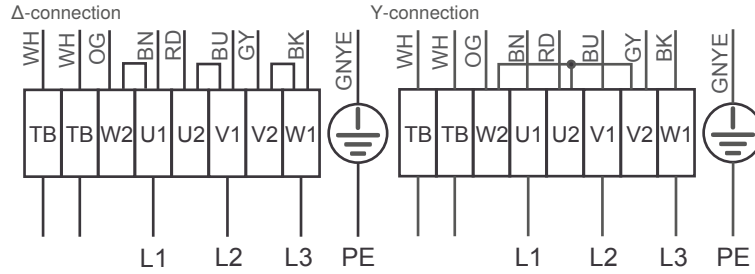


**Cable colours:**  
 BN brown  
 BU blue  
 BK black  
 OG orange  
 WH white  
 GNYE green-yellow

### 106XA

For 3~motor with one speed and thermostatic switch (if built in).

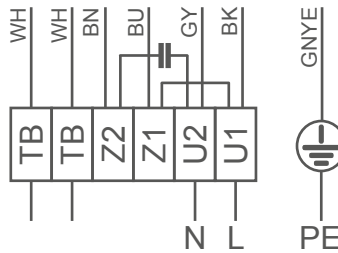
**Direction of rotation:** clockwise  
 Please keep the wiring diagram in the terminal box.



**Cable colours:**  
 BN brown  
 BU blue  
 BK black  
 RD red  
 GY grey  
 OG orange  
 WH white  
 GNYE green-yellow

### 161XA

For 1~motor with capacitor and thermostatic switch (if built in).

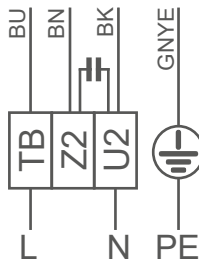


**Cable colours:**  
 BK black  
 GY grey  
 BU blue  
 BN brown  
 WH white  
 GNYE green-yellow

### 167XA

For 1~motor with one speed and thermostatic switch (if built in).

**Direction of rotation:** clockwise  
 Please keep the wiring diagram in the terminal box.



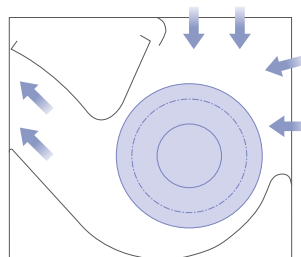
**Cable colours:**  
 BN brown  
 BU blue  
 BK black  
 GNYE green-yellow



# Installation and usage information

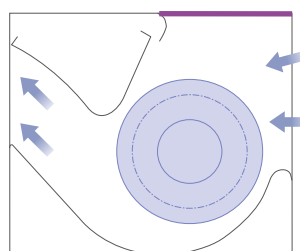
## Installation instructions cross flow fans QK/QR

QK: Standard design, intake side 90° open



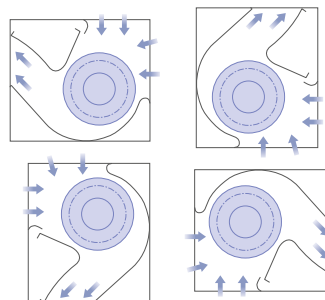
L-KL-4021

QK: On request with 180° guide plate, with 180° airflow a loss of air performance must be expected.



L-KL-4022

QK/QR: Installation position H (horizontal roller), fan can be mounted 360°.



L-KL-4023

Information

Cross flow fan,  
EC-technology

Cross flow fan

System  
components

Control  
technology

Appendix

## General notes

The information and data contained in this catalogue were composed to the best of our best ability and do not absolve the user from its duty to check the suitability of the products with respect to its intended application.

The customer is obligated to inform the supplier about general information concerning the intended use, the type of installation, the operating conditions and any other conditions that need to be taken into consideration if the order is not based on catalogue information.

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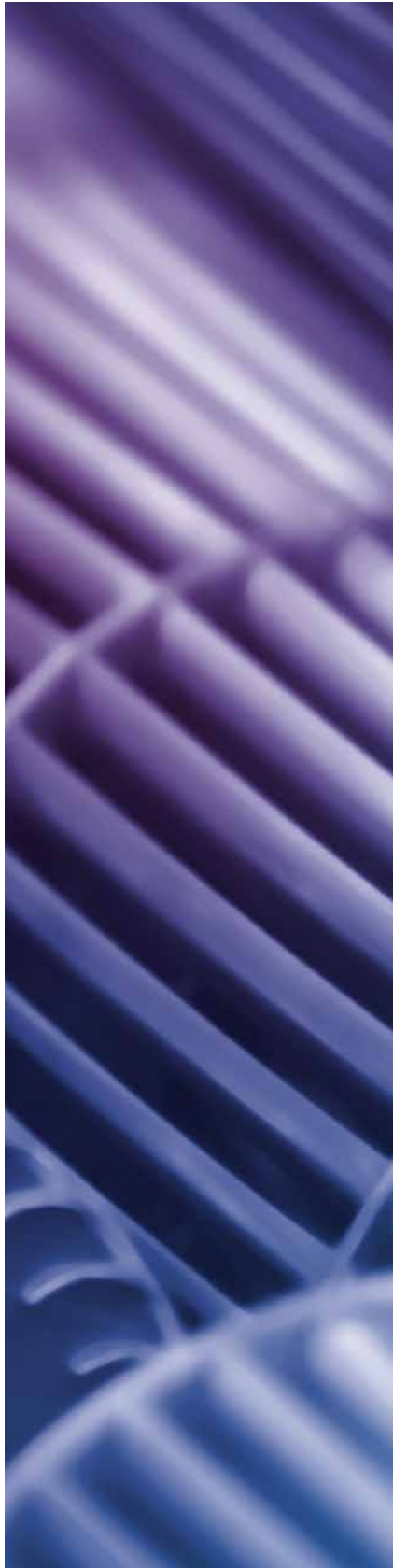
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