

Movement by Perfection



**Axial fans
FE2owlet-ECQ**

Edition 06/2015

The Royal League in ventilation, control and drive technology

Air with IQ

Air is inert by nature. Influences in nature such as temperature gradients start moving the air – but unfortunately, in a rather uncontrolled way and not always to people's advantage. In order to make air movement useful, we recommend our intelligent ventilation and control engineering solutions. They are not only effective and reliable but are also aimed at a multitude of specific requirements. As the world's leading system supplier of fans with matching control engineering, you will certainly be able to find fans for your sector and application in our product range. Educated minds don't leave anything to chance. Instead, they trust ZIEHL-ABEGG's extensive expertise.

FANselect


Reach your goal easily, quickly, and without any complications! The world's most precise program for fans and systems components. For more information log on to our website at www.fanselect.info



Additional catalogues

Our extensive catalogues in Axial Fans, Centrifugal Fans, Centrifugal Fans for air handling units, Control Technology and other catalogues are available on our www.ziehl-abegg.com website in the "Download" area. We would be glad to send printed catalogues on request.

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ZIEHL-ABEGG

Die Königsklasse

der Lufttechnik,
Regeltechnik und Antriebstechnik

Radialventilator
ZAmid®Technologie



No one can get past the Royal League



ZIEHL-ABEGG has stood for movement by perfection in the ventilation technology, control technology and drive technology sectors for more than 100 years. What started with the invention of the first external rotor motor by Emil Ziehl is now being carried on at the company's sites around the world. We are the pioneers, masterminds and developers of technologies for the future who more than satisfy all demands to preserve an environment worth living in and to meet all our customers' requirements and wishes.

Think in the future - discover ZIEHL-ABEGG

We look forward to seeing you in ventilation, control and drive technology. There, where ideas are the daily challenge and where the latest, outstanding technologies are developed.

Welcome to the best.

Welcome to the Royal League

From fans and motors to matching control technology

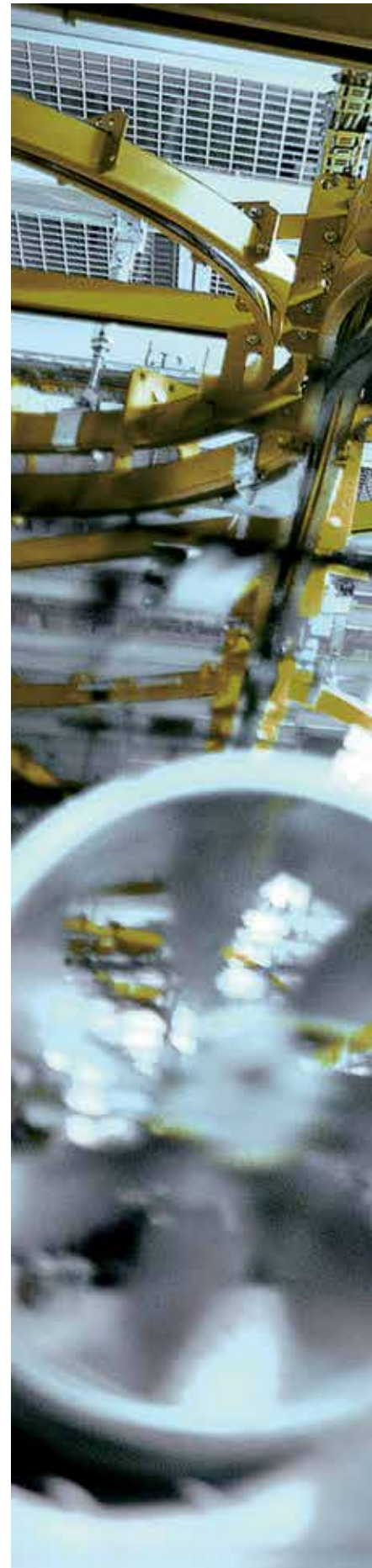
Our unique selling point – your advantage

What is important to us is to correctly match our systems to your specific needs. Whether refrigeration, air conditioning, for use in your manufacturing processes or anywhere else - we reliably move air wherever it is required and at the right time. At the main Künzelsau location more than 100 engineers and technicians work in one of the most modern technology centers of this kind.

We supply the highest quality standards with **the world's largest air and noise test-bench for fans** which can completely mask vibrations and external noises. This guarantees fan measurements of the highest class according to ISO and DIN. This is the reason ZIEHL-ABEGG products with the **Premium Quality** and **Premium Efficiency** are certified - that is the reason our products and services are in the Royal League.

The world's most modern and largest test-bench for fans at the main location in Künzelsau

Right picture:
Most modern production lines for fans with the highest demands in the world





Technical description

Motor ECQ



ECQ motors from ZIEHL-ABEGG are highly efficient, electronically commuted motors (EC) with an integrated controller. The motors are designed for continuous operation (S1-operation) and are thermally protected. An insulated IP55 housing of highly resistant plastic ensures safe operation in many different environments with high humidity or extreme cold.

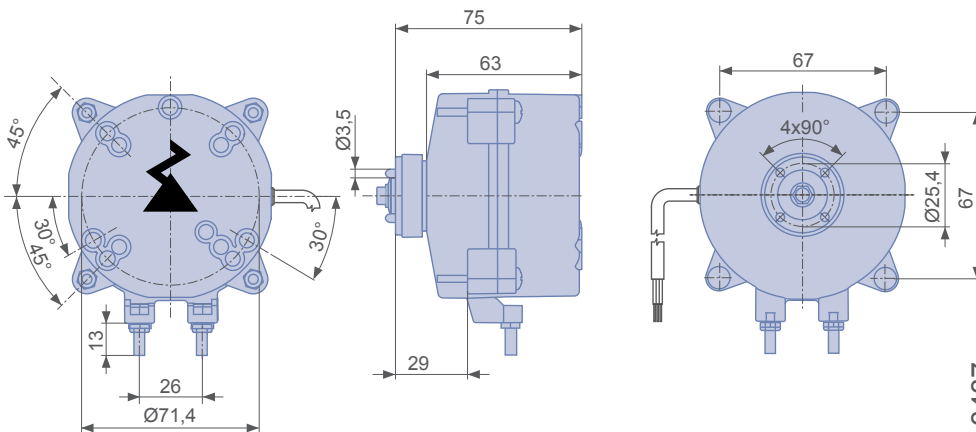
Description

Motor technology: EC
 Rated voltage U: 1~200...264 V* / 1~ 100...134 V*
 Rated frequency f: 50/60 Hz*
 Rated current I: 0,25 A* / 0,42 A*
 Thermic class: THCL130*
 Max. authorised media temperature $t_{R(min)}$: -40 °C
 Max. authorised media temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Protection rating: IP55
 Protection class: II (no PE conductor)
 Conformity: CE
 Authorisation: UL - Recognized Component acc. UL 1004-3, CCC
ErP-data
 Does not come under the stipulations of the ErP directives
 *Rating plate data

ECQ 1~ 120 V		
Type	Article no.	Speed (3/2/1)
MI060-4QN.05.N	169791	1750/1300/1000
MI060-4QN.05.N	169792	2200/1550/1300

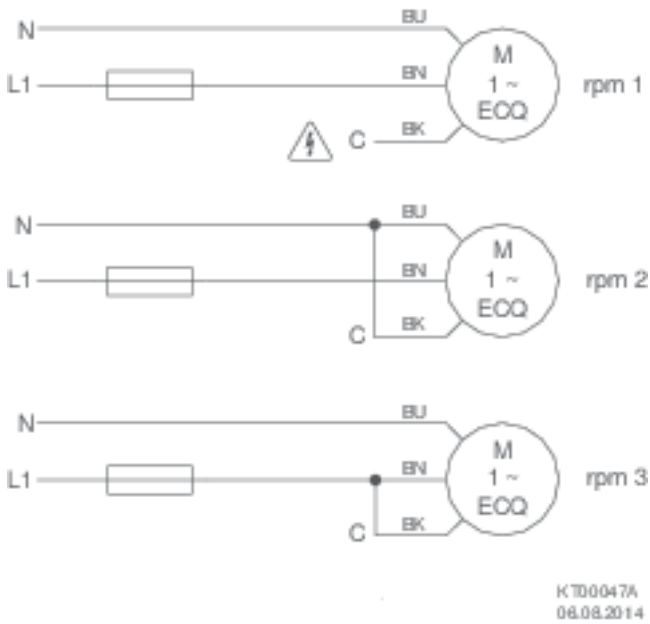
ECQ 1~ 230 V		
Type	Article no.	Speed (3/2/1)
MI060-4QN.05.N	151811	1750/1300/1000
MI060-4QN.05.N	151812	2200/1550/1300

Dimensions mm



L-KL-3437

Connection diagram 1360-334



ECQ motors can be used multi-functionally with 3 speeds and reverse operation. Each speed can be adapted individually according to your application.

Switching takes place via a control cable in the cable harness. The contact is switched to "N" or "L1" depending on the operating mode, this makes ECQ motors compatible with all common control units. The motor has devices to protect it from overloading, these include protection in case of blocked rotor and overload protection with running motor.

BU = blue
BN = brown
BK = black
rpm1 = Speed1
rpm2 = Speed2
rpm3 = Speed3

FE2owlet-ECQ

Description

Profiled, sickle blades according to bionic principles with highly efficient EC drives
Ø 172...300 mm

Application

Refrigerator counters/cabinets, deep freezers, cold store rooms, etc.

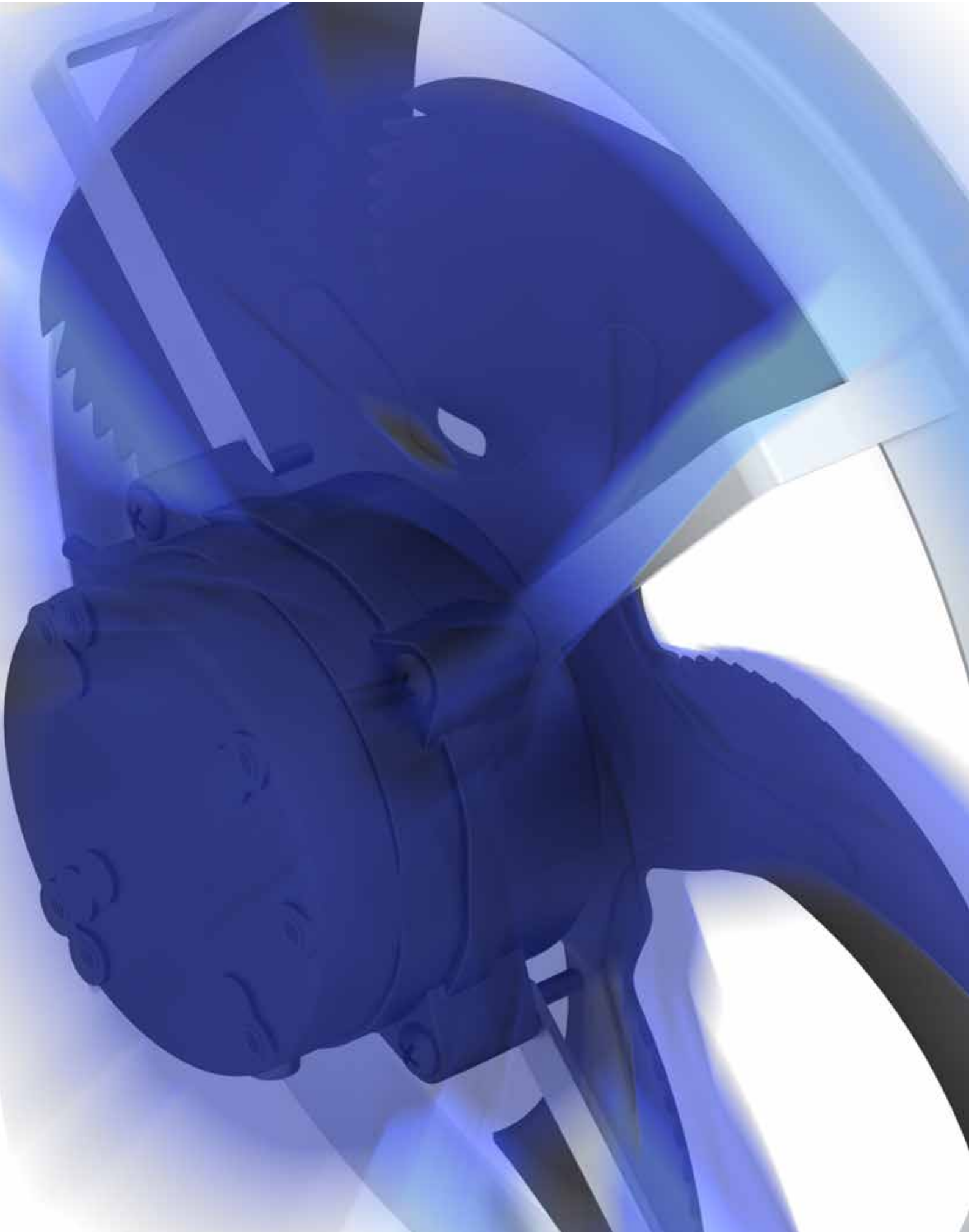
Advantages

The FE2owlet-ECQ fans feature very low noise and high efficiency. The EC technology and the bionic blade design create a unique and highly innovative fan.
3 speed stages with reverse operation enable adapted operating modes such as 1"Day-2"Night-3"Cleaning.

Accessories

Motor-brackets on request.





Axial fans FE2owlet-ECQ

Product overview

ECQ 1~ 230 V

Size 170 Page 12

Size 200 Page 16

Size 230 Page 20

Size 250 Page 24

Size 300 Page 28

ECQ 1~ 120 V

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Size 200 Page 34

Size 230 Page 38

Size 250 Page 42

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FE2owlet-ECQ

for single phase alternating current, 200-264 V

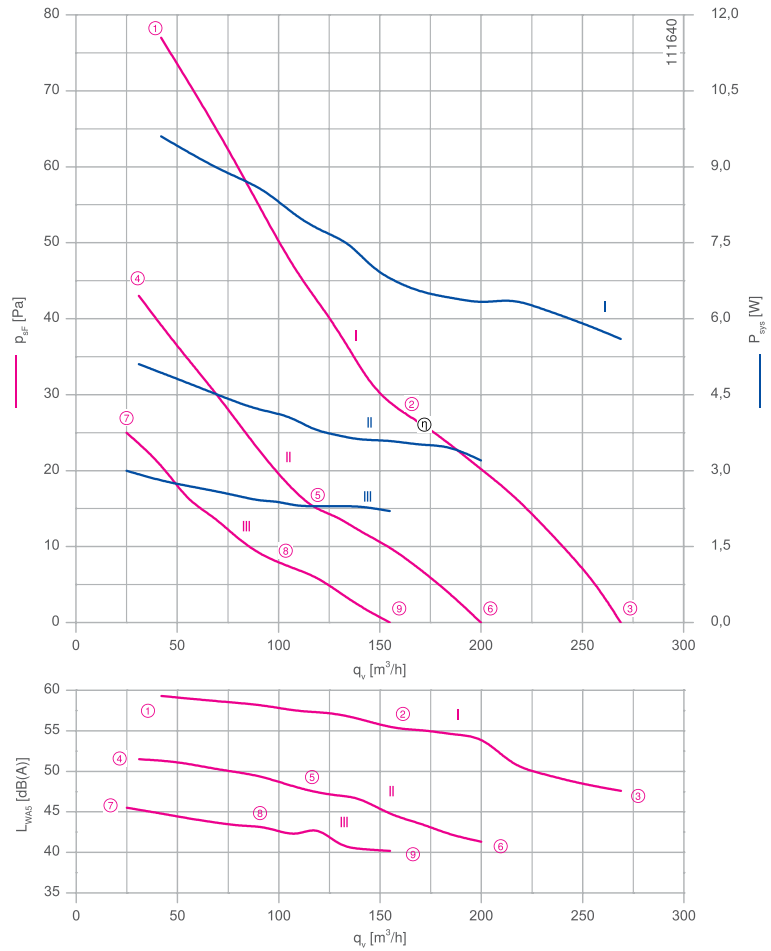
FNO17



Description

Motor technology: EC
 Rated voltage U: 1~ 200-264 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 0,01 kW*
 Rated current I: 0,12- 0,094 A*
 Rated speed n_{max} : 1750 Min⁻¹*
 Thermal class: THCL130*
 Min. permitted conveyor temperature $t_{R(min)}$: -40 °C
 Max. permitted conveyor temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

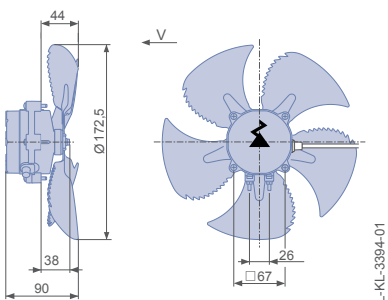
Connection diagram

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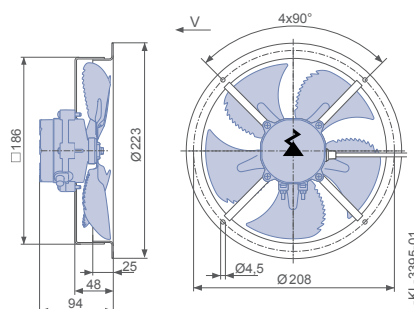
Dimensions mm

Airflow direction V

Design A - without mounting



Design E - round short bell mouth, without guard grille




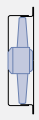
Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN017-4Q_UA.V5P3	I	1750	①	0.10	10	59
			②	0.07	7	55
			③	0.06	6	48
	II	1300	④	0.05	5	52
			⑤	0.04	4	48
			⑥	0.03	3	41
	III	1000	⑦	0.03	3	46
			⑧	0.02	2	43
			⑨	0.02	2	40

Current values determined at 230V


Fan ordering information

Airflow direction V

Design	A	E (without guard grille)
		
Type	FN017-4QA.UA.V5P3	FN017-4QE.UA.V5P3
Article no.	167989	151820
Weight kg	0.66	0.92

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 200-264 V

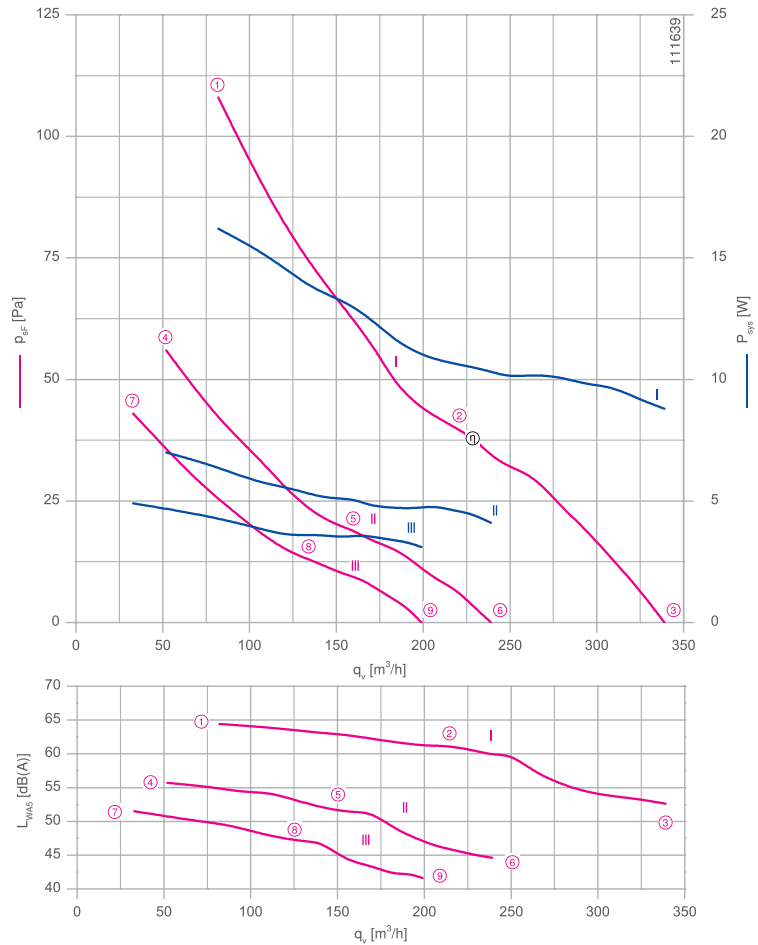
FNO17



Description

Motor technology: EC
 Rated voltage U: 1~ 200-264 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 0,016 kW*
 Rated current I: 0,20- 0,15 A*
 Rated speed n_{max} : 2200 Min⁻¹*
 Thermal class: THCL130*
 Min. permitted conveyor temperature $t_{R(min)}$: -40 °C
 Max. permitted conveyor temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

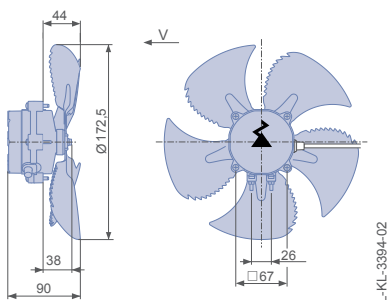
Connection diagram

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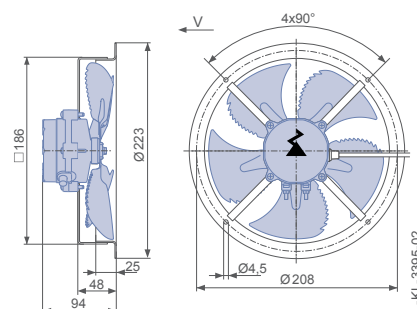
Dimensions mm

Airflow direction V

Design A - without mounting



Design E - round short bell mouth, without guard grille





Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN017-4Q_UA.V5P3	I	2200	①	0.17	16	64
			②	0.12	11	61
			③	0.09	9	53
	II	1550	④	0.07	7	56
			⑤	0.06	5	52
			⑥	0.04	4	45
	III	1300	⑦	0.05	5	52
			⑧	0.04	4	47
			⑨	0.03	3	42

Current values determined at 230V


Fan ordering information

Airflow direction V

Design	A	E (without guard grille)
		
Type	FN017-4QA.UA.V5P3	FN017-4QE.UA.V5P3
Article no.	167990	151821
Weight kg	0.66	0.92

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 200-264 V

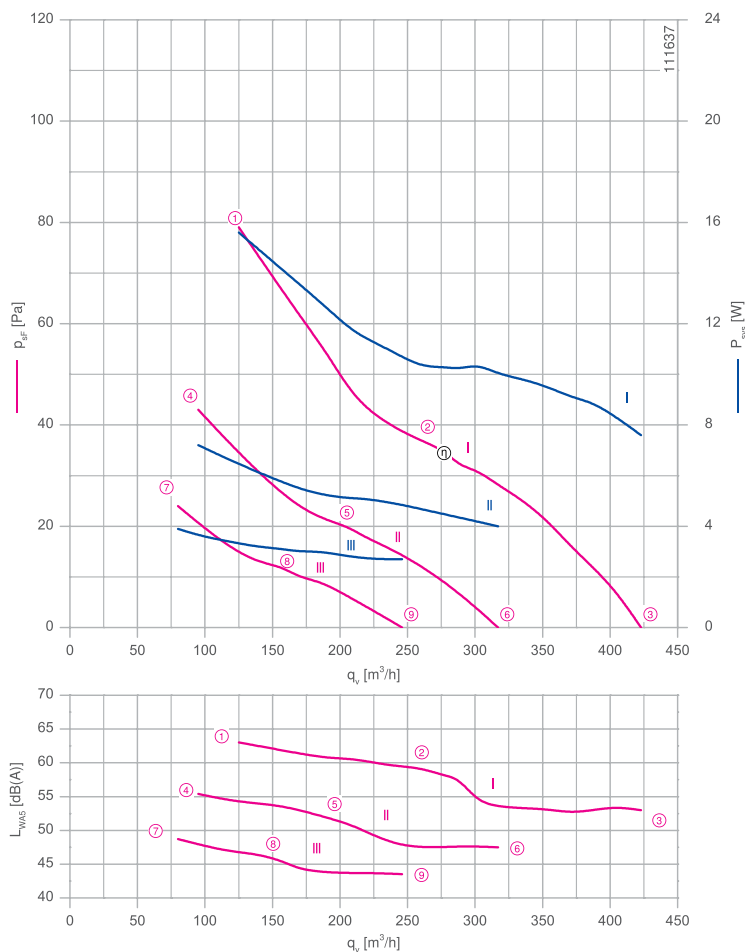
FNO20



Description

Motor technology: EC
 Rated voltage U: 1~ 200-264 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 0,016 kW*
 Rated current I: 0,19- 0,145 A*
 Rated speed n_{max} : 1750 Min⁻¹*
 Thermal class: THCL130*
 Min. permitted conveyor temperature $t_{R(min)}$: -40 °C
 Max. permitted conveyor temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

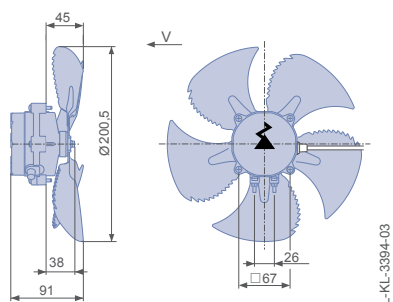
Connection diagram

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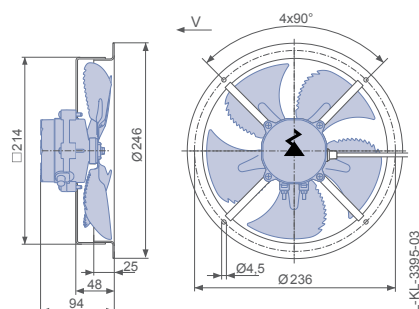
Dimensions mm



Design A - without mounting



Design E - round short bell mouth, without guard grille


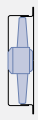


Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN020-4Q_UA.V5P3	I	1750	①	0.16	16	63
			②	0.11	10	59
			③	0.08	8	53
	II	1300	④	0.08	7	55
			⑤	0.06	5	52
			⑥	0.04	4	48
	III	1000	⑦	0.04	4	49
			⑧	0.03	3	46
			⑨	0.01	1	44

Current values determined at 230V

Fan ordering information

Airflow direction V		
Design	A	E (without guard grille)
		
Type	FN020-4QA.UA.V5P3	FN020-4QE.UA.V5P3
Article no.	167991	151822
Weight kg	0.67	0.95

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 200-264 V

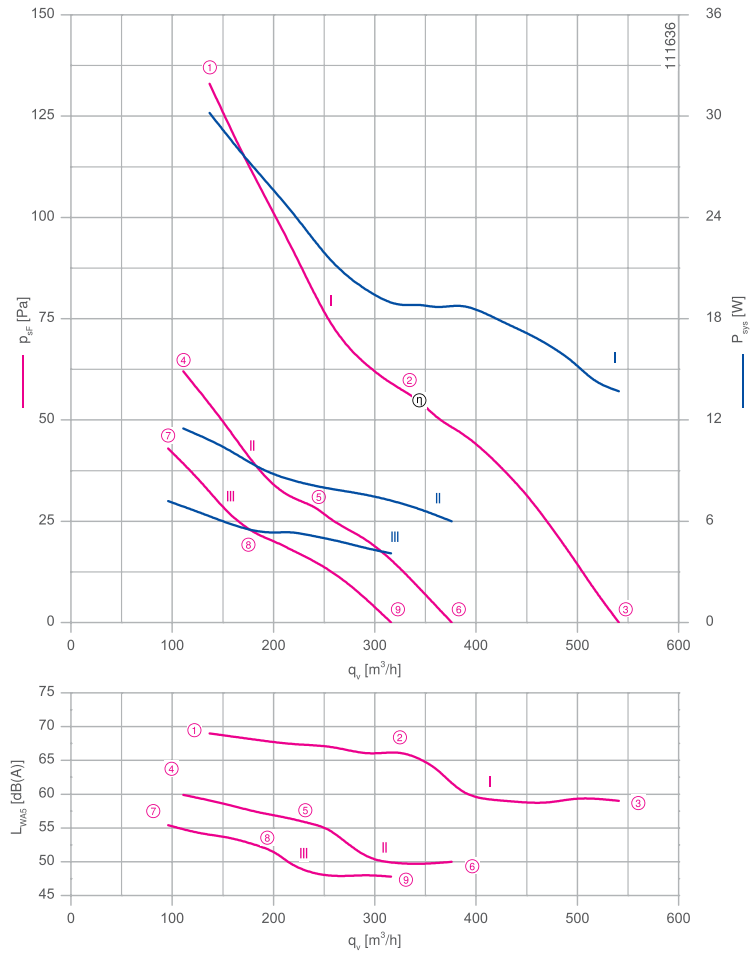
FNO20



Description

Motor technology: EC
 Rated voltage U: 1~ 200-264 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 0,03 kW*
 Rated current I: 0,33- 0,25 A*
 Rated speed n_{max} : 2200 Min⁻¹*
 Thermal class: THCL130*
 Min. permitted conveyor temperature $t_{R(min)}$: -40 °C
 Max. permitted conveyor temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

Connection diagram

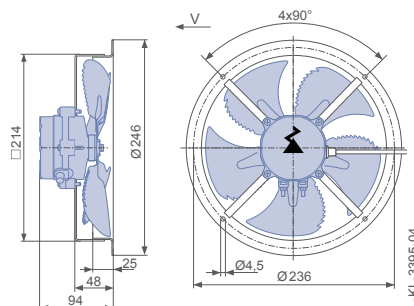
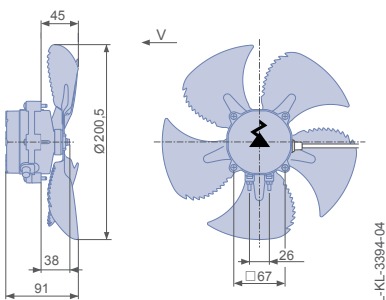
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Dimensions mm



Design A - without mounting

Design E - round short bell mouth, without guard grille




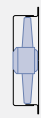
Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN020-4Q_UA.V5P3	I	2200	①	0.29	30	69
			②	0.19	19	66
			③	0.14	14	59
	II	1550	④	0.12	12	60
			⑤	0.09	8	56
			⑥	0.06	6	50
	III	1300	⑦	0.08	7	55
			⑧	0.06	5	52
			⑨	0.04	4	48

Current values determined at 230V


Fan ordering information

Airflow direction V

Design	A	E (without guard grille)
		
Type	FN020-4QA.UA.V5P3	FN020-4QE.UA.V5P3
Article no.	167992	151823
Weight kg	0.67	0.95

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 200-264 V

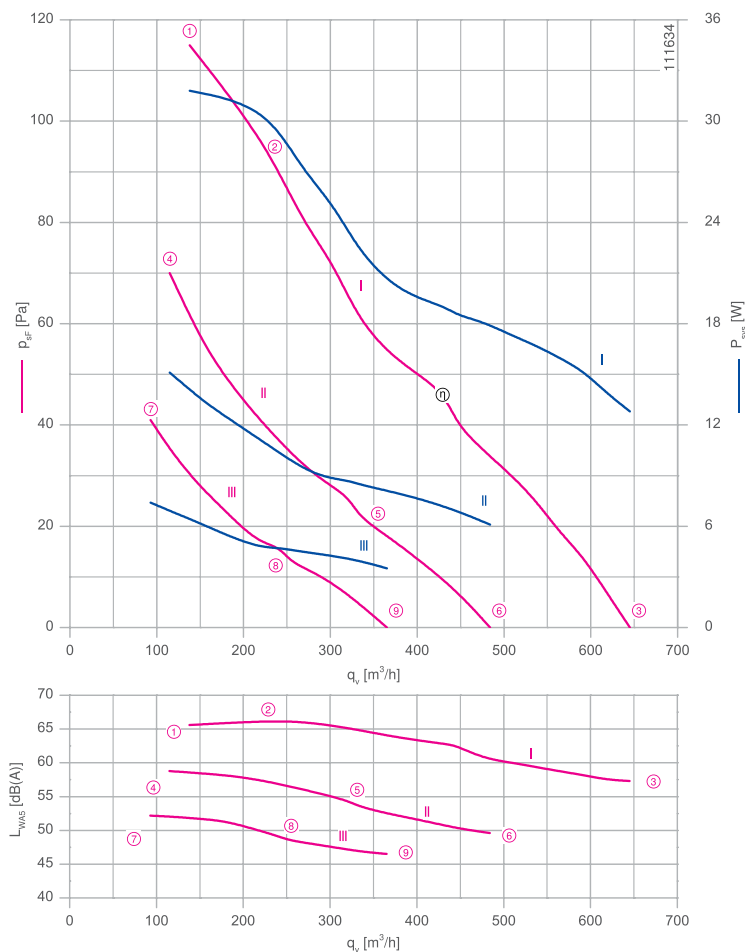
FN023



Description

Motor technology: EC
 Rated voltage U: 1~ 200-264 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 0,03 kW*
 Rated current I: 0,34- 0,26 A*
 Rated speed n_{max} : 1750 Min⁻¹*
 Thermal class: THCL130*
 Min. permitted conveyor temperature $t_{R(min)}$: -40 °C
 Max. permitted conveyor temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

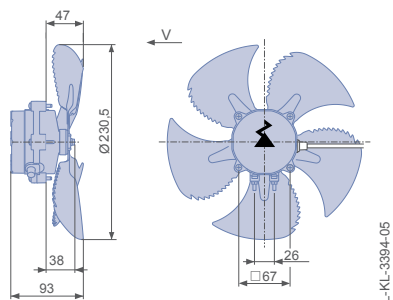
Connection diagram

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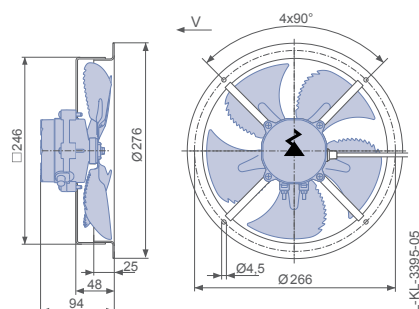
Dimensions mm



Design A - without mounting



Design E - round short bell mouth, without guard grille




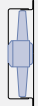
Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current I A	Motor input power P _{sys} W	Suction side sound power level L _{WA5} dB(A)
FN023-4Q_UA.V5P3	I	1750	①	0.30	32	66
			②	0.29	30	66
			③	0.14	13	57
	II	1300	④	0.17	15	60
			⑤	0.10	9	54
			⑥	0.07	6	50
	III	1000	⑦	0.08	7	52
			⑧	0.05	5	48
			⑨	0.04	4	47

Current values determined at 230V

Intelligent motor electronics limit the power consumption in operating point ①, where the full nominal speed is not reached.

Fan ordering information

Airflow direction V		
Design	A	E (without guard grille)
		
Type	FN023-4QA.UA.V5P3	FN023-4QE.UA.V5P3
Article no.	167993	151824
Weight kg	0.69	1.01

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 200-264 V

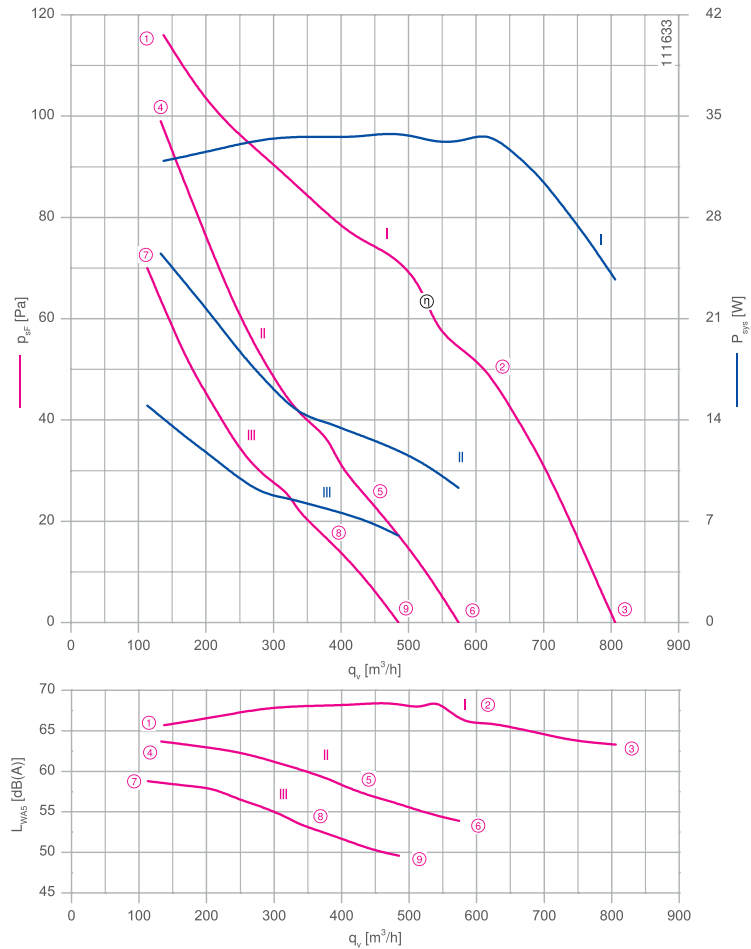
FN023



Description

Motor technology: EC
 Rated voltage U: 1~ 200-264 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 0,034 kW*
 Rated current I: 0,36- 0,27 A*
 Rated speed n_{max} : 2200 Min⁻¹*
 Thermal class: THCL130*
 Min. permitted conveyor temperature $t_{R(min)}$: -40 °C
 Max. permitted conveyor temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



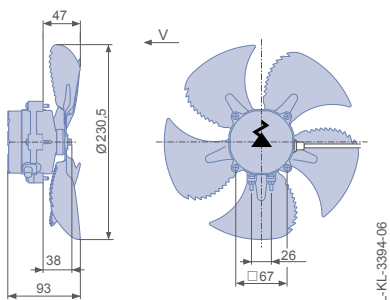
Connection diagram

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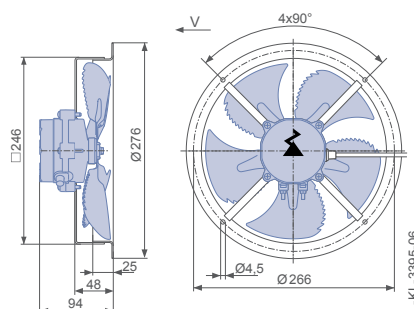
Dimensions mm

Airflow direction V

Design A - without mounting



Design E - round short bell mouth, without guard grille



Performance data



Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN023-4Q_UA.V5P3	I	2200	①	0.30	32	66
			②	0.31	34	66
			③	0.24	24	63
	II	1550	④	0.25	26	64
			⑤	0.15	13	57
			⑥	0.11	9	54
	III	1300	⑦	0.16	15	60
			⑧	0.09	8	53
			⑨	0.07	6	50

Current values determined at 230V

Intelligent motor electronics limit the power consumption in operating point ① and ② ,where the full nominal speed is not reached.

Fan ordering information

Airflow direction V

Design	A	E (without guard grille)
		
Type	FN023-4QA.UA.V5P3	FN023-4QE.UA.V5P3
Article no.	167994	151825
Weight kg	0.69	1.01

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 200-264 V

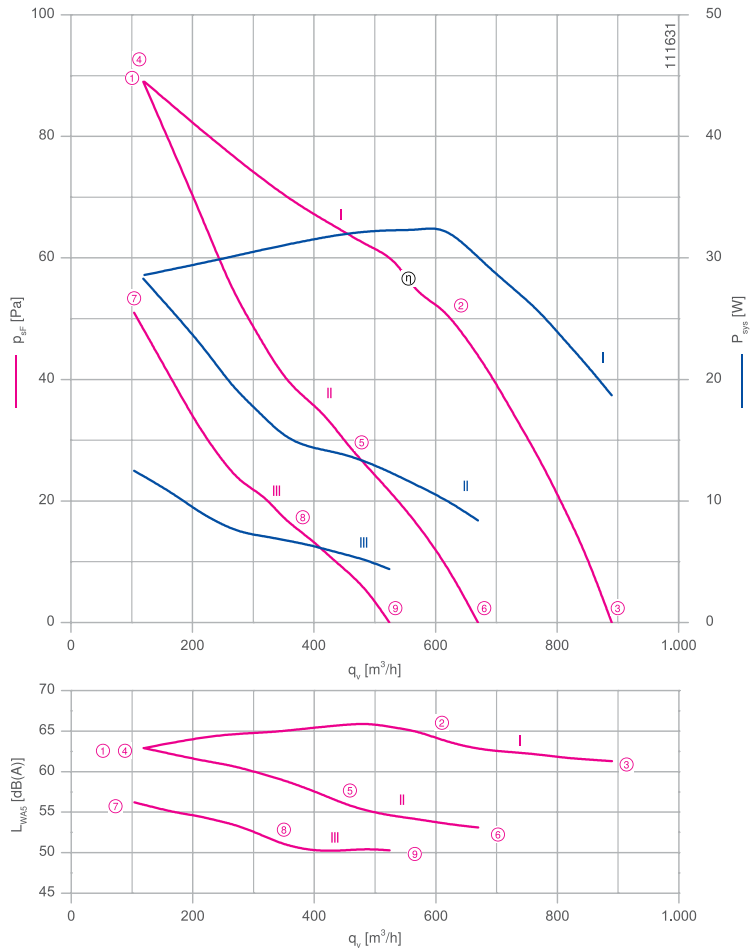
FN025



Description

Motor technology: EC
 Rated voltage U: 1~ 200-264 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 0,032 kW*
 Rated current I: 0,34- 0,26 A*
 Rated speed n_{max} : 1750 Min⁻¹*
 Thermal class: THCL130*
 Min. permitted conveyor temperature $t_{R(min)}$: -40 °C
 Max. permitted conveyor temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

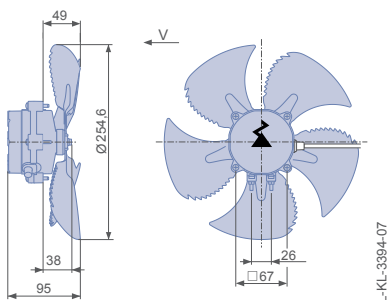
Connection diagram

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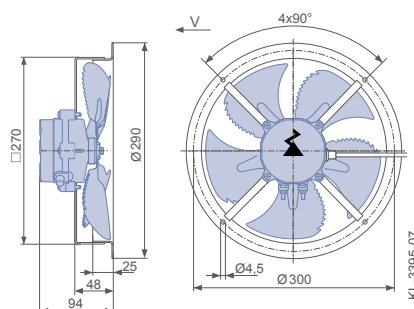
Dimensions mm



Design A - without mounting



Design E - round short bell mouth, without guard grille



Performance data


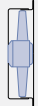
Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN025-4Q_UA.V5P3	I	1750	①	0.27	28	63
			②	0.29	32	64
			③	0.18	19	61
	II	1300	④	0.28	28	63
			⑤	0.15	14	56
			⑥	0.09	8	53
	III	1000	⑦	0.14	13	56
			⑧	0.08	7	51
			⑨	0.05	4	50

Current values determined at 230V

Intelligent motor electronics limit the power consumption in operating point ① and ② ,where the full nominal speed is not reached.

Fan ordering information

Airflow direction V

Design	A	E (without guard grille)
		
Type	FN025-4QA.UA.V5P3	FN025-4QE.UA.V5P3
Article no.	167995	151826
Weight kg	0.71	1.05

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 200-264 V

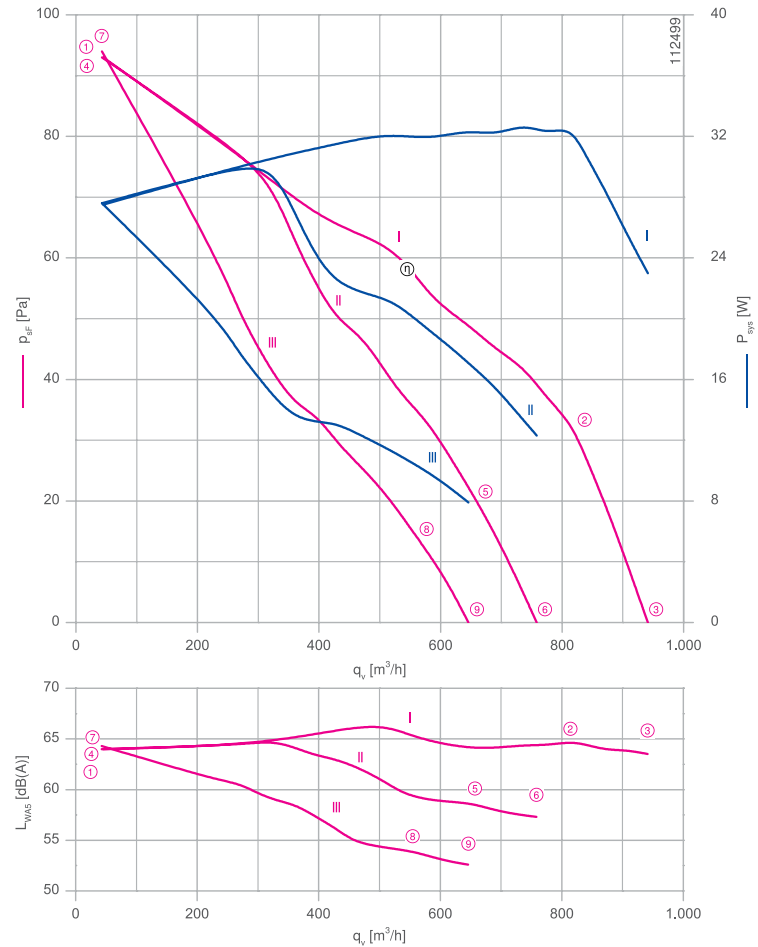
FN025



Description

Motor technology: EC
 Rated voltage U: 1~ 200-264 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 0,032 kW*
 Rated current I: 0,31- 0,27 A*
 Rated speed n_{max} : 1950 Min⁻¹*
 Thermal class: THCL130*
 Min. permitted conveyor temperature $t_{R(min)}$: -40 °C
 Max. permitted conveyor temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

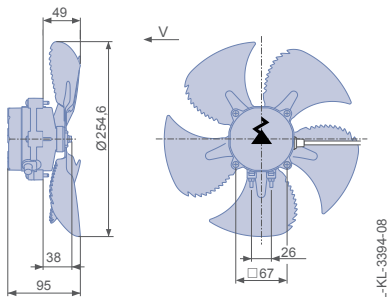
Connection diagram

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1360-334

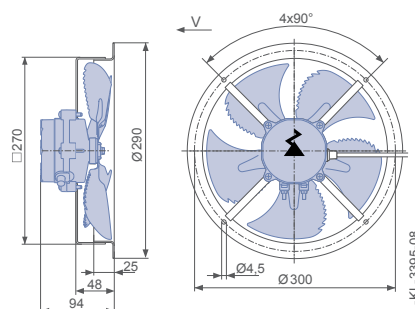
Dimensions mm

Airflow direction V

Design A - without mounting



Design E - round short bell mouth, without guard grille





Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN025-4Q_UA.V5P3	I	1950	①	0.27	28	64
			②	0.31	32	65
			③	0.24	24	64
	II	1550	④	0.27	28	64
			⑤	0.18	17	59
			⑥	0.14	12	57
	III	1300	⑦	0.26	28	64
			⑧	0.12	11	54
			⑨	0.09	8	53

Current values determined at 230V

Intelligent motor electronics limit the power consumption in operating point ① and ② ,where the full nominal speed is not reached.

Fan ordering information

Airflow direction V		
Design	A	E (without guard grille)
		
Type	FN025-4QA.UA.V5P3	FN025-4QE.UA.V5P3
Article no.	167996	151827
Weight kg	0.71	1.05

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 200-264 V

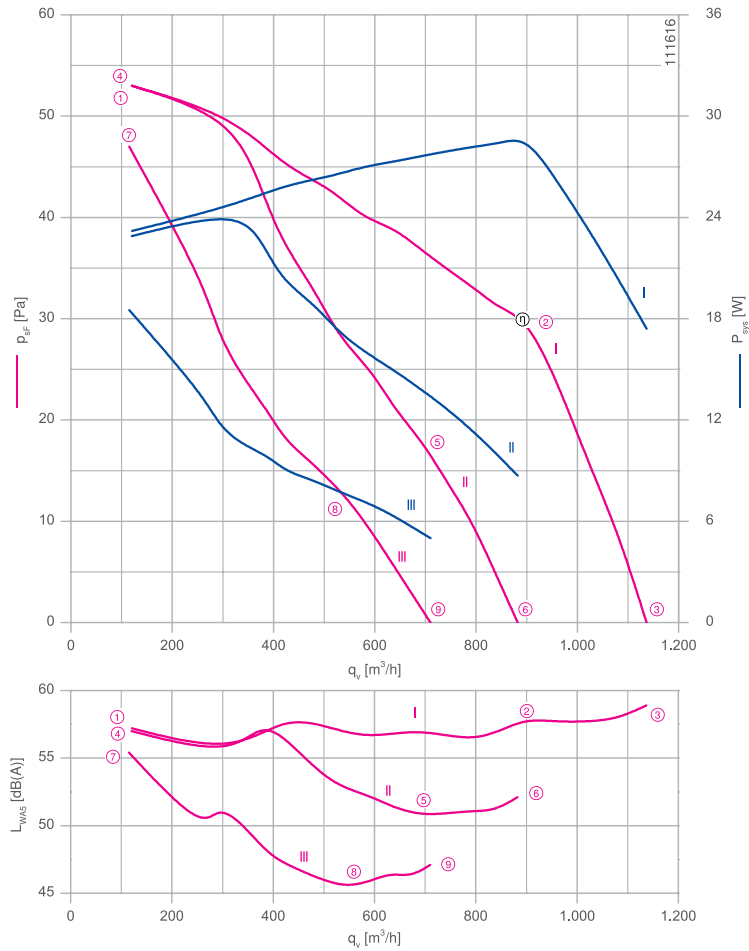
FNO30



Description

Motor technology: EC
 Rated voltage U: 1~ 200-264 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 0,028 kW*
 Rated current I: 0,31- 0,24 A*
 Rated speed n_{max} : 1300 Min⁻¹*
 Thermal class: THCL130*
 Min. permitted conveyor temperature $t_{R(min)}$: -40 °C
 Max. permitted conveyor temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

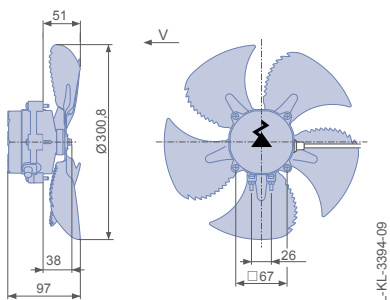
Connection diagram

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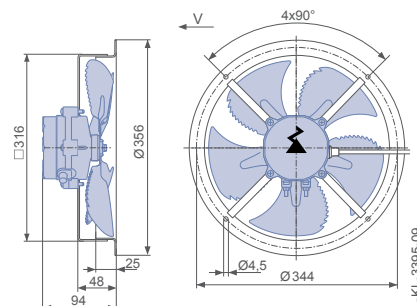
Dimensions mm

Airflow direction V

Design A - without mounting



Design E - round short bell mouth, without guard grille



Performance data



Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN030-4Q_UA.V5P3	I	1300	①	0.23	24	57
			②	0.27	28	58
			③	0.18	17	59
	II	1000	④	0.24	22	57
			⑤	0.15	14	51
			⑥	0.10	9	52
	III	800	⑦	0.19	19	55
			⑧	0.08	7	46
			⑨	0.06	5	47

Current values determined at 230V

Intelligent motor electronics limit the power consumption in operating point ① and ② ,where the full nominal speed is not reached.

Fan ordering information

Airflow direction V

Design	A	E (without guard grille)
		
Type	FN030-4QA.UA.V5P3	FN030-4QE.UA.V5P3
Article no.	167997	151828
Weight kg	0.74	1.19

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 100-134 V

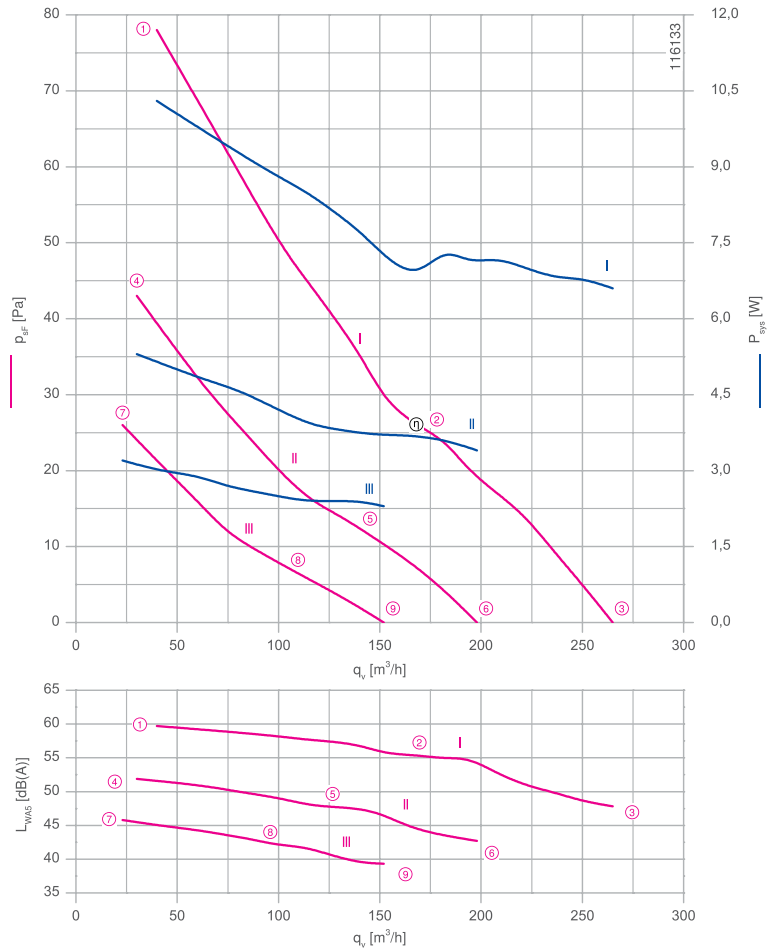
FNO17



Description

Motor technology: EC
 Rated voltage U: 1~ 100-134 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 10 W*
 Rated current I: 0.16- 0.12 A*
 Rated speed n_{max} : 1750 min⁻¹*
 Thermal class: THCL130*
 Min. permitted ambient temperature $t_{R(min)}$: -40 °C
 Max. permitted ambient temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

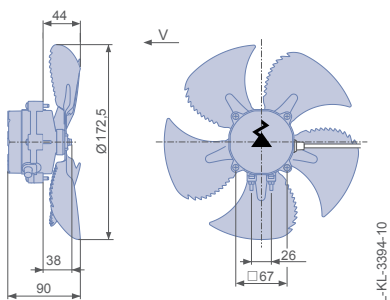
Connection diagram

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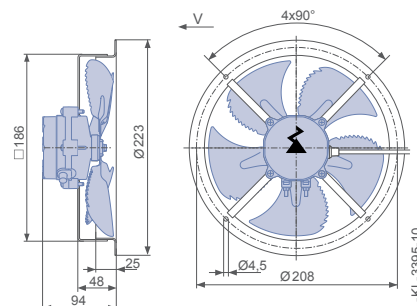
Dimensions mm

Airflow direction V

Design A - without mounting



Design E - round short bell mouth, without guard grille




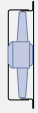
Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN017-4Q_UA_5P3	I	1750	①	0.14	10	60
			②	0.09	7	55
			③	0.09	7	48
	II	1300	④	0.07	5	52
			⑤	0.05	4	48
			⑥	0.05	3	43
	III	1000	⑦	0.05	3	46
			⑧	0.04	3	42
			⑨	0.03	2	39

Current values determined at 115V


Fan ordering information

Airflow direction V

Design	A	E (without guard grille)
		
Type	FN017-4QA.UA.V5P3	FN017-4QE.UA.V5P3
Article no.	169782	169773
Weight kg	0.66	0.92

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 100-134 V

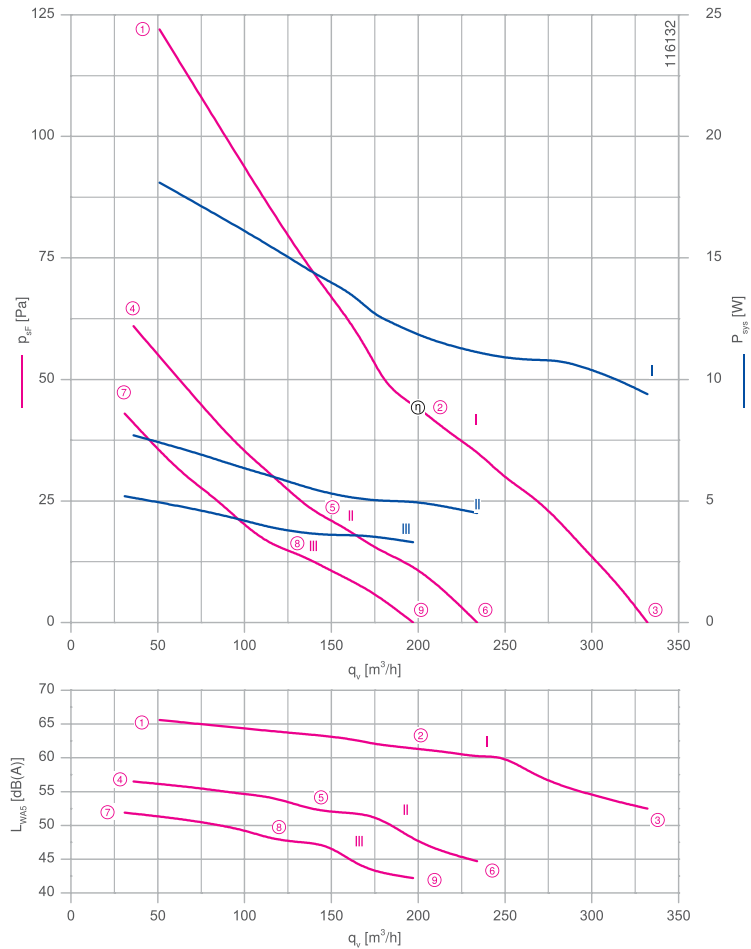
FNO17



Description

Motor technology: EC
 Rated voltage U: 1~ 100-134 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 18 W*
 Rated current I: 0.26- 0.195 A*
 Rated speed n_{max} : 2200 min⁻¹*
 Thermal class: THCL130*
 Min. permitted ambient temperature $t_{R(min)}$: -40 °C
 Max. permitted ambient temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

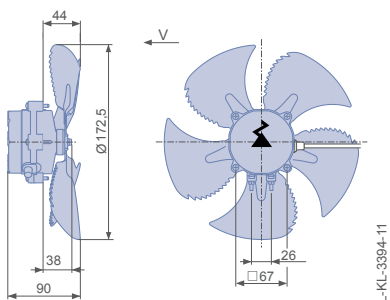
Connection diagram

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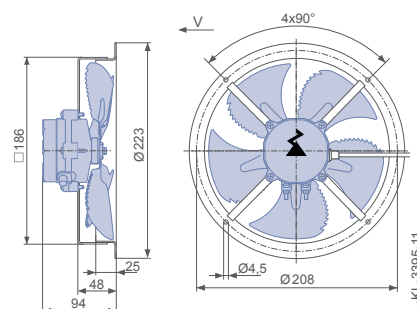
Dimensions mm

Airflow direction V

Design A - without mounting



Design E - round short bell mouth, without guard grille


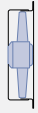


Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN017-4Q_UA_5P3	I	2200	①	0.23	18	71
			②	0.15	12	61
			③	0.12	9	53
	II	1550	④	0.10	8	56
			⑤	0.07	5	52
			⑥	0.06	5	45
	III	1300	⑦	0.07	5	52
			⑧	0.05	4	48
			⑨	0.05	3	42

Current values determined at 115V

Fan ordering information

Airflow direction V		
Design	A	E (without guard grille)
		
Type	FN017-4QA.UA.V5P3	FN017-4QE.UA.V5P3
Article no.	169783	169774
Weight kg	0.66	0.92

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 100-134 V

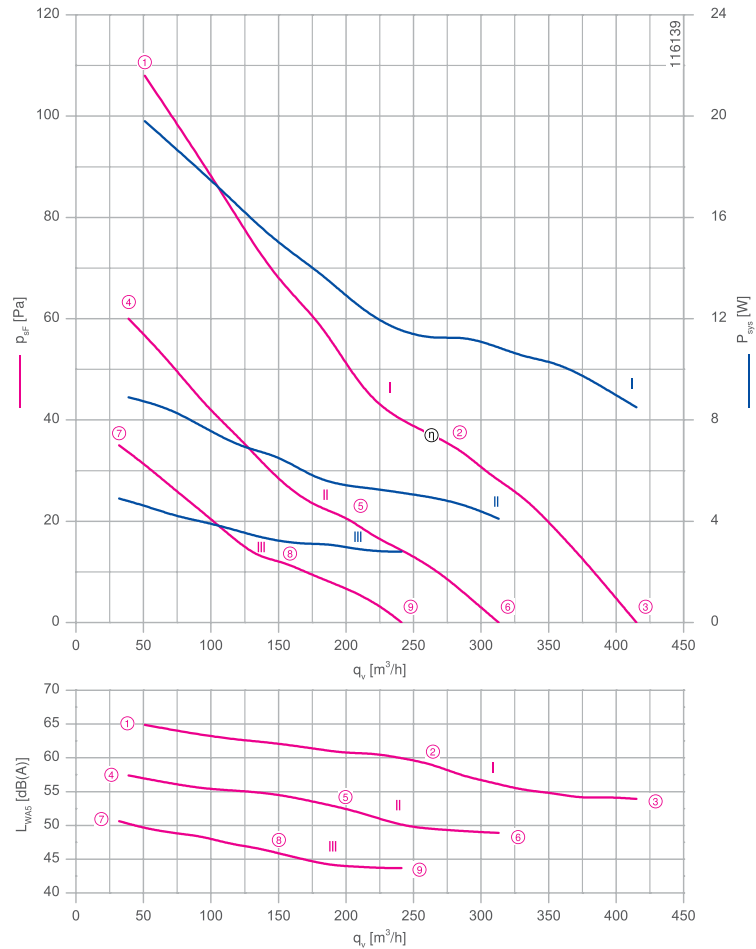
FNO20



Description

Motor technology: EC
 Rated voltage U: 1~ 100-134 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 20 W*
 Rated current I: 0.29- 0.21 A*
 Rated speed n_{max} : 1750 min⁻¹*
 Thermal class: THCL130*
 Min. permitted ambient temperature $t_{R(min)}$: -40 °C
 Max. permitted ambient temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

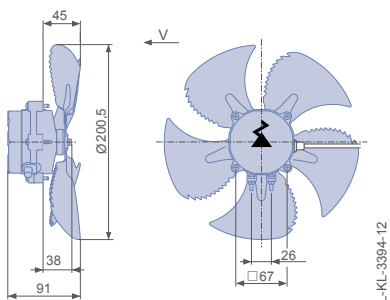
Connection diagram

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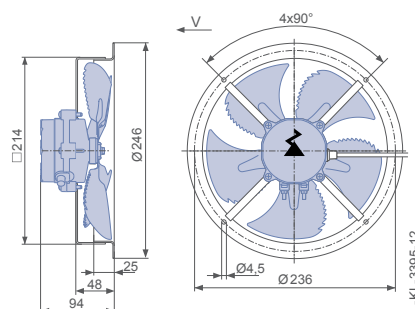
Dimensions mm

Airflow direction V

Design A - without mounting



Design E - round short bell mouth, without guard grille





Performance data

Type	Characteristic curve	Speed	Operating point	Current	Motor input power	Suction side sound power level
		n min ⁻¹		I A	P _{sys} W	L _{WA5} dB(A)
FN020-4Q_UA_5P3	I	1750	①	0.25	20	65
			②	0.15	11	59
			③	0.11	9	54
	II	1300	④	0.12	9	57
			⑤	0.07	5	53
			⑥	0.06	4	49
	III	1000	⑦	0.07	5	51
			⑧	0.05	3	46
			⑨	0.04	3	44

Current values determined at 115V


Fan ordering information

Airflow direction V

Design	A	E (without guard grille)
		
Type	FN020-4QA.UA.V5P3	FN020-4QE.UA.V5P3
Article no.	169784	169775
Weight kg	0.67	0.95

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 100-134 V

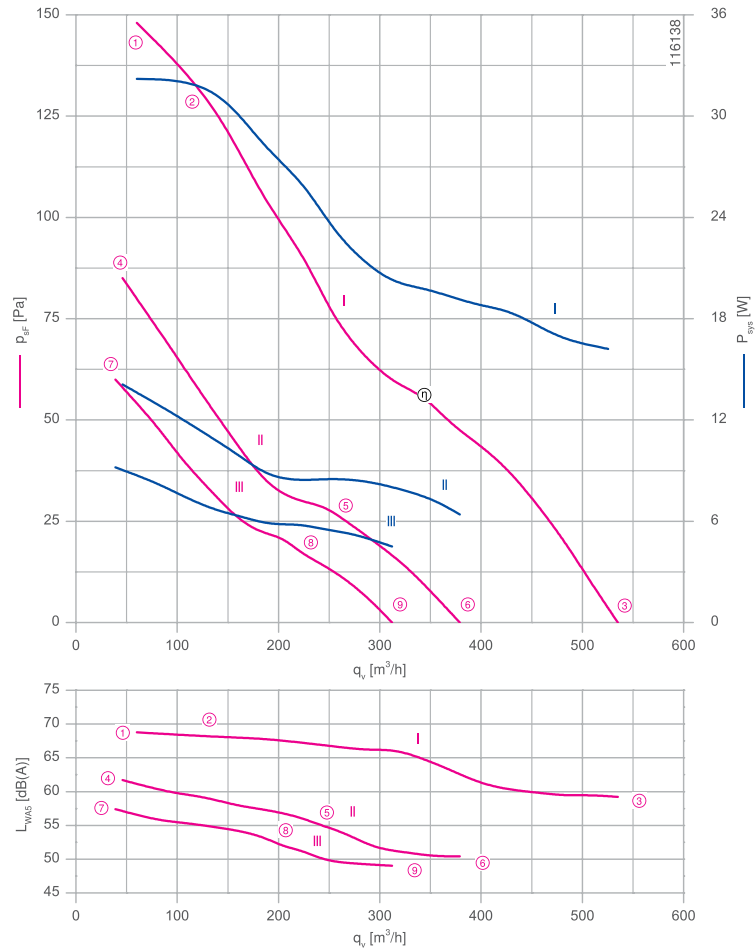
FNO20



Description

Motor technology: EC
 Rated voltage U: 1~ 100-134 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 32 W*
 Rated current I: 0.44- 0.34 A*
 Rated speed n_{max} : 2200 min⁻¹*
 Thermal class: THCL130*
 Min. permitted ambient temperature $t_{R(min)}$: -40 °C
 Max. permitted ambient temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

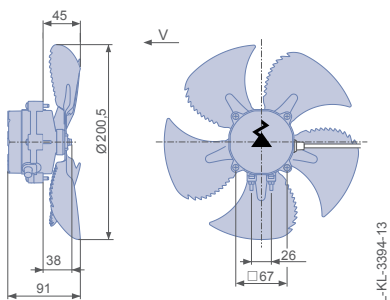
Connection diagram

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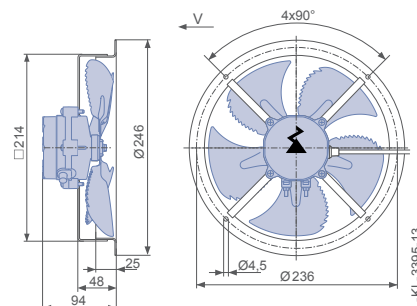
Dimensions mm



Design A - without mounting



Design E - round short bell mouth, without guard grille





Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN020-4Q_UA_5P3	I	2200	①	0.39	32	69
			②	0.39	32	68
			③	0.20	16	59
	II	1550	④	0.18	14	62
			⑤	0.11	9	55
			⑥	0.09	6	50
	III	1300	⑦	0.12	9	57
			⑧	0.08	6	52
			⑨	0.06	5	49

Current values determined at 115V

Fan ordering information

Airflow direction V		
Design	A	E (without guard grille)
		
Type	FN020-4QA.UA.V5P3	FN020-4QE.UA.V5P3
Article no.	169785	169776
Weight kg	0.67	0.95

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 100-134 V

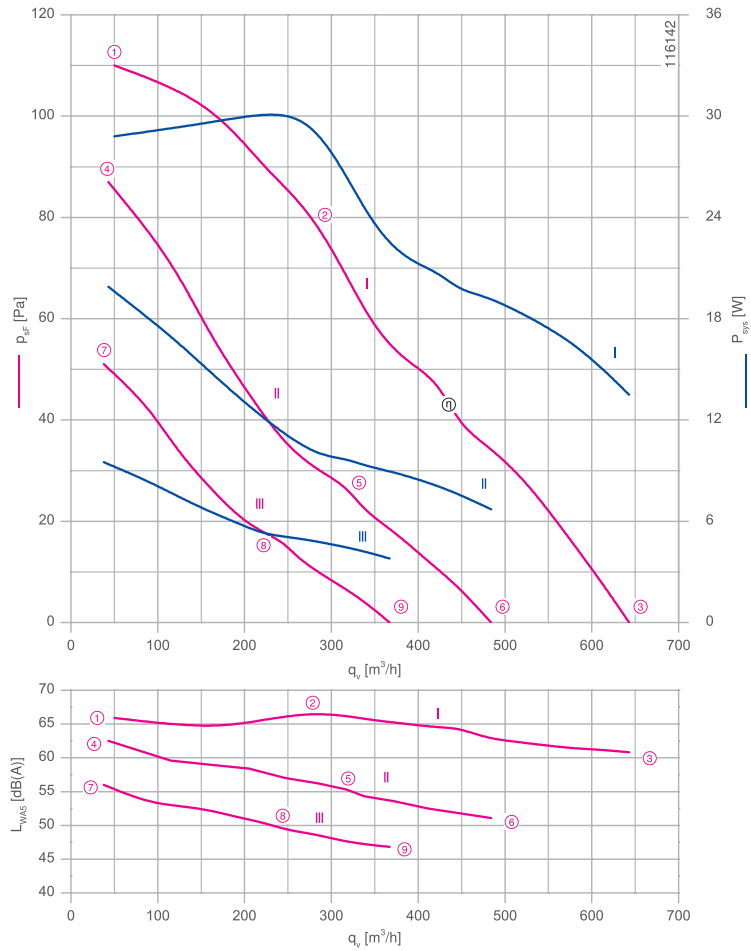
FN023



Description

Motor technology: EC
 Rated voltage U: 1~ 100-134 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 30 W*
 Rated current I: 0.42- 0.31 A*
 Rated speed n_{max} : 1750 min⁻¹*
 Thermal class: THCL130*
 Min. permitted ambient temperature $t_{R(min)}$: -40 °C
 Max. permitted ambient temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

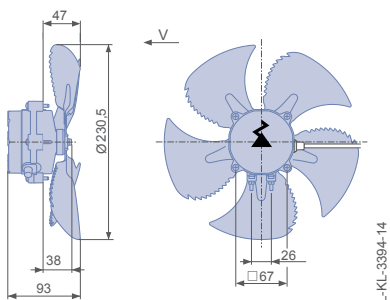
Connection diagram

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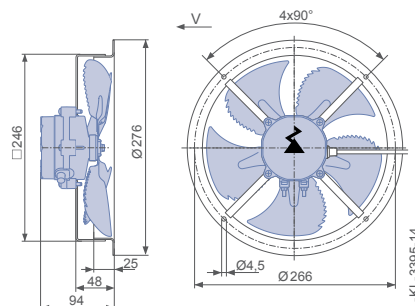
Dimensions mm

Airflow direction V

Design A - without mounting



Design E - round short bell mouth, without guard grille




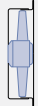
Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN023-4Q_UA_5P3	I	1750	①	0.35	28	66
			②	0.36	30	67
			③	0.17	14	61
	II	1300	④	0.25	20	62
			⑤	0.13	10	55
			⑥	0.09	7	51
	III	1000	⑦	0.13	10	56
			⑧	0.07	5	50
			⑨	0.05	4	47

Current values determined at 115V

Intelligent motor electronics limit the power consumption in operating point ①, where the full nominal speed is not reached.

Fan ordering information

Airflow direction V		
Design	A	E (without guard grille)
		
Type	FN023-4QA.UA.V5P3	FN023-4QE.UA.V5P3
Article no.	169786	169777
Weight kg	0.69	1.01

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 100-134 V

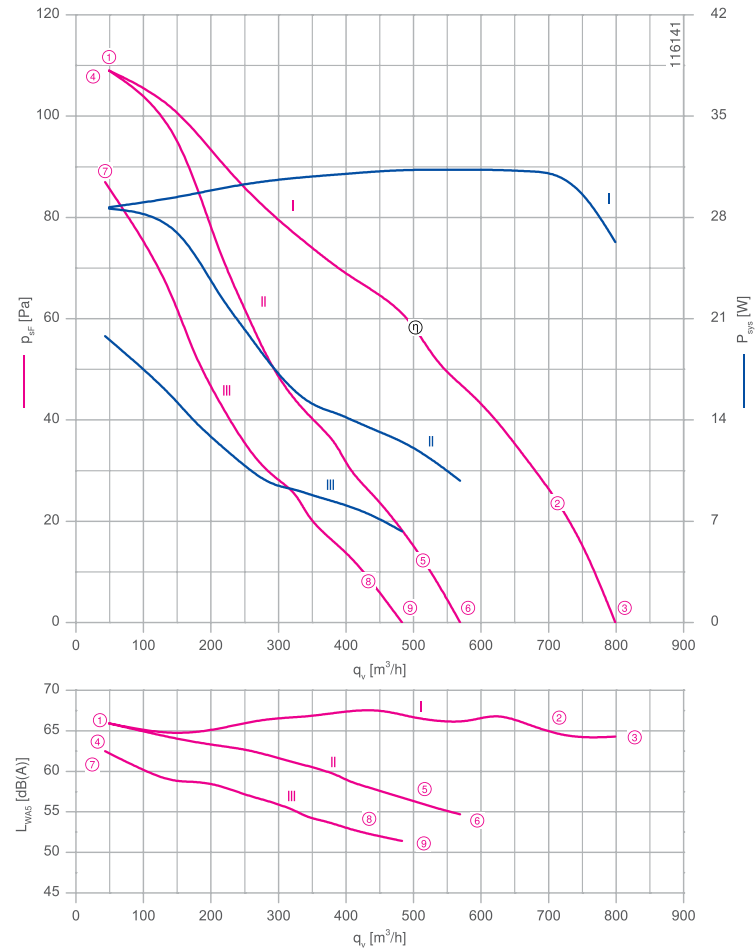
FN023



Description

Motor technology: EC
 Rated voltage U: 1~ 100-134 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 32 W*
 Rated current I: 0.44- 0.33 A*
 Rated speed n_{max} : 2200 min⁻¹*
 Thermal class: THCL130*
 Min. permitted ambient temperature $t_{R(min)}$: -40 °C
 Max. permitted ambient temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

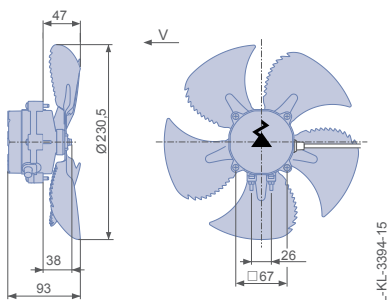
Connection diagram

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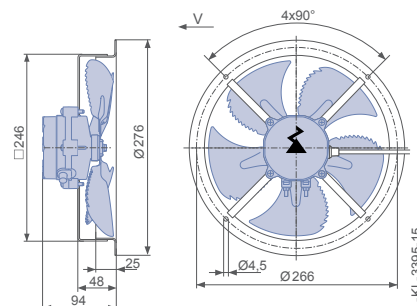
Dimensions mm



Design A - without mounting



Design E - round short bell mouth, without guard grille



Performance data



Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN023-4Q_UA_5P3	I	2200	①	0.35	28	66
			②	0.38	32	65
			③	0.32	26	64
	II	1550	④	0.35	28	66
			⑤	0.15	12	56
			⑥	0.13	10	55
	III	1300	⑦	0.25	20	62
			⑧	0.10	8	52
			⑨	0.09	6	51

Current values determined at 115V

Intelligent motor electronics limit the power consumption in operating point ① and ② ,where the full nominal speed is not reached.

Fan ordering information

Airflow direction V

Design	A	E (without guard grille)
		
Type	FN023-4QA.UA.V5P3	FN023-4QE.UA.V5P3
Article no.	169787	169778
Weight kg	0.69	1.01

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 100-134 V

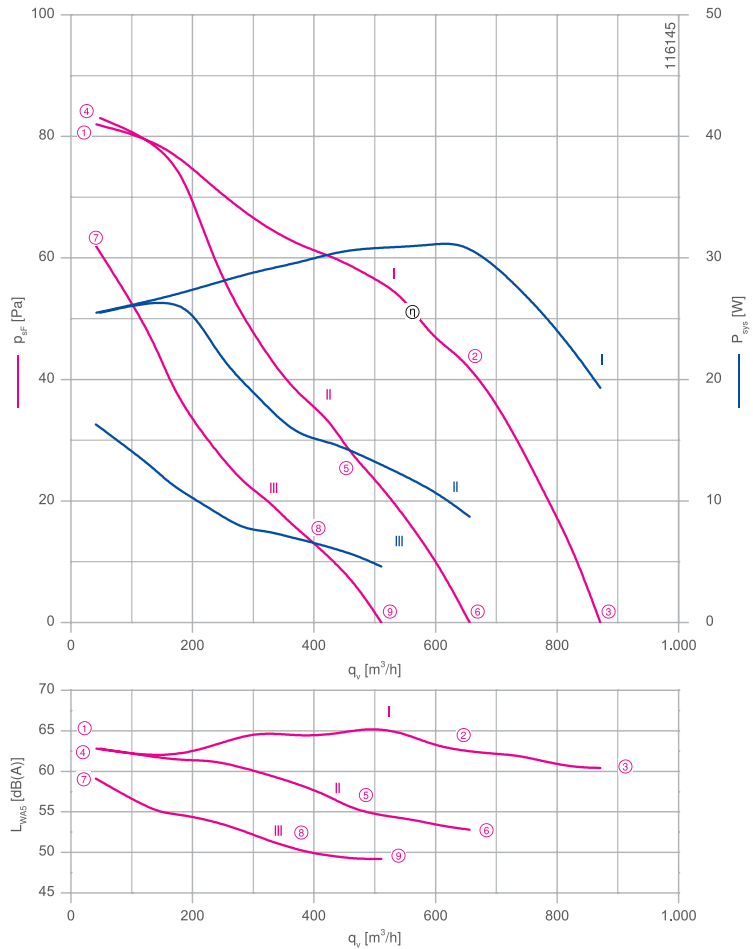
FN025



Description

Motor technology: EC
 Rated voltage U: 1~ 100-134 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 32 W*
 Rated current I: 0.44- 0.33 A*
 Rated speed n_{max} : 1750 min⁻¹*
 Thermal class: THCL130*
 Min. permitted ambient temperature $t_{R(min)}$: -40 °C
 Max. permitted ambient temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

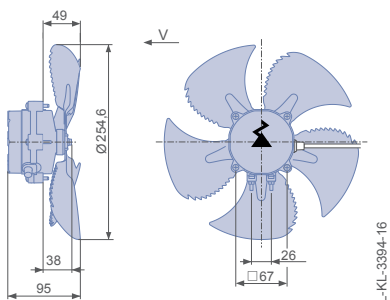
Connection diagram

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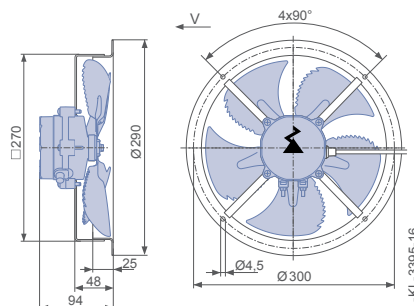
Dimensions mm



Design A - without mounting



Design E - round short bell mouth, without guard grille



Performance data



Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN025-4Q_UA_5P3	I	1750	①	0.32	26	63
			②	0.38	32	63
			③	0.24	19	60
	II	1300	④	0.32	26	63
			⑤	0.17	14	55
			⑥	0.12	9	53
	III	1000	⑦	0.21	16	59
			⑧	0.09	7	50
			⑨	0.07	5	49

Current values determined at 115V

Intelligent motor electronics limit the power consumption in operating point ① and ② ,where the full nominal speed is not reached.

Fan ordering information

Airflow direction V

Design	A	E (without guard grille)
		
Type	FN025-4QA.UA.V5P3	FN025-4QE.UA.V5P3
Article no.	169788	169779
Weight kg	0.71	1.05

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 100-134 V

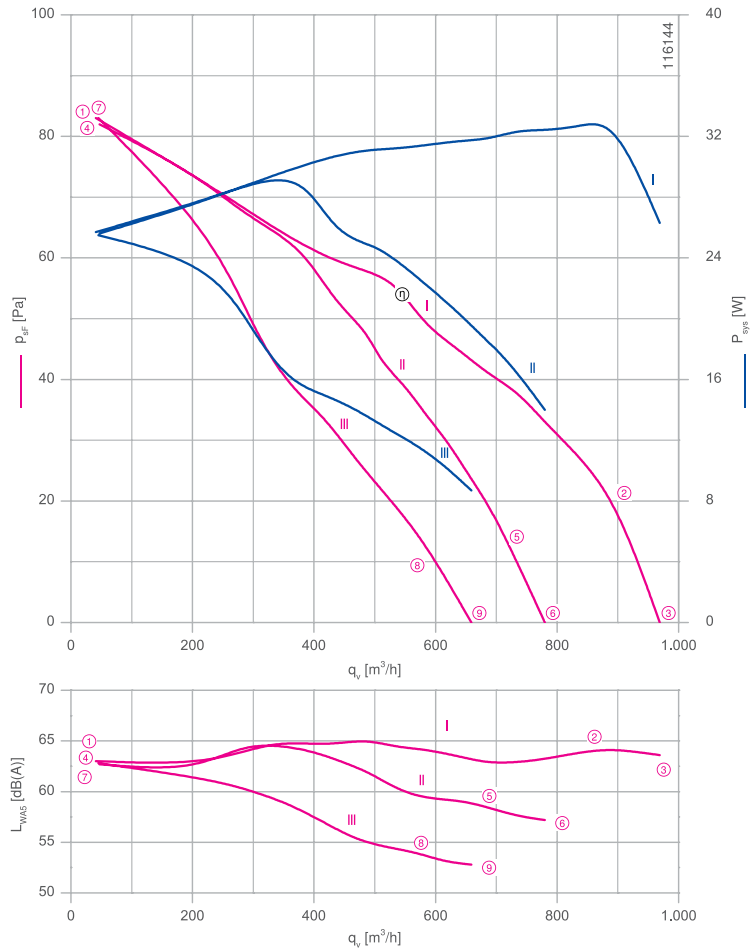
FN025



Description

Motor technology: EC
 Rated voltage U: 1~ 100-134 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 34 W*
 Rated current I: 0.46- 0.34 A*
 Rated speed n_{max} : 1950 min⁻¹*
 Thermal class: THCL130*
 Min. permitted ambient temperature $t_{R(min)}$: -40 °C
 Max. permitted ambient temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

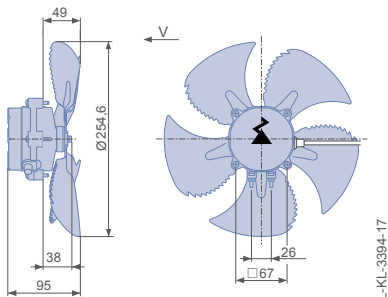
Connection diagram

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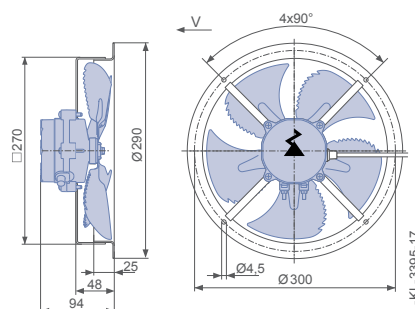
Dimensions mm

Airflow direction V

Design A - without mounting



Design E - round short bell mouth, without guard grille





Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN025-4Q_UA_5P3	I	1950	①	0.32	26	63
			②	0.40	34	64
			③	0.32	26	64
	II	1550	④	0.32	26	63
			⑤	0.22	17	58
			⑥	0.18	14	57
	III	1300	⑦	0.32	26	63
			⑧	0.14	11	53
			⑨	0.12	9	53

Current values determined at 115V

Intelligent motor electronics limit the power consumption in operating point ① and ② ,where the full nominal speed is not reached.

Fan ordering information

Airflow direction V		
Design	A	E (without guard grille)
		
Type	FN025-4QA.UA.V5P3	FN025-4QE.UA.V5P3
Article no.	169789	169780
Weight kg	0.71	1.05

Control technology

Motor Programmer



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FE2owlet-ECQ

for single phase alternating current, 100-134 V

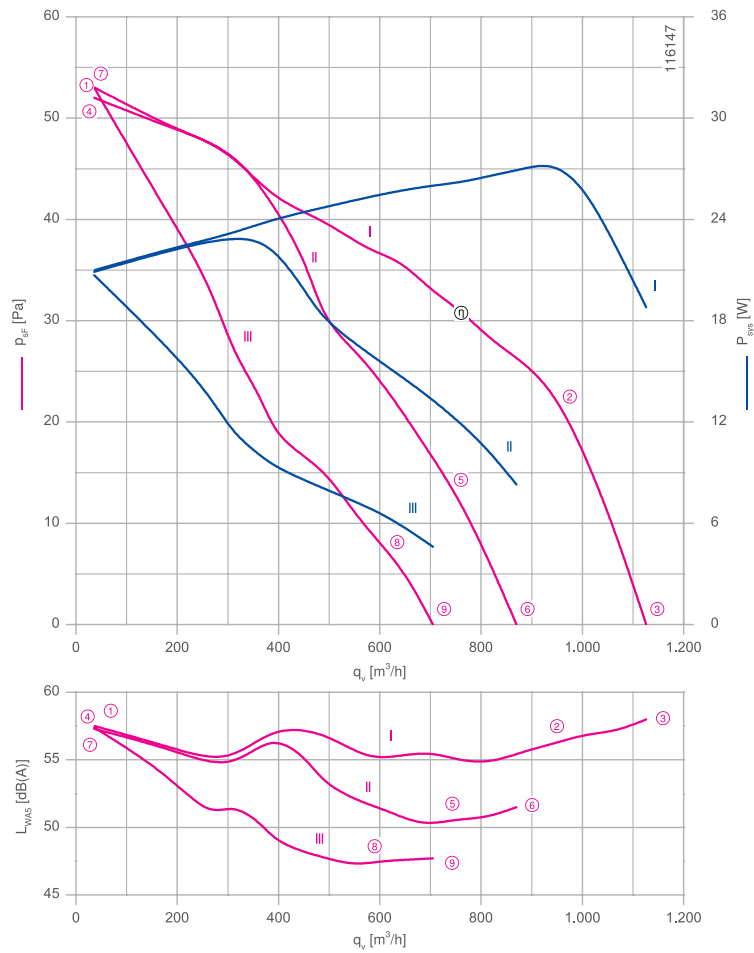
FNO30



Description

Motor technology: EC
 Rated voltage U: 1~ 100-134 V*
 Rated frequency f: 50/60 Hz*
 Motor input power P_{sys} : 28 W*
 Rated current I: 0.39- 0.29 A*
 Rated speed n_{max} : 1300 min⁻¹*
 Thermal class: THCL130*
 Min. permitted ambient temperature $t_{R(min)}$: -40 °C
 Max. permitted ambient temperature $t_{R(max)}$: 50 °C
 Electrical connection: Integrated controller with attached cable
 Number of blades: 5
 Protection class: IP55
 Blades: High Performance Composite Material, uncoated, black
 Conformity: CE, UL
ErP-data
 Not subject to the regulations of ErP directive ($P_1 < 125$ W)
 * Rated data

Characteristic curve



Measured with inlet ring, without guard grille in installation typet A according to ISO 5801

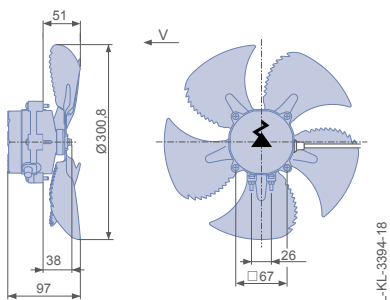
Connection diagram

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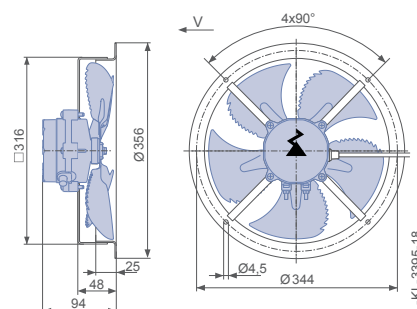
Dimensions mm

Airflow direction V

Design A - without mounting



Design E - round short bell mouth, without guard grille





Performance data

Type	Characteristic curve	Speed n min ⁻¹	Operating point	Current	Motor input power	Suction side sound power level
				I A	P _{sys} W	L _{WA5} dB(A)
FN030-4Q_UA_5P3	I	1300	①	0.27	22	57
			②	0.34	28	56
			③	0.24	19	58
	II	1000	④	0.27	20	57
			⑤	0.16	13	51
			⑥	0.11	8	52
	III	800	⑦	0.27	20	57
			⑧	0.09	7	47
			⑨	0.07	5	48

Current values determined at 115V

Intelligent motor electronics limit the power consumption in operating point ① and ② ,where the full nominal speed is not reached.

Fan ordering information

Airflow direction V		
Design	A	E (without guard grille)
		
Type	FN030-4QA.UA.V5P3	FN030-4QE.UA.V5P3
Article no.	169790	169781
Weight kg	0.74	1.19

Control technology

Motor Programmer



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Control technology

Control technology

Motor Programmer

Page 50

Motor Programmer



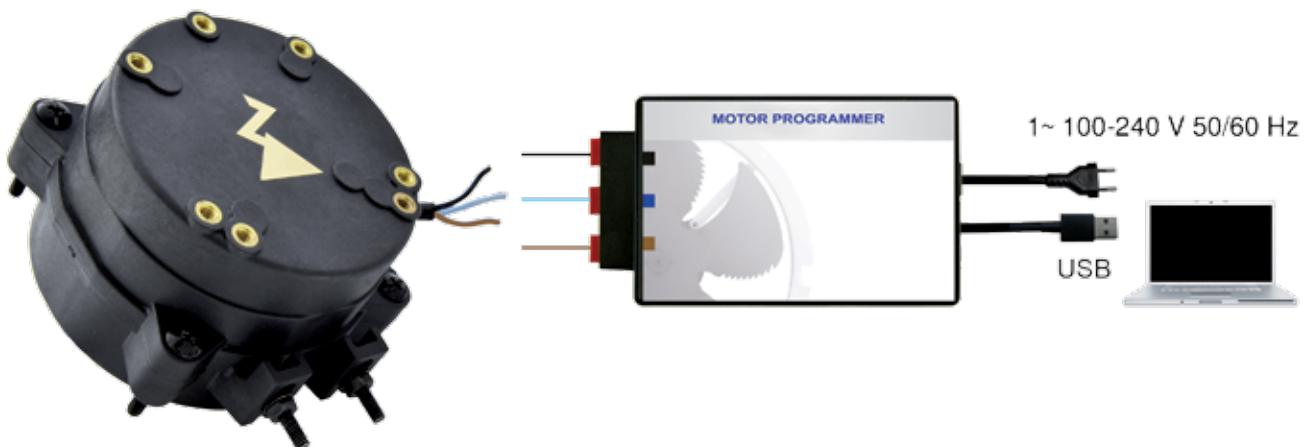
ECQ motors can be adapted to individual requirements at any time. Speeds and turning direction can be reprogrammed with a computer.

The motor programmer serves to communicate between motor electronics and computer software. All the necessary cable are included in delivery.

Hardware drivers and software can be found under the following Internet address:
http://ziehl-abegg.com/ECQ_configurator

Article No. 00534239

Connection





General notes

overview

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Installation and usage information	Page 58
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Explanation of technical details

Symbols, Units of Measure

Symbol	Unit	Description
P_{sF}	Pa	Static pressure increase
P_{d2}	Pa	Dynamic pressure
q_v	m ³ /h	Air flow
n_N	rpm	Rated speed
P_1	hp	Motor input power
P_{sys}	hp	Motor input power
U_N	V	Rated voltage
f_N	Hz	Rated frequency
I_N	A	Rated current
I_A	A	Starting current
ΔI	%	Percentage increase of current based on rated current for speed control by voltage reduction
C_{400V}	μF	Capacity
$t_{R(min)}$	°F	Minimum permitted conveyor temperature
$t_{R(max)}$	°F	Maximum permitted conveyor temperature
L_{WA5}	dB	Suction side sound power level
η_{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	Suction-side or pressure-side acoustic pressure level
P_{spez}	Wh/1000m ³	Specific power

Conversion factors

Pressure

		SI-unit	Additional units		
		Pa (N/m ²)	mbar	in.wg	psi (lbs./in ²)
SI-unit	Pa (N/m ²)	1	0.01	0.004015	0.000145
Additional units	mbar	100	1	0.401463	0.014503
	in.wg	249.10	2.49	1	0.036127
	psi (lbs./in ²)	6894.76	68.95	27.68	1

Air flow

		SI-unit	Additional units		
		m ³ /s	m ³ /h	l/s	cfm
SI-unit	m ³ /s	1	3600	1000	2118.9
Additional units	m ³ /h	0.000277	1	0.277777	0.588583
	l/s	0.001	3.6	1	2.1189
	cfm	0.000472	1.698994	0.471943	1

Temperature

		SI-unit	Additional units
		°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 map display shows the pressure increase Δp_{sF} in Pa as a function of the volume flow rate q_v in m^3/h .

Technical conditions of supply

The specified performance data meet the requirements for accuracy class 3 in line with **DIN 24 166** and apply to the rated data and air performance curves at the rated voltage. The continuous line in the characteristic map represents the optimum reliable operating range for axial fans.

Fan test bench

FE2owlet-ECblue, FE2owlet, MAXvent owlet:

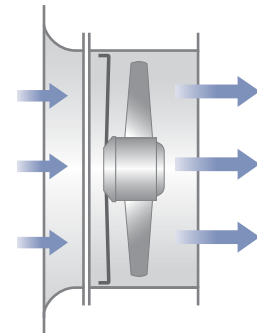
The fan characteristic curves are determined on a combined ventilation and sound test bench.

The characteristic curves are measured in compliance with **DIN EN ISO 5801** and **AMCA 210-99**. The sound power levels are measured in compliance with **DIN EN ISO 3745** and **ISO 13347-3** using the enveloping surface measuring method

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

Air density

The air density 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 kg/m^3 .

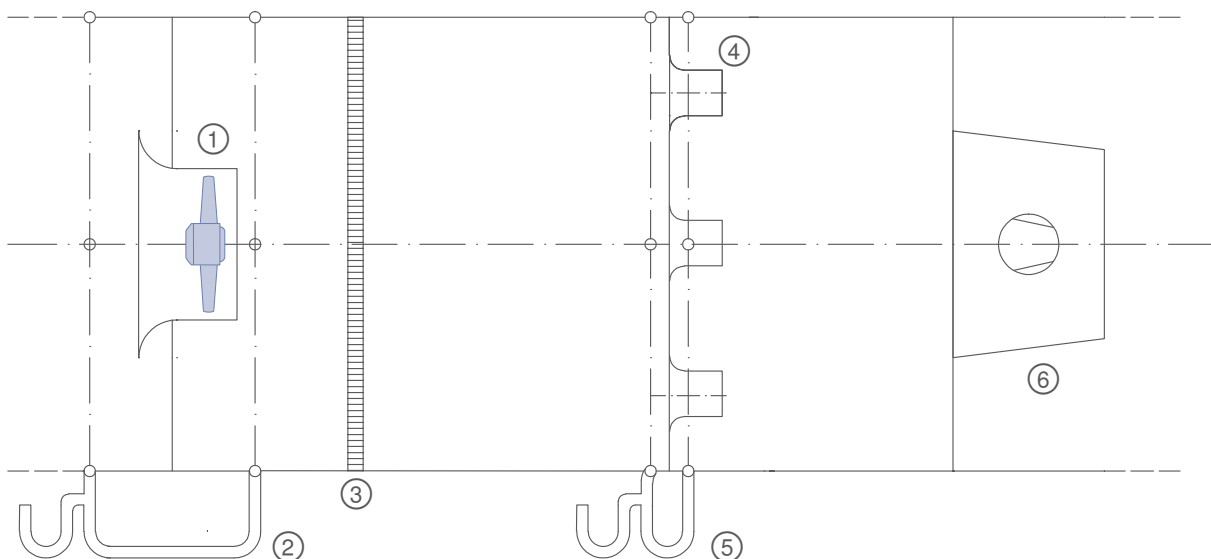


KL-1290a

Installation type A according to ISO 5801



Technology Centre (InVent)



- ① Test fan
- ② P_{sF}
- ③ Flow straightener
- ④ Nozzles
- ⑤ Δp Differential pressure
- ⑥ Auxiliary fan

Noise level data

Unless otherwise indicated, this catalogue specifies the intake side, A-evaluated sound power levels L_{WA} . 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 acoustic pressure level L_p of the individual third-octave bands at 12 points on the enveloping surface (Fig. 1a). The measured acoustic pressure levels for the third-octave bands are initially used to calculate the sound power level for the third-octave bands and then the intake side sound power level L_W . To do this, the fans are installed with a free intake (from the measuring chamber) and an (air) outlet (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-weighted sound power level is the standard variable used to assess the sound characteristics of technical equipment.

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

For axial fans, the pressure side sound power level is approximately equal to the intake side level. The total sound power level is calculated by adding up the power from the sound power levels of both the intake and the pressure side (see DIN 45 635 Part 1, Appendix F, DIN EN ISO 3745). Thus, it is approximately 3 dB higher than the intake side sound power level specified in the catalogue.

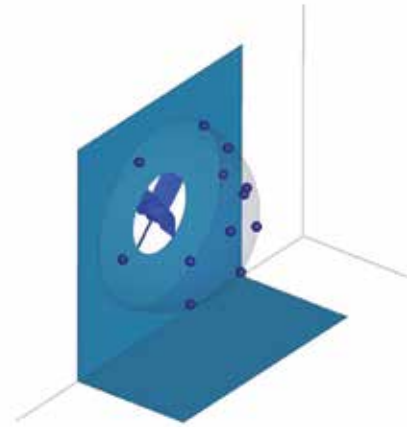


Fig. 1a: Position of microphones in relation to axial fans



Fig. 1b: Fan test-bench

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

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

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

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

Determination of acoustic pressure level

The A-tested acoustic pressure level L_pA for rooms with average absorption capacity for a distance of 1m from the fan axis is calculated by subtracting 7 dB from the A sound power level L_{WA} . 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 acoustic pressure level, depending on the distance with partial reflection, is shown in Fig. IV.

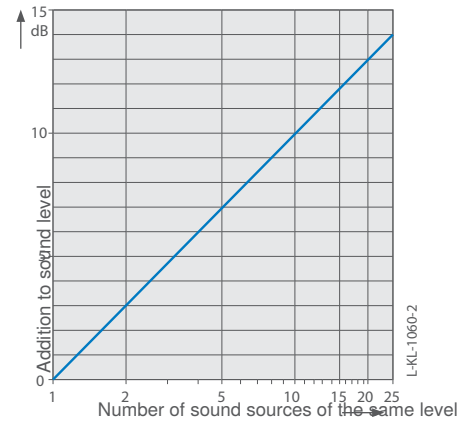


Fig. II: Addition of several sound sources

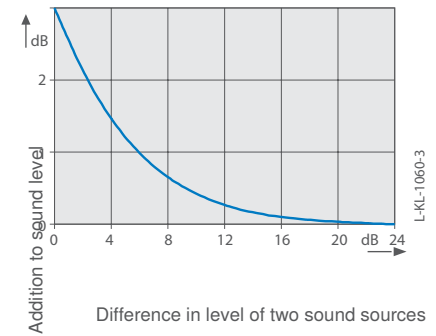


Fig. III: Sound sources of different levels

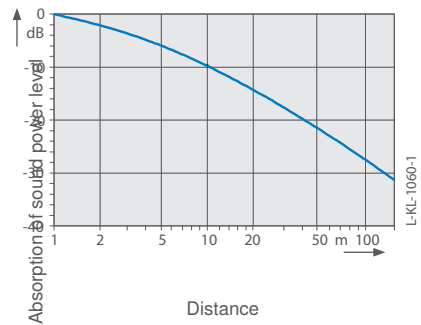


Fig. IV: Reduction of sound pressure level

Installation and usage information

Conditions for use and lifetime

Protective device

The fans may only be operated if installed appropriately for their purpose and when safety is ensured through protective devices as per DIN EN 13857 or ISO 13852 (DIN EN ISO 12100) or by other construction protection measures.

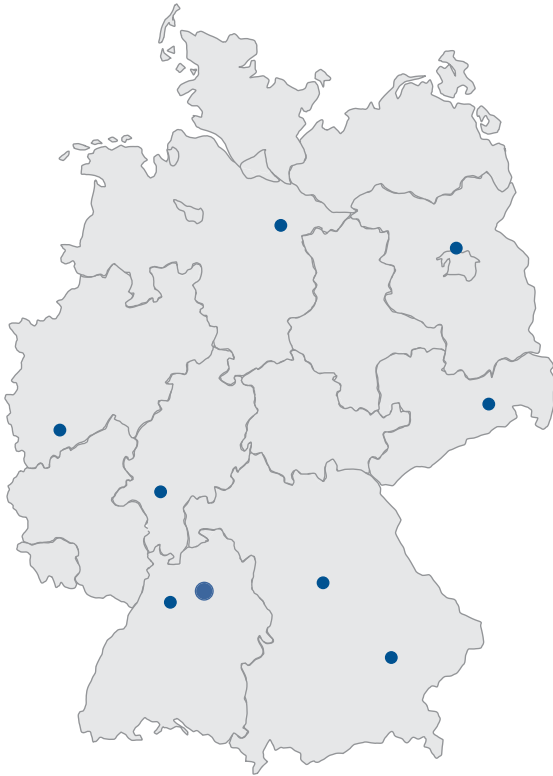
Lifetime

Thanks to the use of ball bearings with "lifetime lubrication", the axial fan is maintenance-free. The grease lasts for minimum 45000 hours in standard applications



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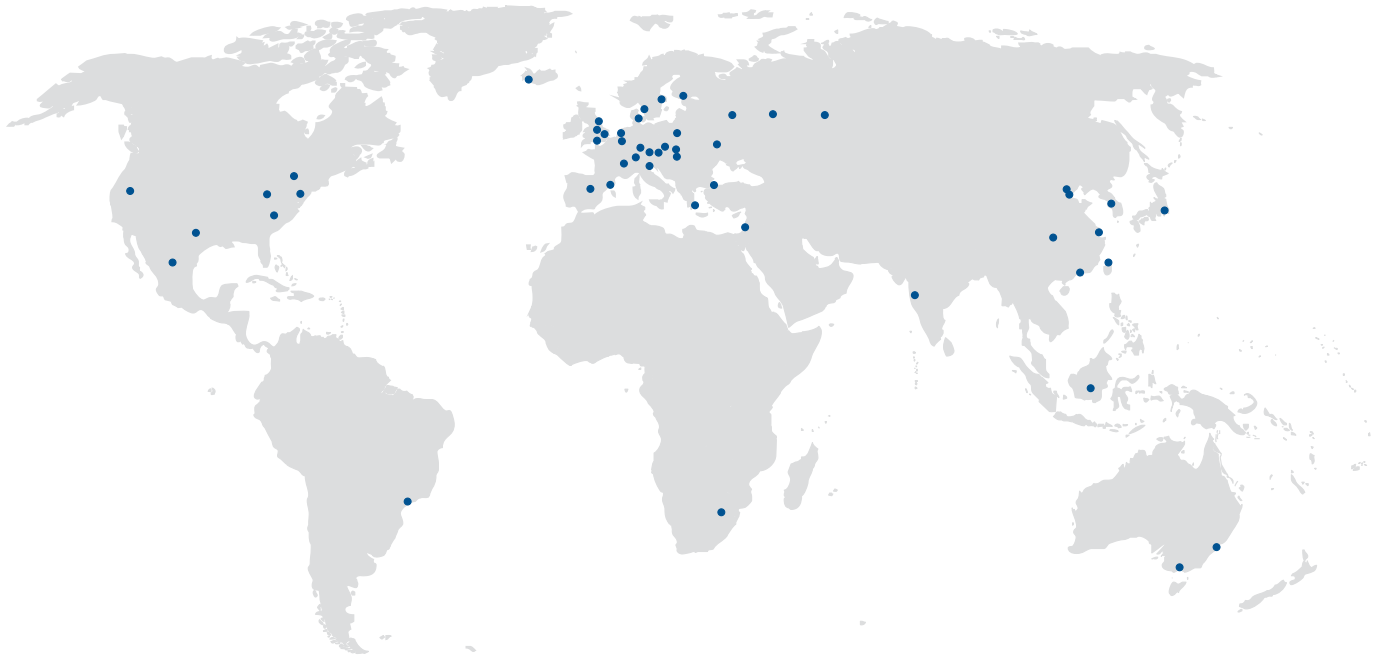
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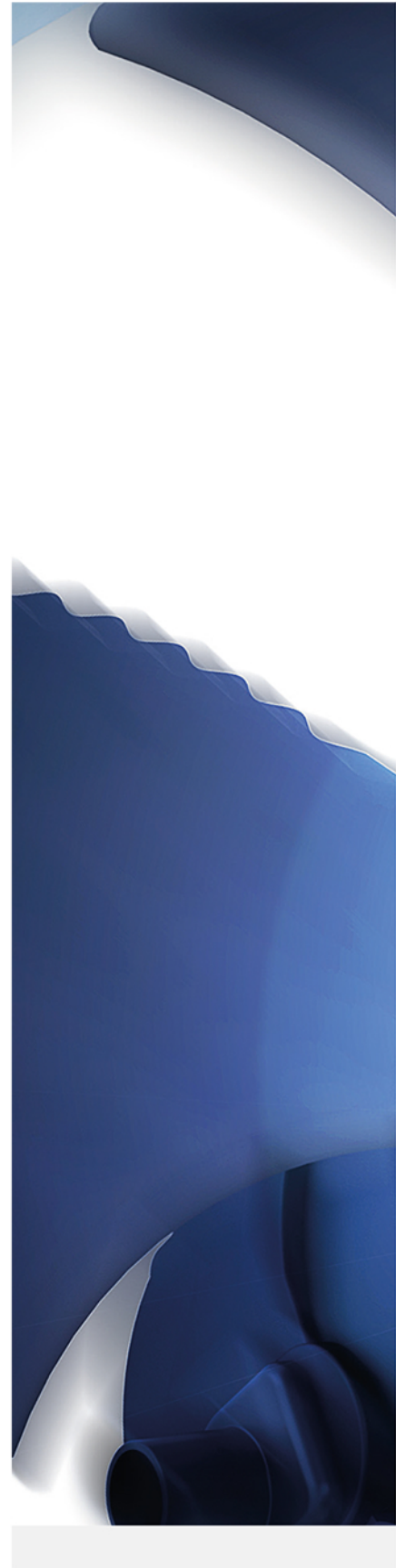
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