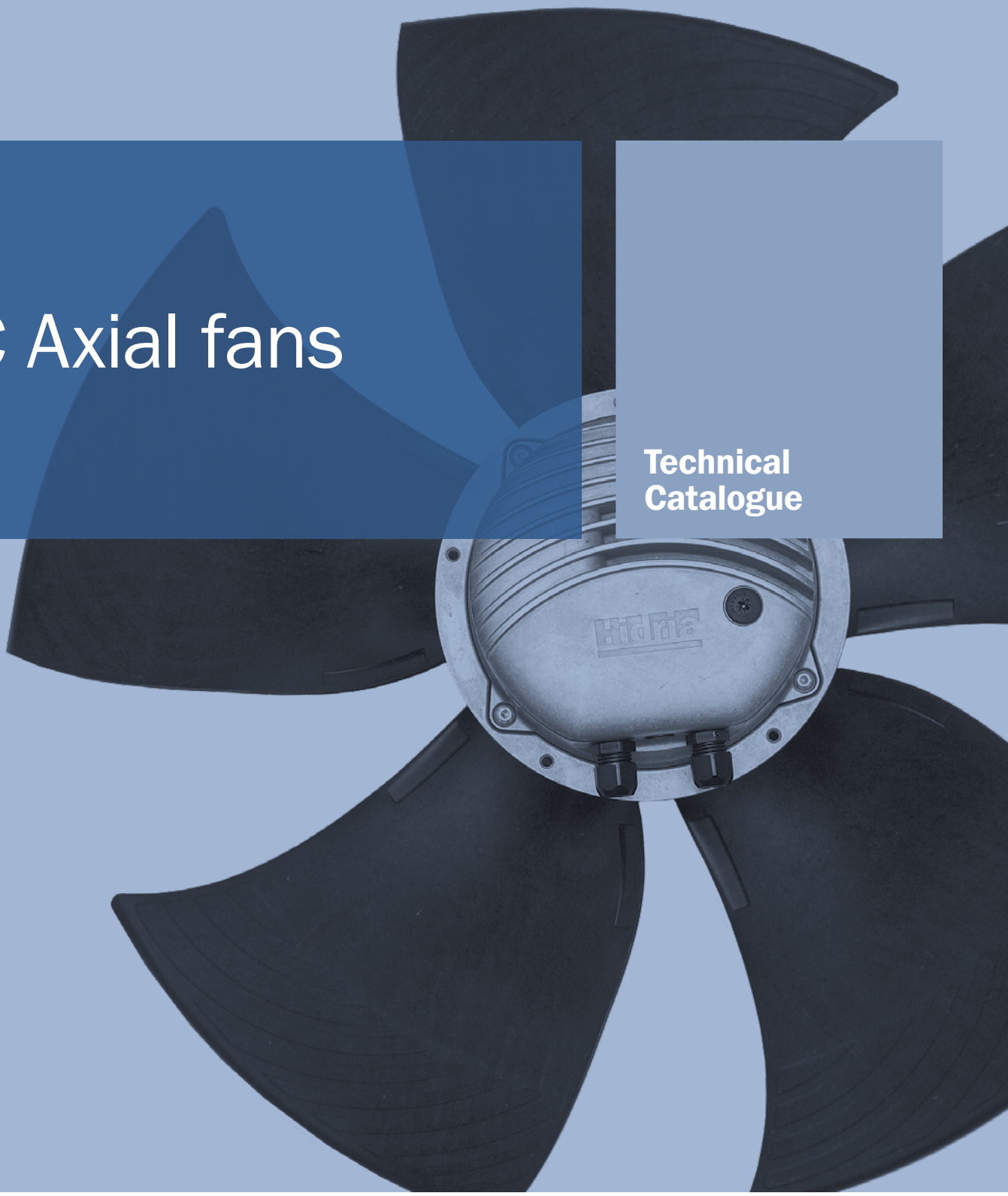
EC Axial fans

Technical Catalogue



Hidria

General data

Labelling
Labelling a fan as ErP2015-compliant indicates that it meets the minimum requirements set out in related Commission Regulation EU No 327/2011. The actual energy efficiency level of the fan used for the ErP rating is noted as ηstat A. In order to comply with the requirements contained in the ErP regulation, the fan's energy efficiency level must reach a specific minimum value (target energy level). Efficiency grade N is a parameter used in the calculation of the target energy efficiency as defined in Annex II of Commission Regulation EU No 327/2011. Any and all data pertaining to axial fan ErP classification refer to measurement data established using the Hidria axial fan equipped with a standard full bell mouth without a guard grille. Actual fan performance data including the efficiency level for each and every ErP compliant fan are published on the Hidria website www.hidria.com.

Aerodynamics and Acoustics

Measurement method
The 'characteristic curve' diagram shows the pressure increase Δps in Pa as a function of the volume flow rate qV in m^3/h. The specified performance data meets accuracy class 3 as defined with DIN 24 166 (ISO13348), and applies to the rated data and air performance curves at the rated voltage, an air density of 1.2 kg/m^3 and a 20 °C ambient temperature. The continuous line in the characteristic map represents the recommended operating range for axial fans.

Fan test bench
The fan characteristic curves are determined on a combined ventilation and sound reverberation room test bench. The characteristic curves are measured in compliance with DIN EN ISO 5801. The sound power levels are measured in a reverberation room in compliance with DIN EN ISO 3743. The fan is attached to the measuring chamber with a free (air) intake and (air) outlet (installation type A in compliance with DIN EN ISO 5801). Unless otherwise indicated, this catalogue specifies the intake side A-evaluated sound power levels LWA. The standard measurements are carried out without the need for additional parts, e.g. a guard grille. The A-weighted sound power level is the standard variable used to assess the sound characteristics of technical equipment.

LVD and EMC compliance
The Electromagnetic Compatibility limits set in Directive 2004/108/EC ensure that electrical and electronic equipment does not generate, or is not affected by, electromagnetic disturbance. EMC compliance of the fan arrangement has to be established on the final appliance as different mounting configurations can result in changed EMC properties.

Hidria fans are designed and produced in line with the Low Voltage Directive (LVD) 2006/95/CE, meaning that the health and safety risks when operating these fans in standardised power networks are negligible.

General notes
The information contained in this catalogue was prepared to the best of our ability and does not absolve the user from their duty to verify the suitability of the products with respect to the intended application. Hidria reserves the right to make design changes for the purpose of continuous performance and/or safety improvement.

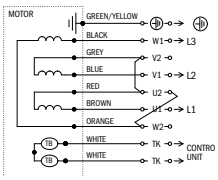


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02. Accessories 58



03. Connection diagrams 66

$$\frac{V_1}{V_2} = \frac{n_1}{n_2}$$

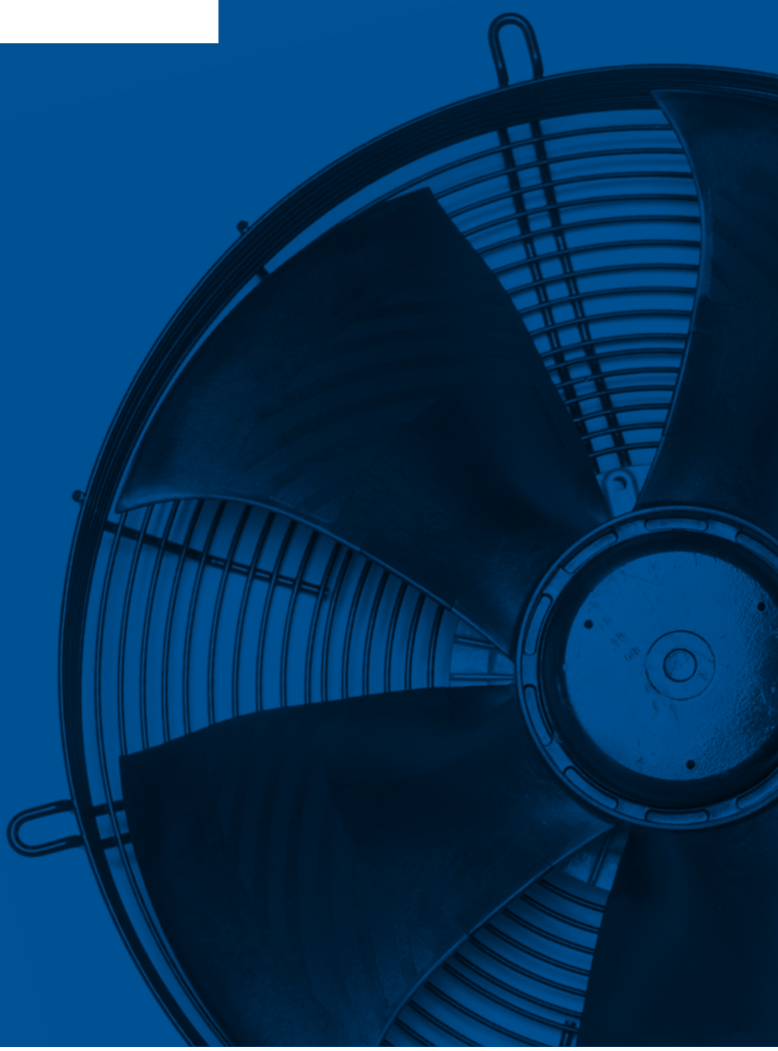
$$\frac{p_1}{p_2} = \left(\frac{n_1}{n_2}\right)^2 = \left(\frac{V_1}{V_2}\right)^2$$

$$\frac{P_1}{P_2} = \left(\frac{n_1}{n_2}\right)^3 = \left(\frac{V_1}{V_2}\right)^3$$

$$L_{wA_2} = L_{wA_1} + 50 \log\left(\frac{n_2}{n_1}\right)$$

04. Appendix 72

01





EC Axial fans

EC Axial fans

Electrical connection and motor

The three-phase or single-phase EC (Electronically Commutated) external rotor motor integrated into the fan hub meets the requirements for rotating electric machines as defined by the standard EN 60335-2-80:2003. EC motors are suitable for power networks with a single-phase voltage range of 200 to 277 V 50/60 Hz or a three-phase range of 380 to 480 V 50/60 Hz. Other voltages of frequency ranges are available upon customer request. Refer to the data sheet of each fan for the details.

Motor connection

Mains & control connections are made via a terminal box or outgoing connection cable as shown in the dimensional drawings. The standard connection scheme of an EC fan has terminals to connect:

- a 1- or 3-phase line,
- N – neutral,
- G – ground,
- analogue input (0–10 V or PWM),
- SELV power supply 10 VDC (max. 30 mA),
- MODBUS RTU – serial communication port, and
- a tach out or error out signal (programmable).

A reference control signal is optional when a built-in PID controller is required.

Terminal box and connection cable

Terminal boxes are made of shock-proof and weather-resistant composite material. Heat- and UV-resistant halogen-free multicore cables are used, marked by a colour code or connection designations as labelled on the terminal block. The cable construction complies with VDE 0282 Part 804 and is suitable for operating voltages of up to 400 VAC for single-phase products and 690 VAC for three-phase products.

Speed controls

Hidria EC fans are made with an integrated electronic variable speed drive (VSD). Speed variation can be achieved by a speed input signal 0 V to 10 VDC, 4–20 mA, Pulse Width Modulated (PWM) frequency signal or by use of a MODBUS RTU serial communication port. Please read the EC fan safety, installation and maintenance instructions before any of these speed control schemes are used.

Installation and usage information

For the installation, maintenance and safe use of EC axial fans, please refer to the user manual.

Materials and corrosion protection

Hidria EC Axial fan impellers are made of high-performance PA or PP composite material or steel. The impeller is pressed onto the rotor. The stator flange and electronic cover are made of high-pressure, die-cast aluminium alloy. Additional painting is applied when high-corrosion protection is requested. Protection grills are made of steel and coated to meet resistance to corrosion according to ISO 12944-2 class C3 (medium). Additional coating is available on request.

Operating conditions and product life

Safety

The fans may only be operated when installed as intended and when safety is ensured by use of safety equipment according to DIN EN 294 resp. ISO13852 (DIN EN ISO 12100) or by other protection measures defined in the user manual.

Safety approvals

Depending on the product, Hidria fans comply with one or more of the following standards: EN 60335-1, EN 61800-5-1 and EN 60034-1. All EC fans are supplied with CE marking. UL/ CSA, CCC, SASO and/or EAC approvals on request. All EC fans meet the requirements of EU Directives ROHS 2011/65/EU and REACH 1907/2006/EC.

Installation orientations

EC fans are intended to be installed with the rotor in a horizontal position or with the rotor at the bottom of the fan (vertical position with the connection box or cables on the top). The lower condensation drain hole must be open when the fan is installed vertically, that is with the rotor at the bottom. With a horizontal mounting position, condensate can escape via the gap between the stator and rotor. Fans suitable for vertical installation with the rotor at the top (connection box or cables at the bottom) or at any other angle are only available on request.

Operating mode

Continuous operation (S1). Use the speed control input signal when On/Off cycling of the EC fan is required. Power supply cycling is only allowed in certain conditions. See the EC fan user manual.

Resistance to water, dust and moisture

The majority of axial fans are resistant to the presence of water, dust and moisture as defined by class IP44, IP54 or even IP55 on request (IEC 60529, IEC60034, IEC60335).

Ambient conditions

If not instructed differently, the fans can be subjected to the following conditions:

- placed outdoors (rain, snow, UV radiation)
- working ambient temperatures of between -25 °C (-40 °C) and +65 °C
- storage temperatures: -40 °C to +80 °C

Product life

By utilising lifetime-maintenance-free bearings, our EC axial fans are maintenance-free for the entire lifetime of approximately 30,000–40,000 hours for standard applications and environmental conditions.

Contact protection

The preferred ‘protective construction’ used on axial fans is a guard grille. Depending on the airflow direction, the guard grille is located on the intake or pressure side of the fan. The ‘Accessories’ section contains separate guard grills which can be positioned on the pressure or intake side of the fan as required and depending on the installation situation, to meet the safety requirements set out in DIN EN ISO 13857 defining safety distance requirements to prevent upper limbs from getting into hazardous areas.

Be aware that the use of guard grills results in increased resistance to the conveyed airflow, which manifests in additional pressure loss.

Page



Diameters: 300-350 mm 8–19



Diameters: 400-500 mm 20–37



Diameters: 560-800 mm 38–57

Example of type key:

R10R-40APS-ES50B-02A01

- **R10** External rotor motor type (R09, R10, R14)
- **R** Accessory type (E – without guard grill, R – with guard grill, P – with guard grill and wall plate)
- **40** Fan diameter x 10 (exact diameters are stated in drawings)
- **AP** Type of blades (30H, SP, AP, LP)
- **S** Airflow direction (S – sucking, B – blowing)
- **E** Fan motor type (E – fan with electronically comutated motor and integrated VSD)
- **S** Electrical connection (S – single phase, T – three phase)
- **50** Motor stack height
- **B** Type of connection (B – connection box with terminal block, C – cable)
- **02** Version of motor construction
- **A** Version of electronical controller
- **01** Settings of electronical controller

Diameter: **300 mm**

R09_-3030H_-ES25C-01A04



Nominal data according to standard EN 60335:	
Phase	1~
Nominal voltage	230V
Nominal voltage range	230 V
Frequency	50-60Hz
Input power	80 W
Input current	0.64 A
Nominal speed	1650 RPM
Min. ambient temperature	-25 °C
Protection class	IP44
Insulation class	130

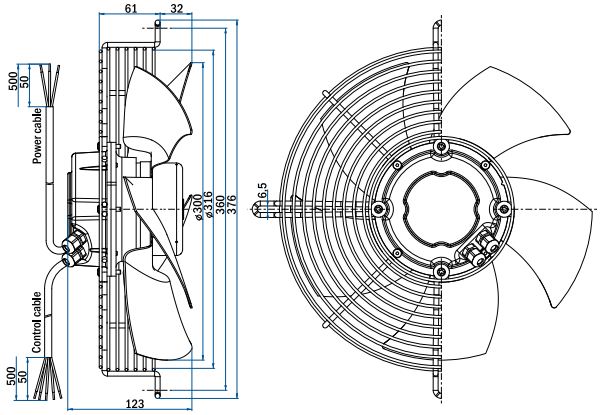
ErP data according to EU regulation 327/2011:
Is not subject to the EU regulation 327/2011. Power input lower than 125 W.

General notes	
Connection diagram: 0302-1-0000	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

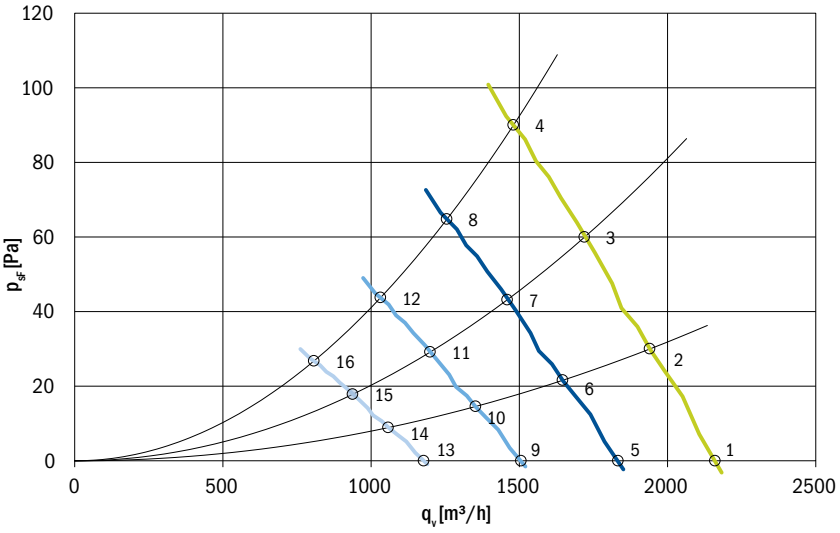
Airflow direction - sucking

Type: R09R-3030HS-ES25C-01A04
Code: 0309-4-2003
Weight: 3.3kg



Airflow direction - sucking

Type: R09P-3030HS-ES25C-01A04
Code: On request
Weight:



Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

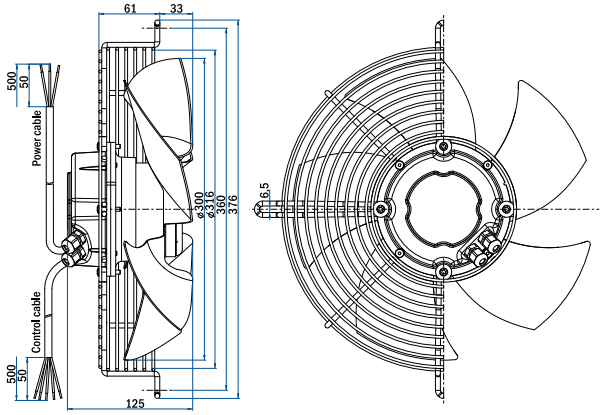
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	1650	2160	0	60	0.50	68	65
2	230	50	1650	1940	30	72	0.59	68	65
3	230	50	1650	1720	60	80	0.64	66	65
4	230	50	1650	1480	90	85	0.69	66	65
5	230	50	1400	1833	0	40	0.34	64	65
6	230	50	1400	1646	22	47	0.39	64	65
7	230	50	1400	1459	43	50	0.41	61	65
8	230	50	1400	1256	65	54	0.44	62	65
9	230	50	1150	1505	0	24	0.21	60	65
10	230	50	1150	1352	15	28	0.24	59	65
11	230	50	1150	1199	29	31	0.26	56	65
12	230	50	1150	1032	44	32	0.27	57	65
13	230	50	900	1178	0	14	0.13	54	65
14	230	50	900	1058	9	15	0.14	53	65
15	230	50	900	938	18	17	0.15	50	65
16	230	50	900	807	27	18	0.16	49	65

Airflow direction - blowing

Type: R09R-3030HB-ES25C-01A04
Code: On request
Weight:



Airflow direction - blowing

Type: R09P-3030HB-ES25C-01A04
Code: On request
Weight:

Diameter: 300 mm

R09_-30SP_-ES25C-03B07



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	200-253 V
Frequency	50-60 Hz
Input power	165 W
Input current	1.35 A
Nominal speed	2140 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

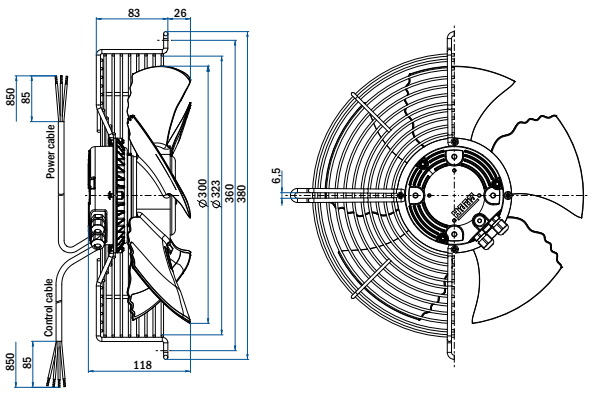
ErP data according to EU regulation 327/2011:	
Overall efficiency	48.6 %
Measurement category	A
Efficiency category	static
Efficiency grade N	60
Variable speed drive	INTEGRATED
Power input	160 W
Air flow	1880 m^3/h
Pressure drop	133 Pa
Rotational speed	2140 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-0008	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

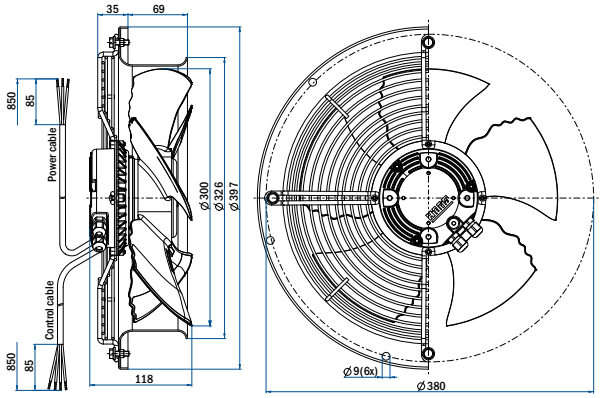
Airflow direction - sucking

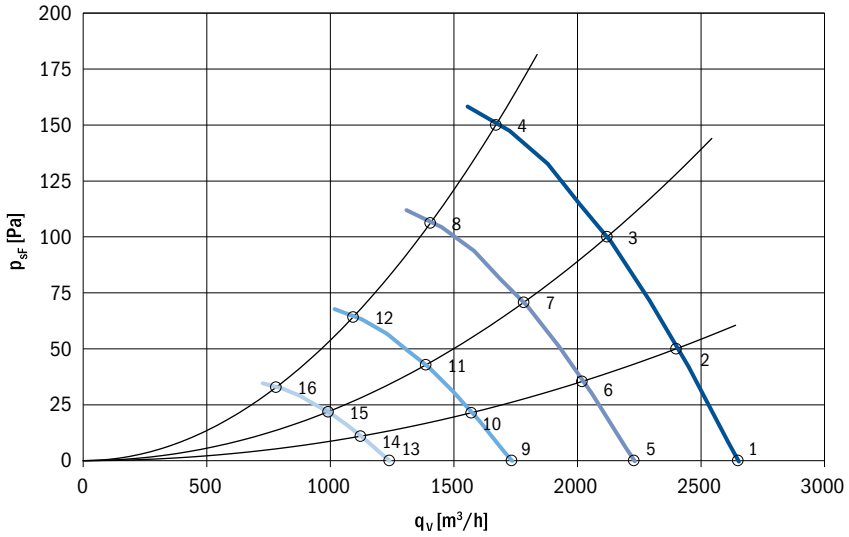
Type: R09R-30SPS-ES25C-03B07
Code: 0309-4-3000
Weight: 3.0 kg



Airflow direction - sucking

Type: R09P-30SPS-ES25C-03B07
Code: 0309-4-3001
Weight: 4.1 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

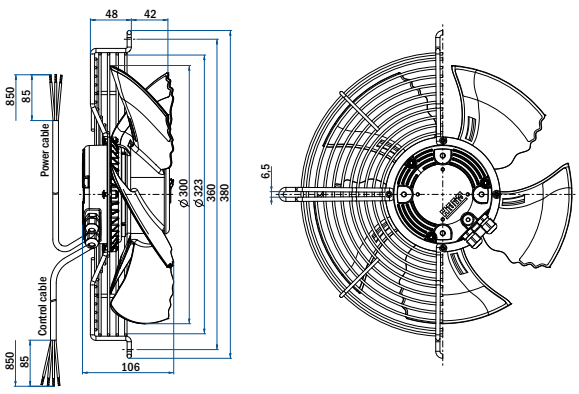
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	2140	2650	0	115	0.94	69	60
2	230	50	2140	2400	50	130	1.08	70	60
3	230	50	2140	2120	100	145	1.19	70	60
4	230	50	2140	1670	150	160	1.29	71	60
5	230	50	1800	2229	0	68	0.56	64	60
6	230	50	1800	2019	35	77	0.64	65	60
7	230	50	1800	1783	71	86	0.71	65	60
8	230	50	1800	1405	106	95	0.77	66	60
9	230	50	1400	1734	0	32	0.26	56	60
10	230	50	1400	1570	21	36	0.30	57	60
11	230	50	1400	1387	43	41	0.33	57	60
12	230	50	1400	1093	64	45	0.36	58	60
13	230	50	1000	1238	0	12	0.10	46	60
14	230	50	1000	1121	11	13	0.11	47	60
15	230	50	1000	991	22	15	0.12	47	60
16	230	50	1000	780	33	16	0.13	48	60

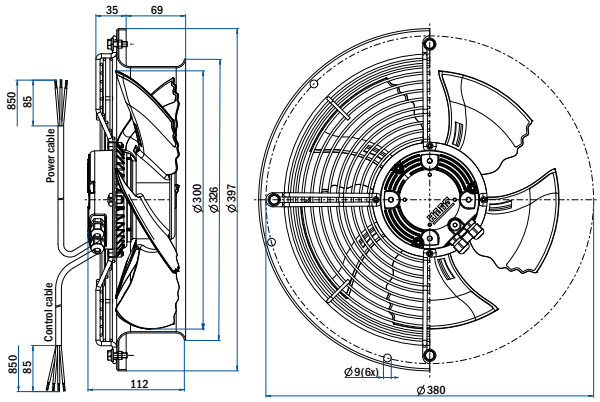
Airflow direction - blowing

Type: R09R-30SPB-ES25C-03B07
Code: 0309-4-3008
Weight: 2.6 kg



Airflow direction - blowing

Type: R09P-30SPB-ES25C-03B07
Code: 0309-4-3009
Weight: 4.1 kg



Diameter: **315 mm**

R09_-3130H_-ES25C-01A04



Nominal data according to standard EN 60335:	
Phase	1~
Nominal voltage	230V
Nominal voltage range	230 V
Frequency	50-60Hz
Input power	120 W
Input current	1.0 A
Nominal speed	1650 RPM
Min. ambient temperature	-25 °C
Protection class	IP44
Insulation class	130

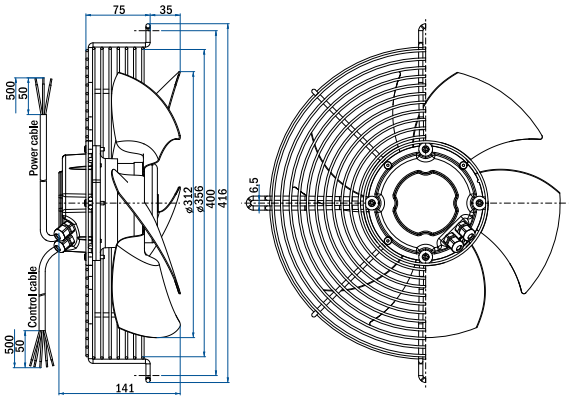
ErP data according to EU regulation 327/2011:
Is not subject to the EU regulation 327/2011. Power input lower than 125 W.

General notes	
Connection diagram: 0302-1-0000	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

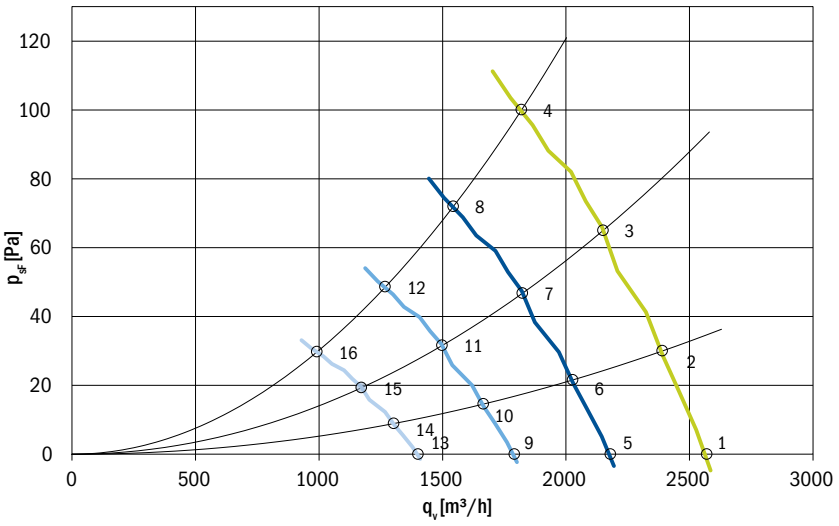
Airflow direction - sucking

Type: R09R-3130HS-ES25C-01A04
Code: 0309-4-2002
Weight: 3.3kg



Airflow direction - sucking

Type: R09P-3130HS-ES25C-01A04
Code: On request
Weight:



Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

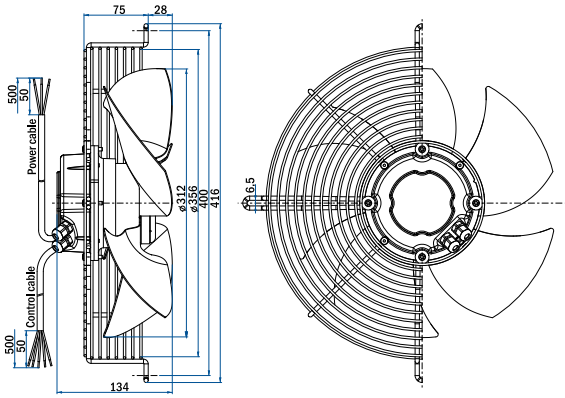
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	1650	2570	0	84	0.69	66	65
2	230	50	1650	2390	30	99	0.80	65	65
3	230	50	1650	2150	65	112	0.88	64	65
4	230	50	1650	1820	100	123	0.96	64	65
5	230	50	1400	2181	0	53	0.46	62	65
6	230	50	1400	2028	22	66	0.52	61	65
7	230	50	1400	1824	47	71	0.57	60	65
8	230	50	1400	1544	72	77	0.63	60	65
9	230	50	1150	1791	0	31	0.27	57	65
10	230	50	1150	1666	15	37	0.32	56	65
11	230	50	1150	1498	32	41	0.34	55	65
12	230	50	1150	1268	49	45	0.37	55	65
13	230	50	900	1402	0	18	0.16	51	65
14	230	50	900	1304	9	20	0.17	50	65
15	230	50	900	1173	19	23	0.20	49	65
16	230	50	900	993	30	24	0.20	49	65

Airflow direction - blowing

Type: R09R-3130HB-ES25C-01A04
Code: On request
Weight:



Airflow direction - blowing

Type: R09P-3130HB-ES25C-01A04
Code: On request
Weight:

Diameter: 330 mm

R09_-3330H_-ES25C-01A06



COMPLIANT TO ErP2015

Nominal data according to standard EN 60335:	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	230 V
Frequency	50-60 Hz
Input power	120 W
Input current	0.90 A
Nominal speed	1550 RPM
Min. ambient temperature	-25 °C
Protection class	IP44
Insulation class	130

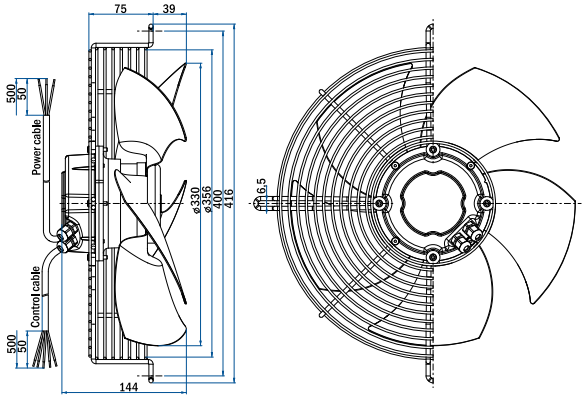
ErP data according to EU regulation 327/2011:
Is not subject to the EU regulation 327/2011. Power input lower than 125 W.

General notes	
Connection diagram: 0302-1-0000	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

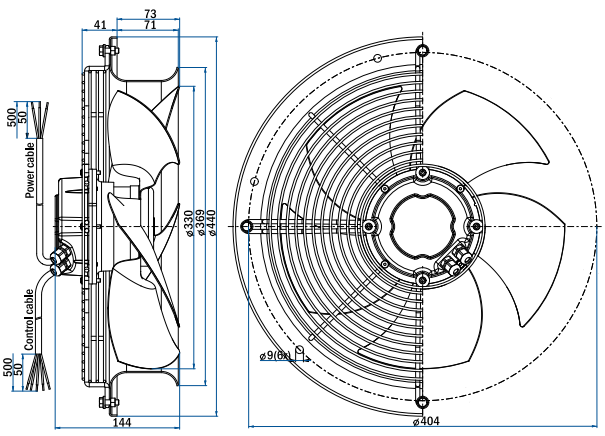
Airflow direction - sucking

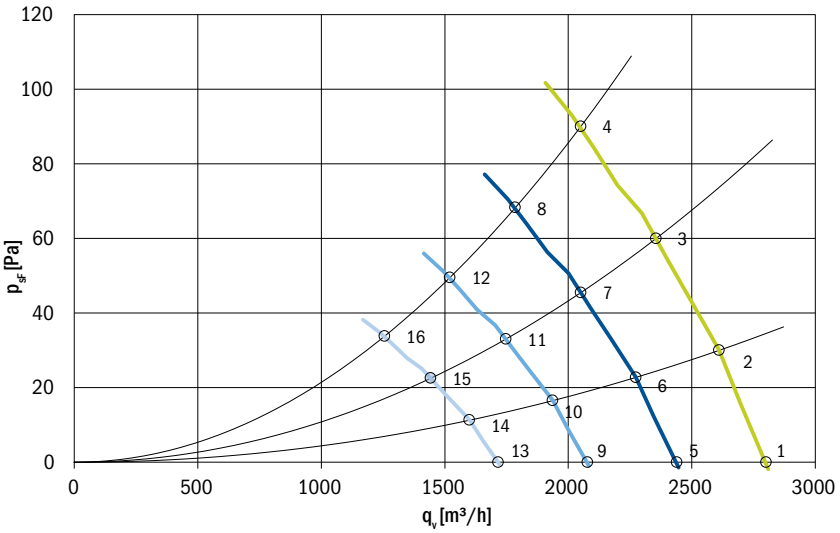
Type: R09R-3330HS-ES25C-01A06
Code: 0309-4-2001
Weight: 3.5kg



Airflow direction - sucking

Type: R09P-3330HS-ES25C-01A06
Code: On request
Weight:





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

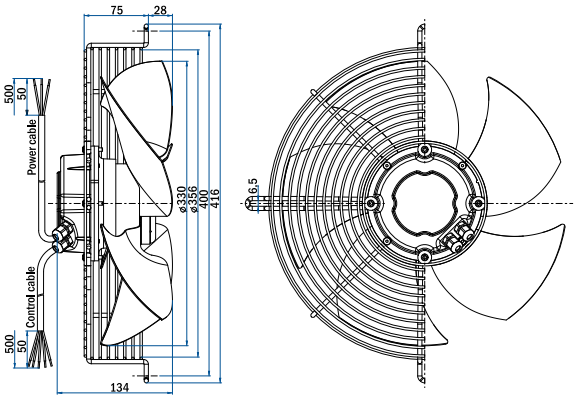
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	1550	2800	0	83	0.68	70	65
2	230	50	1550	2610	30	98	0.80	68	65
3	230	50	1550	2355	60	116	0.94	66	65
4	230	50	1550	2050	90	123	0.99	66	65
5	230	50	1350	2439	0	53	0.49	66	65
6	230	50	1350	2273	23	68	0.56	64	65
7	230	50	1350	2051	46	76	0.64	63	65
8	230	50	1350	1785	68	81	0.66	62	65
9	230	50	1150	2077	0	38	0.32	62	65
10	230	50	1150	1936	17	44	0.37	60	65
11	230	50	1150	1747	33	47	0.41	59	65
12	230	50	1150	1521	50	53	0.43	58	65
13	230	50	950	1716	0	21	0.19	57	65
14	230	50	950	1600	11	26	0.23	55	65
15	230	50	950	1443	23	28	0.24	54	65
16	230	50	950	1256	34	32	0.27	53	65

Airflow direction - blowing

Type: R09R-3330HB-ES25C-01A06
Code: On request
Weight:



Airflow direction - blowing

Type: R09P-3330HB-ES25C-01A06
Code: On request
Weight:

Diameter: 350 mm

R09_-3530H_-ES25C-01A01



COMPLIANT TO ErP2015

Nominal data according to standard EN 60335:	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	230 V
Frequency	50-60 Hz
Input power	125 W
Input current	0.98 A
Nominal speed	1400 RPM
Min. ambient temperature	-25 °C
Protection class	IP44
Insulation class	130

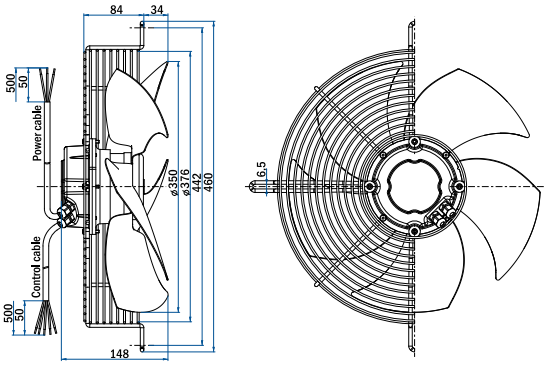
ErP data according to EU regulation 327/2011:	
Overall efficiency	46.7 %
Measurement category	A
Efficiency category	static
Efficiency grade N	58.7
Variable speed drive	INTEGRATED
Power input	127 W
Air flow	1860 m^3/h
Pressure drop	103 Pa
Rotational speed	1393 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-1-0000	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

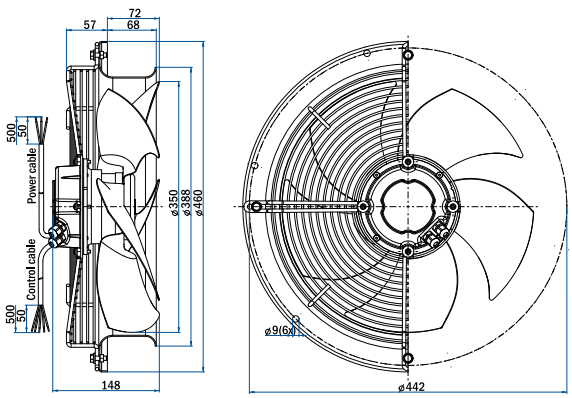
Airflow direction - sucking

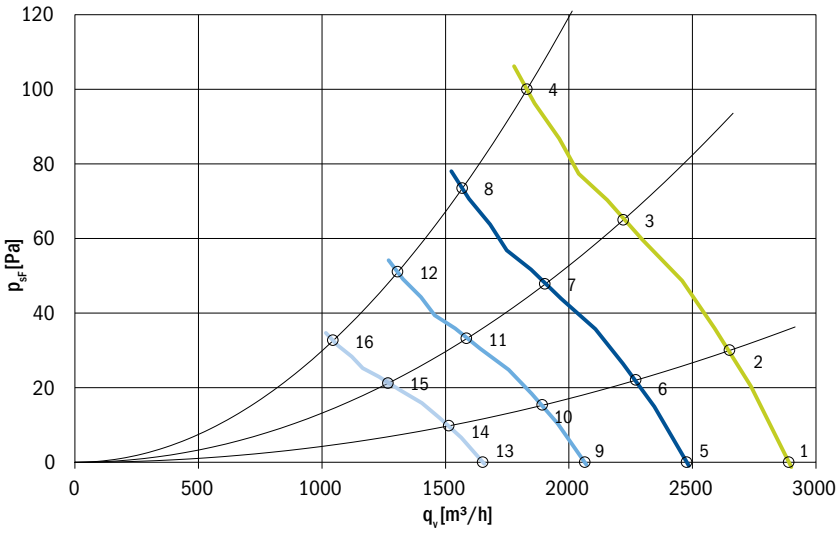
Type: R09R-3530HS-ES25C-01A01
Code: 0309-4-2000
Weight: 3.6 kg



Airflow direction - sucking

Type: R09P-3530HS-ES25C-01A01
Code: On request
Weight:





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

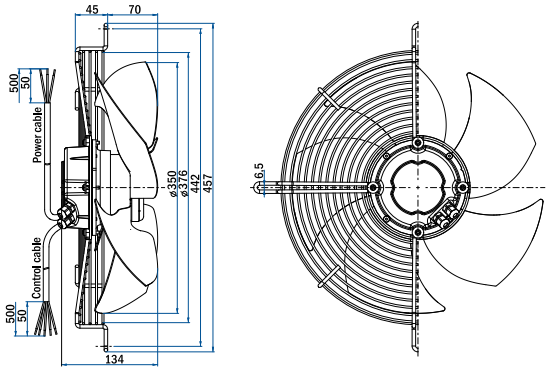
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	1400	2890	0	84	0.66	70	65
2	230	50	1400	2650	30	103	0.79	67	65
3	230	50	1400	2220	65	109	0.88	65	65
4	230	50	1400	1830	100	132	1.02	67	55
5	230	50	1200	2477	0	56	0.45	66	65
6	230	50	1200	2271	22	67	0.53	63	65
7	230	50	1200	1903	48	76	0.60	62	65
8	230	50	1200	1569	73	88	0.68	63	65
9	230	50	1000	2064	0	35	0.28	62	65
10	230	50	1000	1893	15	40	0.35	58	65
11	230	50	1000	1586	33	44	0.37	56	65
12	230	50	1000	1307	51	52	0.42	58	65
13	230	50	800	1651	0	20	0.16	55	65
14	230	50	800	1514	10	23	0.19	52	65
15	230	50	800	1269	21	24	0.22	50	65
16	230	50	800	1046	33	29	0.24	52	65

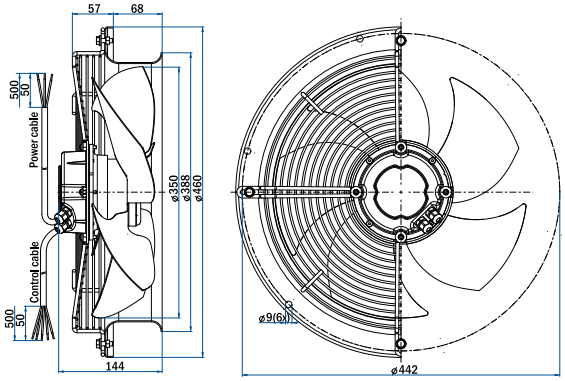
Airflow direction - blowing

Type: R09R-3530HB-ES25C-01A01
Code: 0309-4-2021
Weight: 3.6 kg



Airflow direction - blowing

Type: R09P-3530HB-ES25C-01A01
Code: On request
Weight:



Diameter: 350 mm

R09_-35AP_-ES25C-04B08



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	220-253 V
Frequency	50-60 Hz
Input power	160 W
Input current	1.25 A
Nominal speed	1475 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

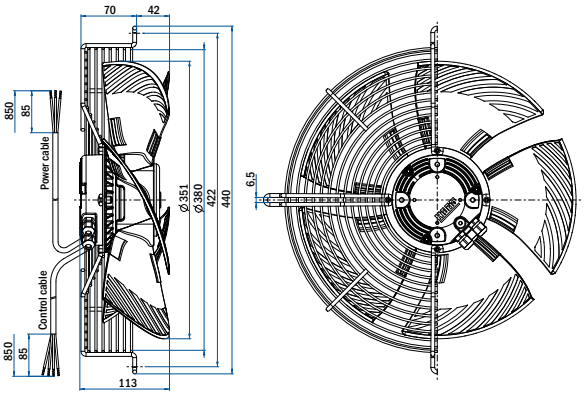
ErP data according to EU regulation 327/2011:	
Overall efficiency	44.4 %
Measurement category	A
Efficiency category	static
Efficiency grade N	55.8
Variable speed drive	INTEGRATED
Power input	160 W
Air flow	2435 m^3/h
Pressure drop	95 Pa
Rotational speed	1474 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-0008	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

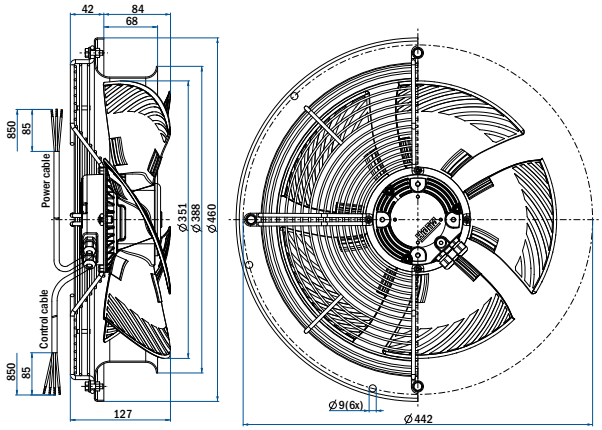
Airflow direction - sucking

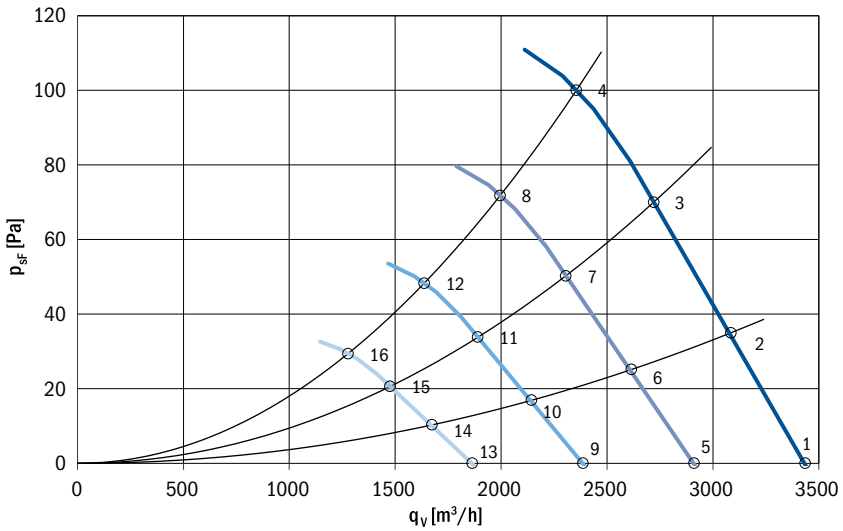
Type: R09R-35APS-ES25C-04B08
Code: 0309-4-3002
Weight: 3.6 kg



Airflow direction - sucking

Type: R09P-35APS-ES25C-04B08
Code: 0309-4-3003
Weight: 5.3 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

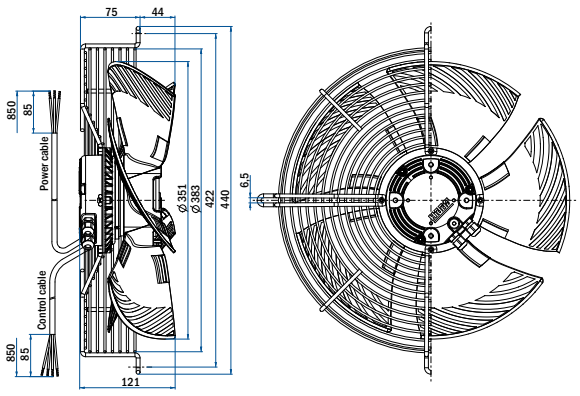
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	1475	3435	0	120	0.98	70	60
2	230	50	1475	3085	35	135	1.09	68	60
3	230	50	1475	2720	70	150	1.23	65	60
4	230	50	1475	2355	100	160	1.30	67	60
5	230	50	1250	2911	0	73	0.60	65	60
6	230	50	1250	2614	25	82	0.66	63	60
7	230	50	1250	2305	50	91	0.75	60	60
8	230	50	1250	1996	72	97	0.79	62	60
9	230	50	1025	2387	0	40	0.33	59	60
10	230	50	1025	2144	17	45	0.37	57	60
11	230	50	1025	1890	34	50	0.41	55	60
12	230	50	1025	1637	48	54	0.44	56	60
13	230	50	800	1863	0	19	0.16	51	60
14	230	50	800	1637	10	22	0.17	50	60
15	230	50	800	1475	21	24	0.20	48	60
16	230	50	800	1277	29	26	0.21	49	60

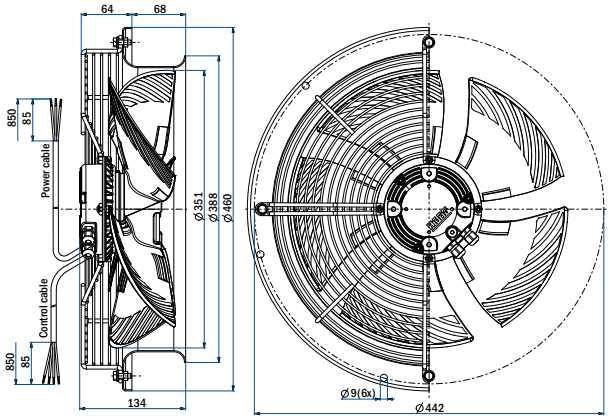
Airflow direction - blowing

Type: R09R-35APB-ES25C-04B08
Code: 0309-4-3010
Weight: 3.6 kg



Airflow direction - blowing

Type: R09P-35APB-ES25C-04B08
Code: 0309-4-3011
Weight: 5.5 kg



Diameter: 400 mm

R09_-40AP_-ES25C-05B09



COMPLIANT TO ErP 2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	200-253 V
Frequency	50-60 Hz
Input power	135 W
Input current	1.05 A
Nominal speed	1080 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

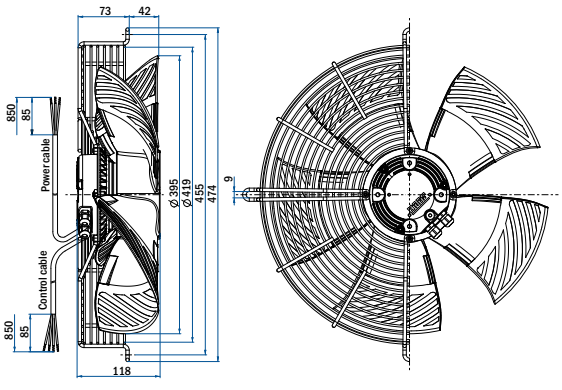
ErP data according to EU regulation 327/2011:	
Overall efficiency	41.6 %
Measurement category	A
Efficiency category	static
Efficiency grade N	53.4
Variable speed drive	INTEGRATED
Power input	140 W
Air flow	2709 m^3/h
Pressure drop	67 Pa
Rotational speed	1079 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-0008	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

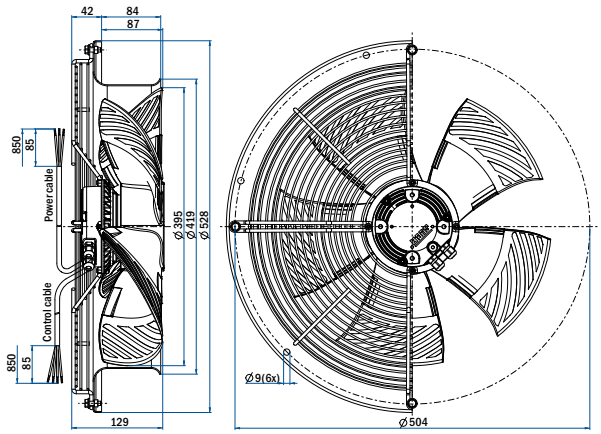
Airflow direction - sucking

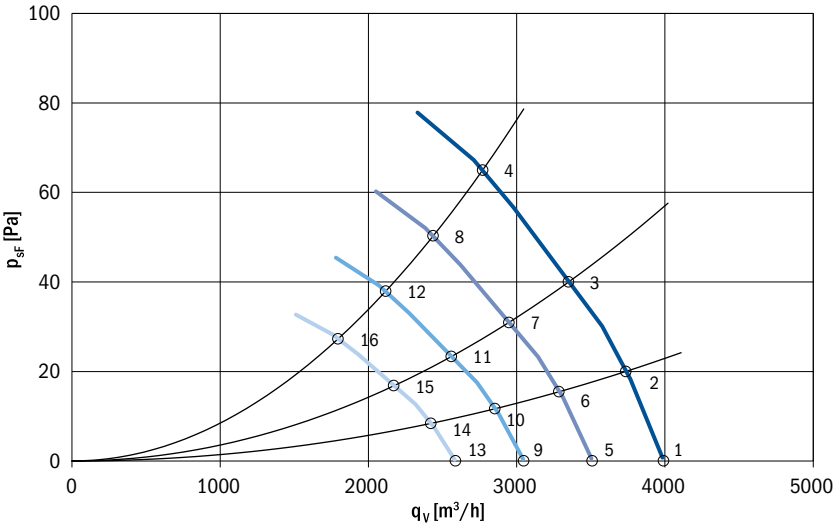
Type: R09R-40APS-ES25C-05B09
Code: 0309-4-3004
Weight: 4.1 kg



Airflow direction - sucking

Type: R09P-40APS-ES25C-05B09
Code: 0309-4-3005
Weight: 6.4 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

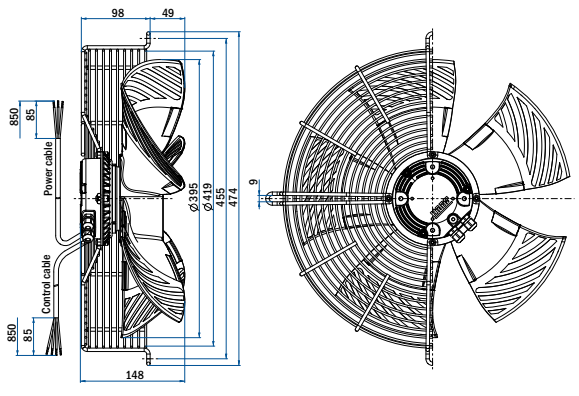
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	1080	3990	0	108	0.87	65	60
2	230	50	1080	3735	20	120	0.94	64	60
3	230	50	1080	3350	40	130	1.02	61	60
4	230	50	1080	2770	65	135	1.04	60	60
5	230	50	950	3510	0	74	0.59	62	60
6	230	50	950	3285	15	82	0.64	60	60
7	230	50	950	2947	31	88	0.69	57	60
8	230	50	950	2437	50	92	0.71	56	60
9	230	50	825	3048	0	48	0.39	58	60
10	230	50	825	2853	12	53	0.42	56	60
11	230	50	825	2559	23	58	0.45	53	60
12	230	50	825	2116	38	60	0.46	52	60
13	230	50	700	2586	0	29	0.24	53	60
14	230	50	700	2421	8	33	0.26	51	60
15	230	50	700	2171	17	35	0.28	49	60
16	230	50	700	1795	27	37	0.28	48	60

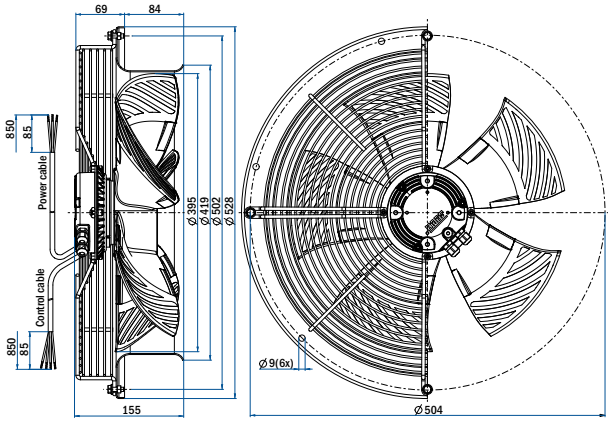
Airflow direction - blowing

Type: R09R-40APB-ES25C-05B09
Code: 0309-4-3012
Weight: 4.3 kg



Airflow direction - blowing

Type: R09P-40APB-ES25C-05B09
Code: 0309-4-3013
Weight: 6.6 kg



Diameter: 400 mm

R10_-40AP_-ES50B-02C01



COMPLIANT TO ErP2015

Nominal data according to standard EN 60335:	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	200-240 V
Frequency	50-60 Hz
Input power	320 W
Input current	2.15 A
Nominal speed	1520 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

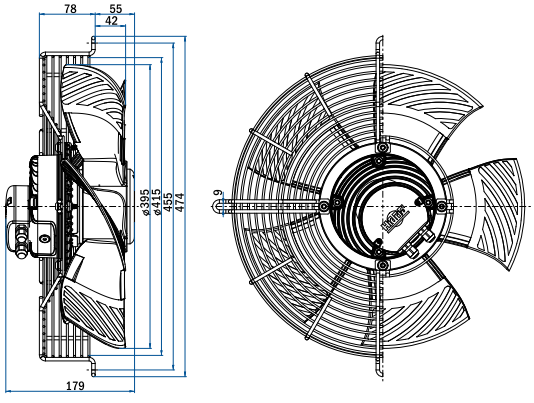
ErP data according to EU regulation 327/2011:	
Overall efficiency	43.1 %
Measurement category	A
Efficiency category	static
Efficiency grade N	52.4
Variable speed drive	INTEGRATED
Power input	342 W
Air flow	3069 m^3/h
Pressure drop	161 Pa
Rotational speed	1504 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-0001	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

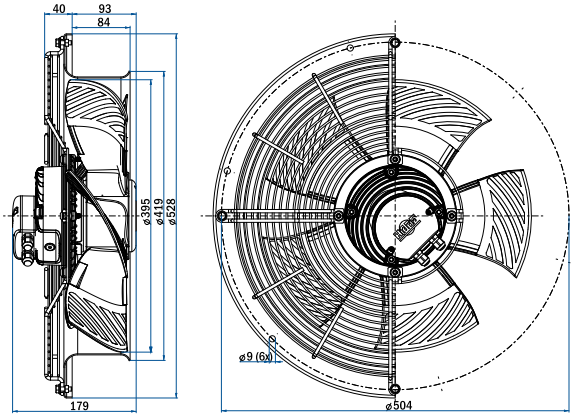
Airflow direction - sucking

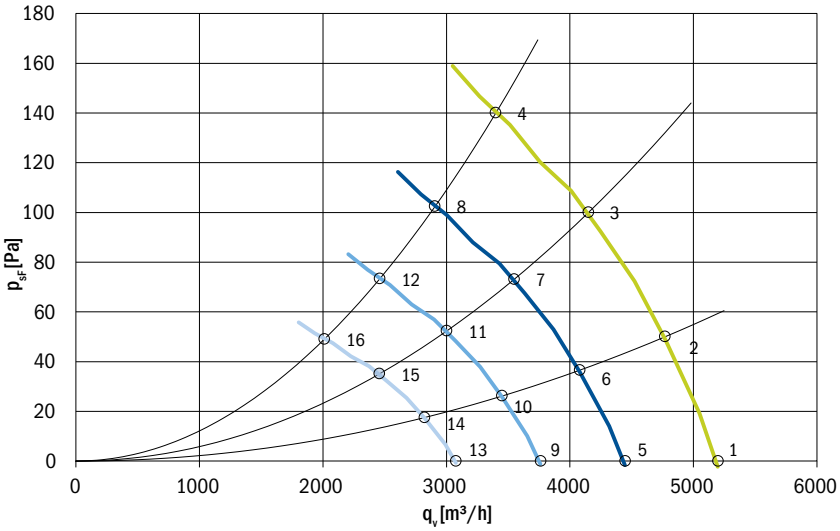
Type: R10R-40APS-ES50B-02C01
Code: 0310-4-0071
Weight: 6.2 kg



Airflow direction - sucking

Type: R10P-40APS-ES50B-02C01
Code: 0310-4-0025
Weight: 7.5 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

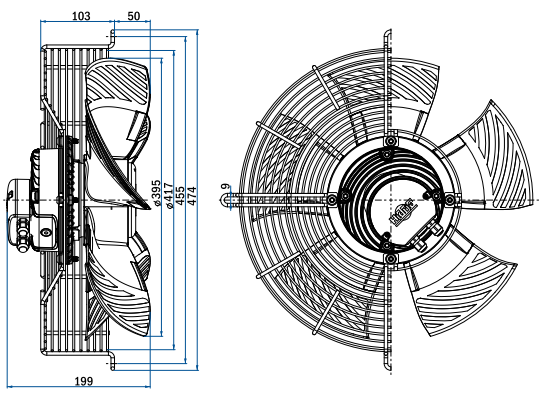
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	1520	5200	0	289	1.91	74	65
2	230	50	1520	4770	50	316	2.05	72	65
3	230	50	1520	4150	100	323	2.10	69	65
4	230	50	1520	3400	140	325	2.13	70	65
5	230	50	1300	4447	0	181	1.21	70	65
6	230	50	1300	4080	37	201	1.33	68	65
7	230	50	1300	3549	73	211	1.40	65	65
8	230	50	1300	2908	102	213	1.42	65	65
9	230	50	1100	3763	0	113	0.79	66	65
10	230	50	1100	3452	26	126	0.87	64	65
11	230	50	1100	3003	52	130	0.90	61	65
12	230	50	1100	2461	73	135	0.93	60	65
13	230	50	900	3079	0	68	0.49	60	65
14	230	50	900	2824	18	71	0.52	59	65
15	230	50	900	2457	35	76	0.55	56	65
16	230	50	900	2013	49	75	0.54	55	65

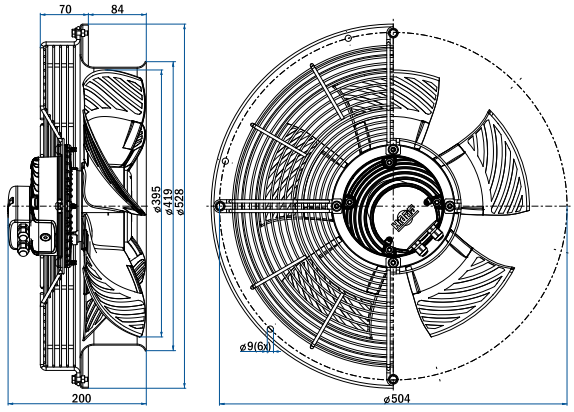
Airflow direction - blowing

Type: R10R-40APB-ES50B-02C01
Code: 0310-4-0026
Weight: 5.0 kg



Airflow direction - blowing

Type: R10P-40APB-ES50B-02C01
Code: 0310-4-0027
Weight: 7.5 kg



Diameter: 450 mm

R09_-45AP_-ES25C-02B10



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	1~
Nominal voltage	230V
Nominal voltage range	200-253 V
Frequency	50-60Hz
Input power	110 W
Input current	0.90 A
Nominal speed	835 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

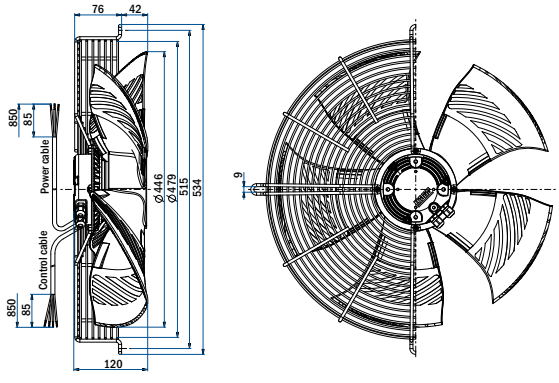
ErP data according to EU regulation 327/2011:
Is not subject to the EU regulation 327/2011. Power input lower than 125 W.

General notes	
Connection diagram: 0302-0-0008	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

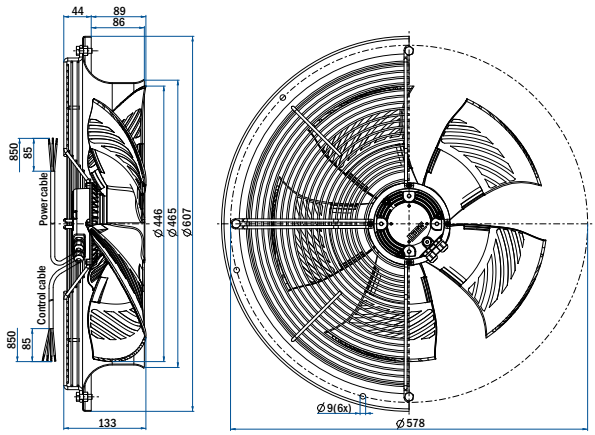
Airflow direction - sucking

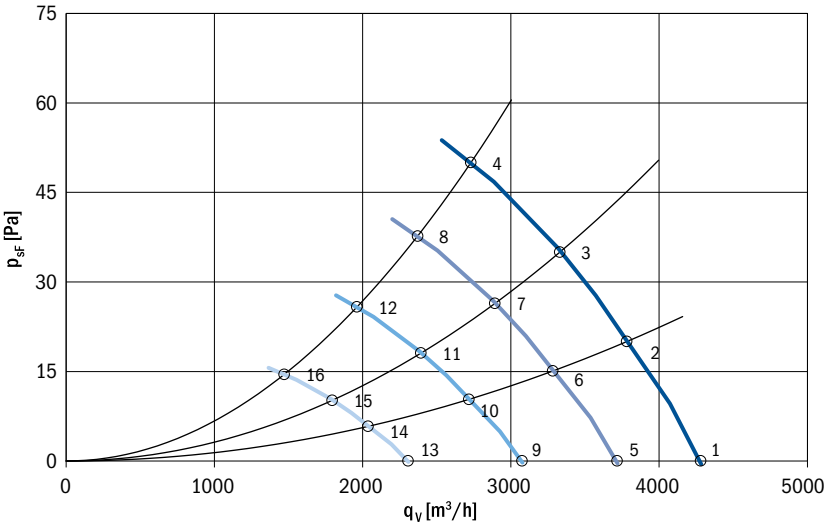
Type: R09R-45APS-ES25C-02B10
Code: 0309-4-3006
Weight: 4.5 kg



Airflow direction - sucking

Type: R09P-45APS-ES25C-02B10
Code: 0309-4-3007
Weight: 7.3 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

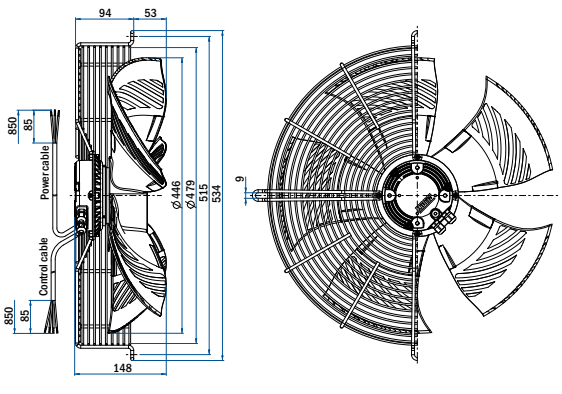
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	835	4280	0	74	0.65	60	55
2	230	50	835	3780	20	93	0.78	58	55
3	230	50	835	3330	35	103	0.86	57	55
4	230	50	835	2730	50	112	0.94	58	55
5	230	50	725	3716	0	48	0.43	56	55
6	230	50	725	3282	15	61	0.51	54	55
7	230	50	725	2891	26	67	0.56	53	55
8	230	50	725	2370	38	73	0.62	54	55
9	230	50	600	3075	0	27	0.24	51	55
10	230	50	600	2716	10	35	0.29	50	55
11	230	50	600	2393	18	38	0.32	49	55
12	230	50	600	1962	26	42	0.35	50	55
13	230	50	450	2307	0	12	0.10	44	55
14	230	50	450	2037	6	15	0.12	42	55
15	230	50	450	1795	10	16	0.13	42	55
16	230	50	450	1471	15	18	0.15	43	55

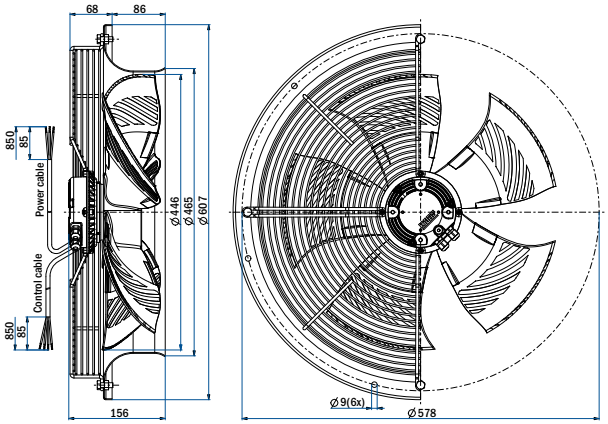
Airflow direction - blowing

Type: R09R-45APB-ES25C-02B10
Code: 0309-4-3014
Weight: 4.7 kg



Airflow direction - blowing

Type: R09P-45APB-ES25C-02B10
Code: 0309-4-3015
Weight: 7.5 kg



Diameter: 450 mm

R10_-45AP_-ES35B-01B23



COMPLIANT TO ErP2015

Nominal data according to standard EN 60335:	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	230 V
Frequency	50-60 Hz
Input power	145 W
Input current	1.15 A
Nominal speed	1000 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

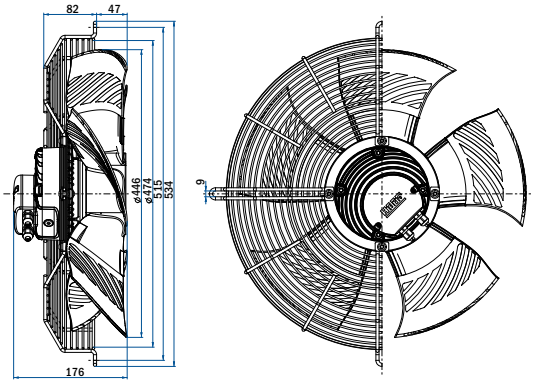
ErP data according to EU regulation 327/2011:	
Overall efficiency	47.4 %
Measurement category	A
Efficiency category	static
Efficiency grade N	58.8
Variable speed drive	INTEGRATED
Power input	0.16 kW
Air flow	3213 m^3/h
Pressure drop	76 Pa
Rotational speed	1008 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-0006	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

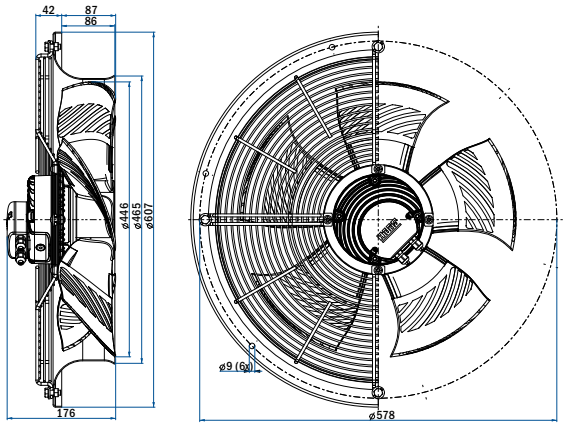
Airflow direction - sucking

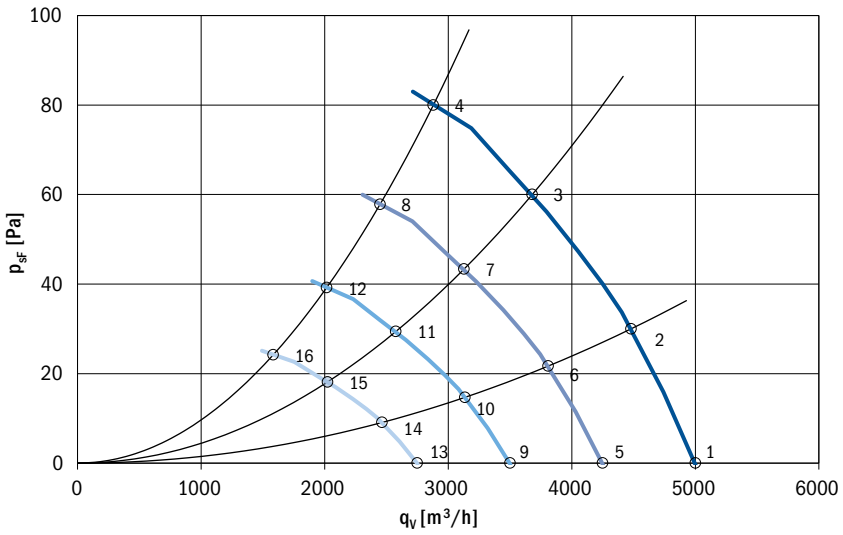
Type: R10R-45APS-ES35B-01B23
Code: 0310-4-0125
Weight: 5.8 kg



Airflow direction - sucking

Type: R10P-45APS-ES35B-01B23
Code: 0310-4-0126
Weight: 8.9 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

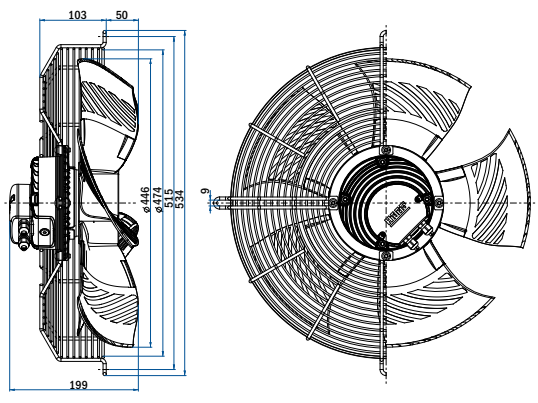
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	1000	5000	0	128	1.03	62	55
2	230	50	1000	4480	30	148	1.18	60	55
3	230	50	1000	3680	60	158	1.26	59	55
4	230	50	1000	2880	80	160	1.27	70	55
5	230	50	850	4250	0	79	0.63	58	55
6	230	50	850	3808	22	91	0.72	57	55
7	230	50	850	3128	43	97	0.77	55	55
8	230	50	850	2448	58	98	0.78	65	55
9	230	50	700	3500	0	44	0.35	53	55
10	230	50	700	3136	15	51	0.40	52	55
11	230	50	700	2576	29	54	0.43	50	55
12	230	50	700	2016	39	55	0.44	60	55
13	230	50	550	2750	0	21	0.17	49	55
14	230	50	550	2464	9	25	0.20	48	55
15	230	50	550	2024	18	26	0.21	47	55
16	230	50	550	1584	24	27	0.21	56	55

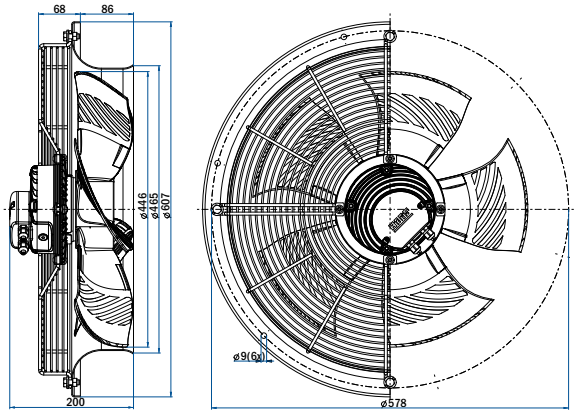
Airflow direction - blowing

Type: R10R-45APB-ES35B-01B23
Code: 0310-4-0078
Weight: 6.1 kg



Airflow direction - blowing

Type: R10P-45APB-ES35B-01B23
Code: 0310-4-0079
Weight: 9.1 kg



Diameter: 450 mm

R10_-45AP_-ES50B-09C05



COMPLIANT TO ErP 2015

Nominal data according to standard EN 60335:	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	220-240 V
Frequency	50-60 Hz
Input power	300 W
Input current	2.05 A
Nominal speed	1280 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

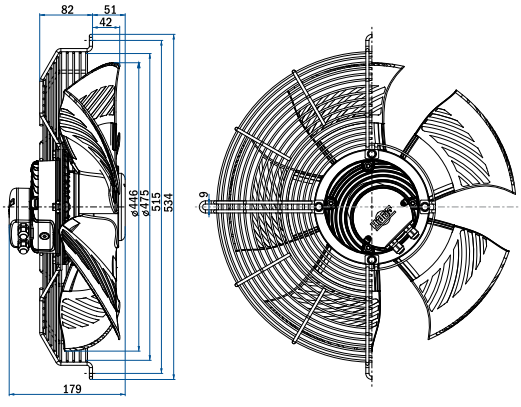
ErP data according to EU regulation 327/2011:	
Overall efficiency	43.2 %
Measurement category	A
Efficiency category	static
Efficiency grade N	52.5
Variable speed drive	INTEGRATED
Power input	345 W
Air flow	3966 m^3/h
Pressure drop	127 Pa
Rotational speed	1287 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-0006	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

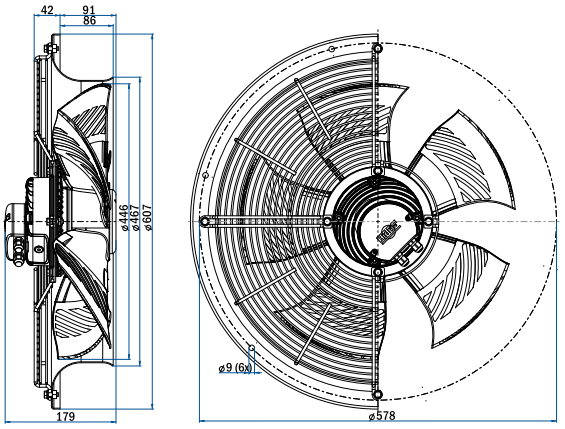
Airflow direction - sucking

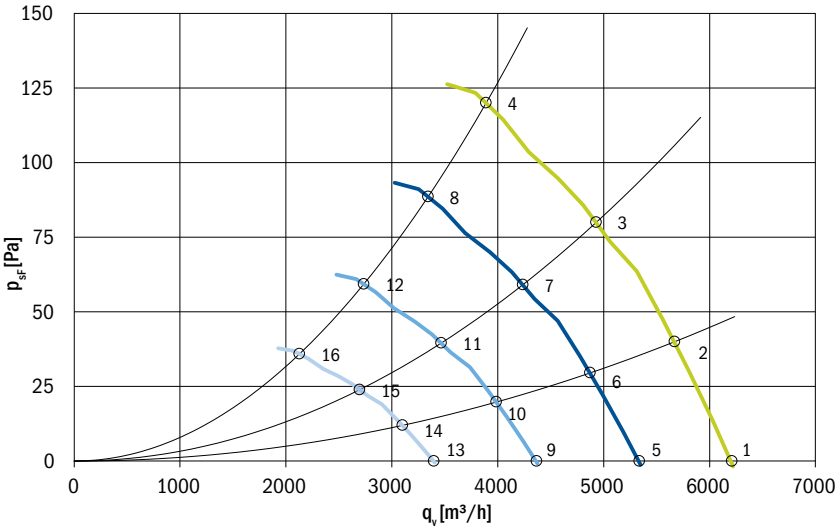
Type: R10R-45APS-ES50B-09C05
Code: 0310-4-0127
Weight: 5.3 kg



Airflow direction - sucking

Type: R10P-45APS-ES50B-09C05
Code: 0310-4-0128
Weight: 7.8 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

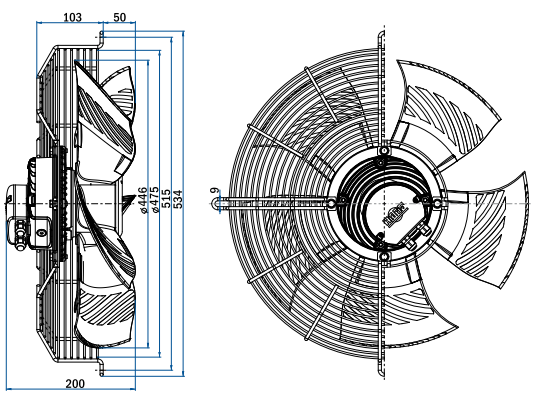
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	1280	6210	0	251	1.67	69	65
2	230	50	1280	5670	40	287	1.88	68	65
3	230	50	1280	4930	80	303	2.00	67	65
4	230	50	1280	3890	120	321	2.07	68	65
5	230	50	1100	5337	0	163	1.10	65	65
6	230	50	1100	4873	30	183	1.22	63	65
7	230	50	1100	4237	59	200	1.32	63	65
8	230	50	1100	3343	89	209	1.38	64	65
9	230	50	900	4366	0	92.4	0.66	60	65
10	230	50	900	3987	20	103	0.73	59	65
11	230	50	900	3466	40	113	0.79	58	65
12	230	50	900	2735	59	115	0.81	59	65
13	230	50	700	3396	0	47	0.37	54	65
14	230	50	700	3101	12	52	0.40	53	65
15	230	50	700	2696	24	56	0.43	52	65
16	230	50	700	2127	36	57	0.43	52	65

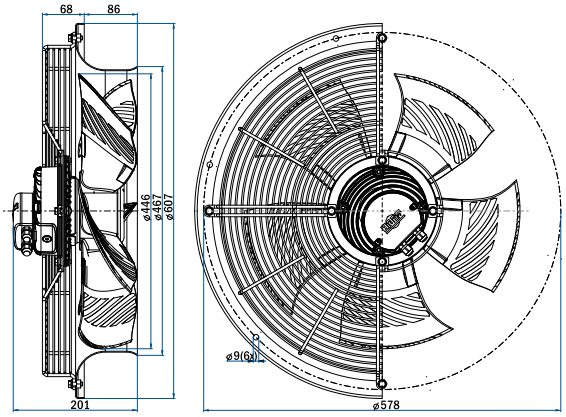
Airflow direction - blowing

Type: R10R-45APB-ES50B-09C05
Code: 0310-4-0129
Weight: 5.3 kg



Airflow direction - blowing

Type: R10P-45APB-ES50B-09C05
Code: 0310-4-0130
Weight: 7.8 kg



Diameter: 500 mm

R10_-50AP_-ES35B-10B19



Nominal data according to standard IEC 60034 (max. load):	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	230 V
Frequency	50-60 Hz
Input power	85 W
Input current	0.7 A
Nominal speed	700 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

ErP data according to EU regulation 327/2011:

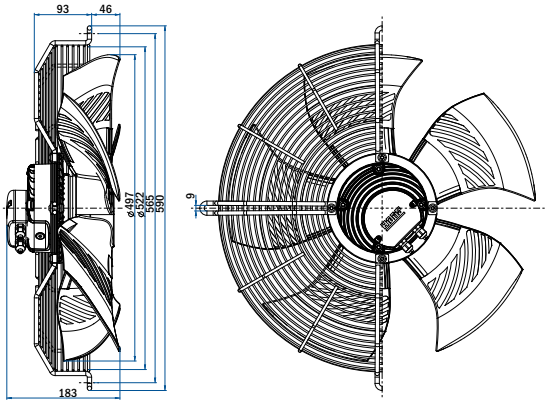
Is not subject to the EU regulation 327/2011.
Power input lower than 125 W.

General notes	
Connection diagram: 0302-0-0006	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

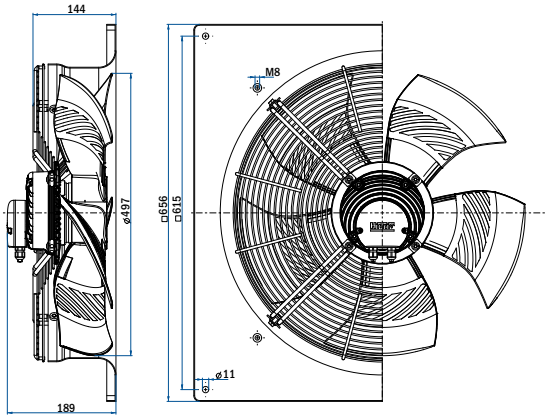
Airflow direction - sucking

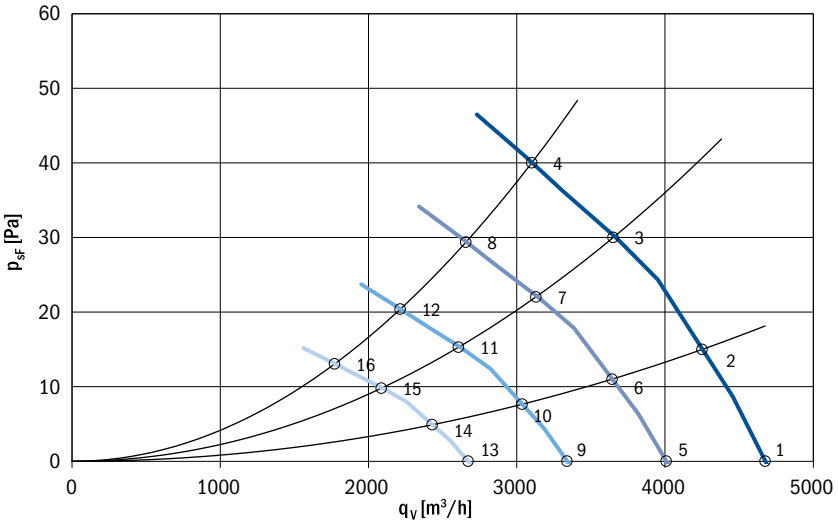
Type: R10R-50APS-ES35B-10B19
Code: 0310-4-0080
Weight: 6.8 kg



Airflow direction - sucking

Type: R10P-50APS-ES35B-10B19
Code: 0310-4-0081
Weight: 10.9 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

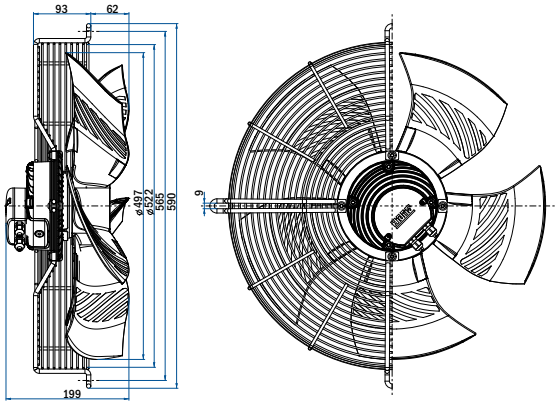
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	700	4675	0	67	0.57	58	55
2	230	50	700	4250	15	73	0.61	56	55
3	230	50	700	3650	30	83	0.69	55	55
4	230	50	700	3100	40	89	0.73	55	55
5	230	50	600	4007	0	42	0.36	54	55
6	230	50	600	3643	11	46	0.38	53	55
7	230	50	600	3129	22	52	0.43	53	55
8	230	50	600	2657	29	56	0.46	51	55
9	230	50	500	3339	0	24	0.21	49	55
10	230	50	500	3036	8	27	0.22	47	55
11	230	50	500	2607	15	30	0.25	46	55
12	230	50	500	2214	20	32	0.27	45	55
13	230	50	400	2671	0	13	0.11	45	55
14	230	50	400	2429	5	14	0.11	43	55
15	230	50	400	2086	10	15	0.13	42	55
16	230	50	400	1771	13	17	0.14	41	55

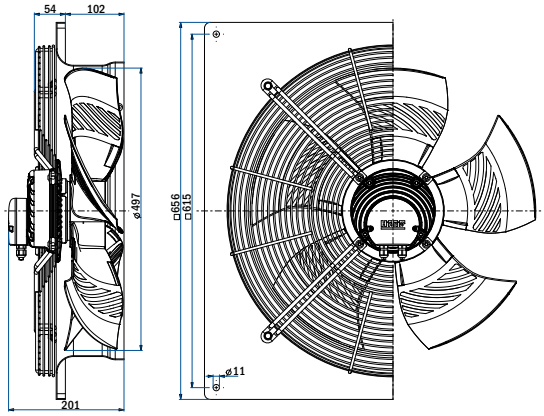
Airflow direction - blowing

Type: R10R-50APB-ES35B-10B19
Code: 0310-4-0082
Weight: 6.9 kg



Airflow direction - blowing

Type: R10P-50APB-ES35B-10B19
Code: 0310-4-0083
Weight: 11.0 kg



Diameter: **500 mm**

R10_-50AP_-ES50B-09C17



COMPLIANT TO ErP2015

Nominal data according to standard EN 60335:	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	230-240 V
Frequency	50-60 Hz
Input power	300 W
Input current	2.05 A
Nominal speed	1100 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

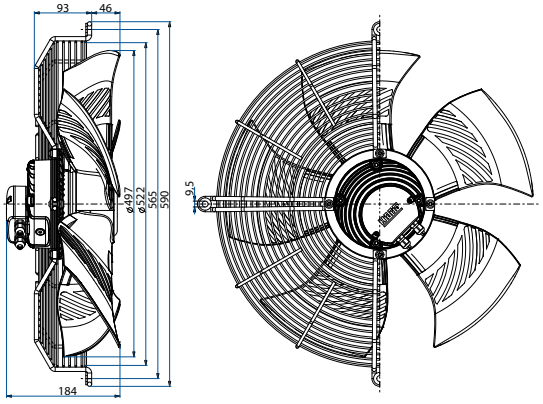
ErP data according to EU regulation 327/2011:	
Overall efficiency	45.0 %
Measurement category	A
Efficiency category	static
Efficiency grade N	54.3
Variable speed drive	INTEGRATED
Power input	330 W
Air flow	4946 m^3/h
Pressure drop	101 Pa
Rotational speed	1095 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-0006	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

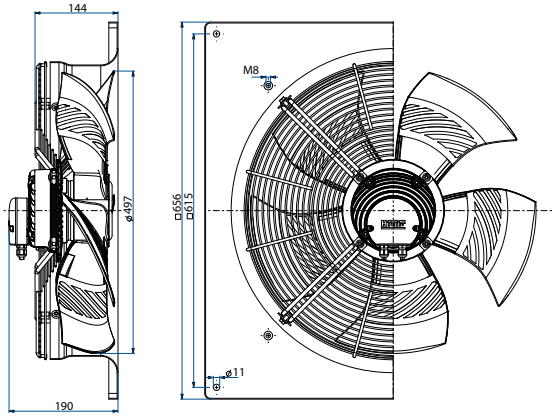
Airflow direction - sucking

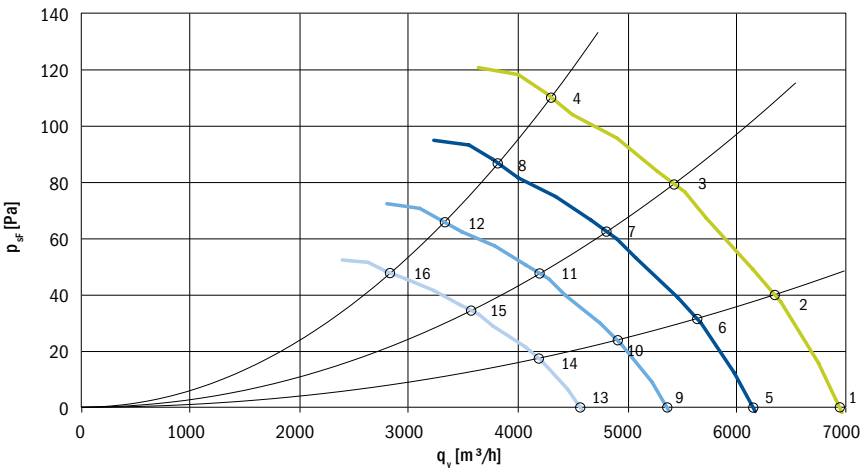
Type: R10R-50APS-ES50B-09C17
Code: 0310-4-0131
Weight: 7.4 kg



Airflow direction - sucking

Type: R10P-50APS-ES50B-09C17
Code: 0310-4-0132
Weight: 11.5 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

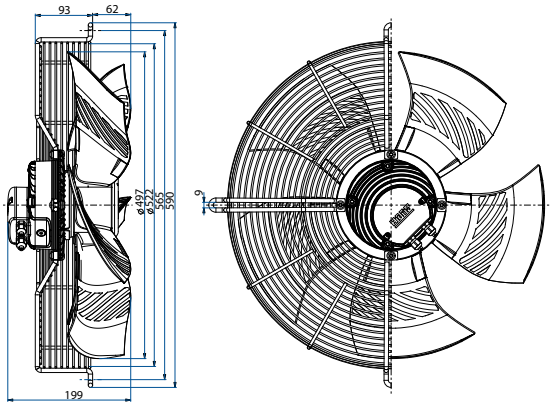
	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\ out}$ [dB (A)]	$T_{a\ max}$ [°C]
1	230	50	1100	6940	0	236	1.51	70	65
2	230	50	1100	6350	40	280	1.78	68	65
3	230	50	1100	5450	80	306	1.95	65	65
4	230	50	1100	4300	110	323	2.03	66	65
5	230	50	975	6150	0	164	1.08	67	65
6	230	50	975	5630	31	192	1.24	64	65
7	230	50	975	4800	63	230	1.34	62	65
8	230	50	975	3800	86	226	1.45	63	65
9	230	50	850	5350	0	111	0.77	64	65
10	230	50	850	4900	24	127	0.86	61	65
11	230	50	850	4200	48	140	0.95	59	65
12	230	50	850	3350	66	151	1.02	60	65
13	230	50	725	4570	0	70	0.51	60	65
14	230	50	725	4200	17	82	0.58	58	65
15	230	50	725	3550	35	90	0.63	55	65
16	230	50	725	2850	48	96	0.67	57	65

Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\ max}$ [°C]	Max. ambient temperature

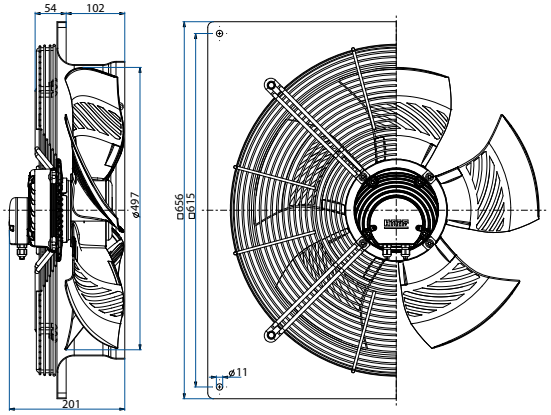
Airflow direction - blowing

Type: R10R-50APB-ES50B-09C17
Code: 0310-4-0133
Weight: 7.5 kg



Airflow direction - blowing

Type: R10P-50APB-ES50B-09C17
Code: 0310-4-0134
Weight: 11.6 kg



Diameter: **500 mm**

R14_-50AP_-ES40B-17A22



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	200-277 V
Frequency	50-60 Hz
Input power	650 W
Input current	2.9 A
Nominal speed	1420 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

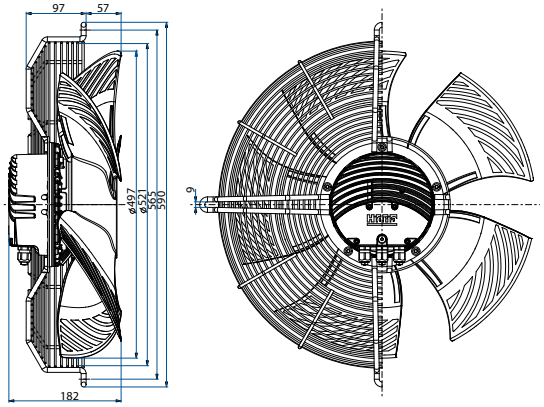
ErP data according to EU regulation 327/2011:	
Overall efficiency	46.5 %
Measurement category	A
Efficiency category	static
Efficiency grade N	53.8
Variable speed drive	INTEGRATED
Power input	0.71 kW
Air flow	6056 m^3/h
Pressure drop	188 Pa
Rotational speed	1433 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-1005	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

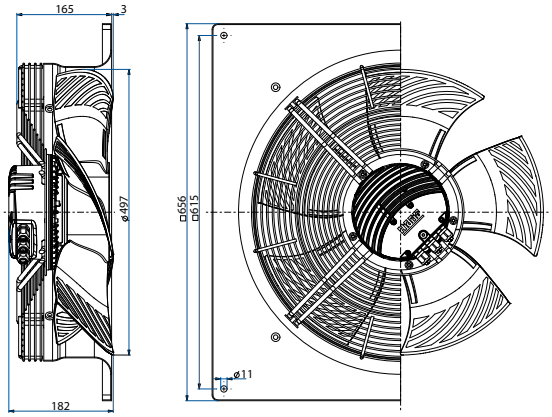
Airflow direction - sucking

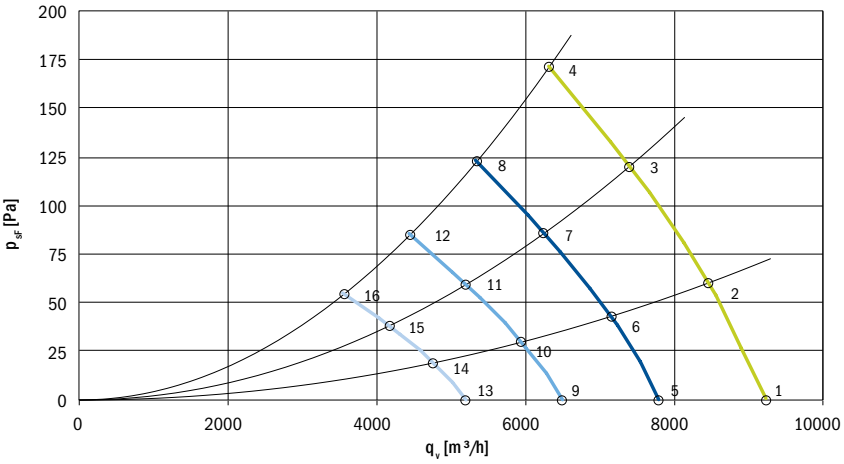
Type: R14R-50APS-ES40B-17A22
Code: 0314-4-0039
Weight: 11.0 kg



Airflow direction - sucking

Type: R14P-50APS-ES40B-17A22
Code: 0314-4-0040
Weight: 15.7 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

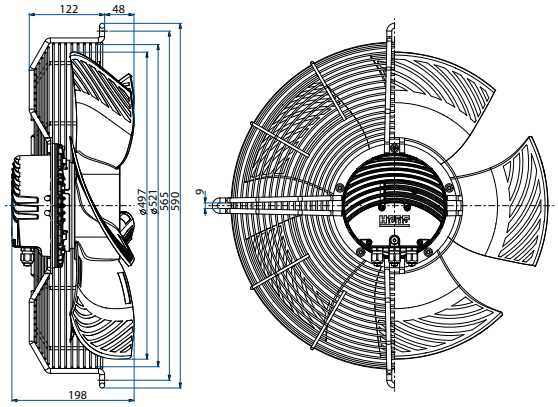
	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\ out}$ [dB (A)]	$T_{a\ max}$ [°C]
1	230	50	1420	9230	0	538	2.25	78	60
2	230	50	1420	8450	60	602	2.56	77	60
3	230	50	1420	7400	120	675	2.8	72	60
4	230	50	1420	6300	170	735	2.98	72	60
5	230	50	1200	7800	0	310	1.36	74	60
6	230	50	1200	7150	42	345	1.51	73	60
7	230	50	1200	6250	85	385	1.69	68	60
8	230	50	1200	5350	121	410	1.8	68	60
9	230	50	1000	6500	0	180	0.79	70	60
10	230	50	1000	6000	30	198	0.87	69	60
11	230	50	1000	5200	60	222	0.97	64	60
12	230	50	1000	4500	85	238	1.04	64	60
13	230	50	800	5200	0	92	0.4	66	60
14	230	50	800	4750	19	102	0.45	65	60
15	230	50	800	4150	38	115	0.5	60	60
16	230	50	800	3550	54	122	0.53	60	60

Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\ max}$ [°C]	Max. ambient temperature

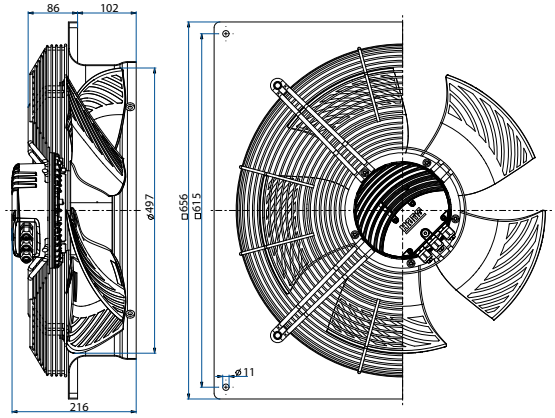
Airflow direction - blowing

Type: R14R-50APB-ES40B-17A22
Code: 0314-4-0041
Weight: 11.0 kg



Airflow direction - blowing

Type: R14P-50APB-ES40B-17A22
Code: 0314-4-0042
Weight: 15.7 kg



Diameter: 500 mm

R14_-50AP_-ET60B-13B23



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	3~
Nominal voltage	400 V
Nominal voltage range	380-480 V
Frequency	50-60 Hz
Input power	980 W
Input current	1.6 A
Nominal speed	1600 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

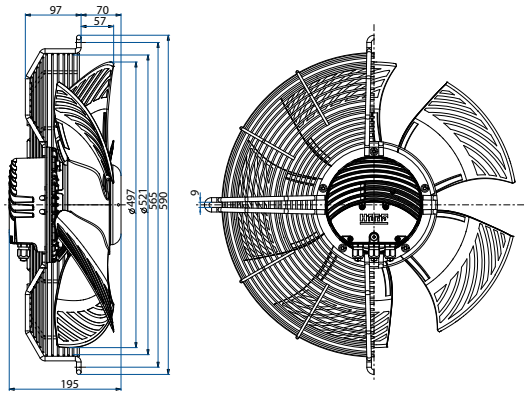
ErP data according to EU regulation 327/2011:	
Overall efficiency	46.9 %
Measurement category	A
Efficiency category	static
Efficiency grade N	53.1
Variable speed drive	INTEGRATED
Power input	1.03 kW
Air flow	7018 m^3/h
Pressure drop	237 Pa
Rotational speed	1617 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-1006	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

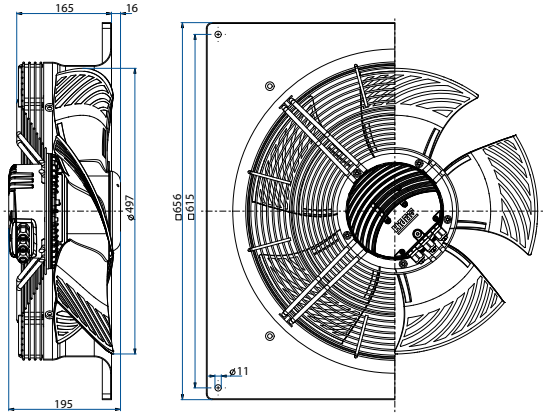
Airflow direction - sucking

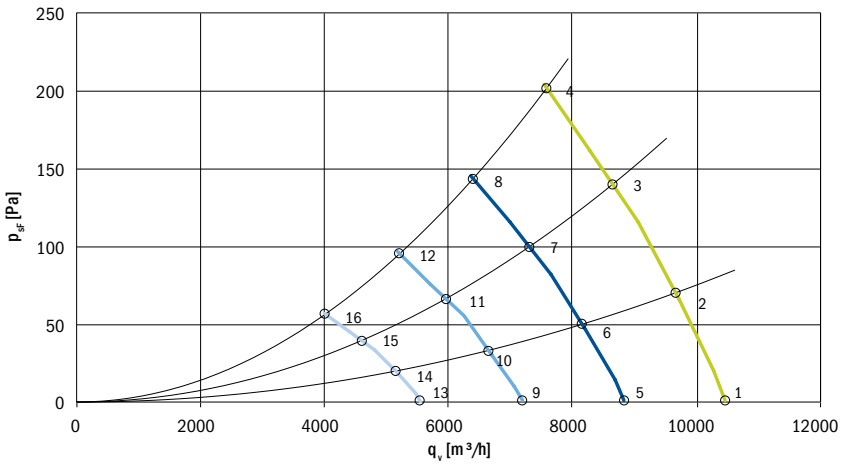
Type: R14R-50APS-ET60B-13B23
Code: 0314-4-0043
Weight: 12.3 kg



Airflow direction - sucking

Type: R14P-50APS-ET60B-13B23
Code: 0314-4-0044
Weight: 17.3 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

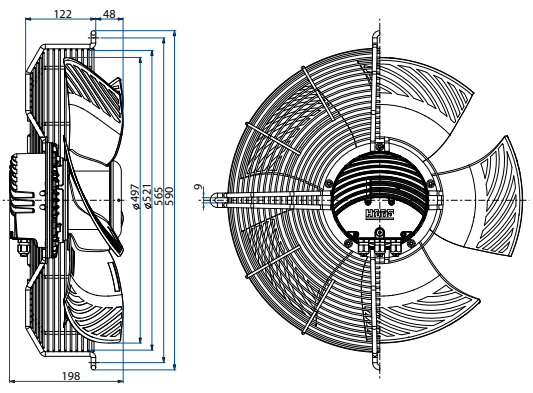
	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\ out}$ [dB (A)]	$T_{a\ max}$ [°C]
1	400	50	1600	10460	0	750	1.24	80	60
2	400	50	1600	9650	70	830	1.35	76	60
3	400	50	1600	8650	140	917	1.45	75	60
4	400	50	1600	7550	200	978	4.53	75	60
5	400	50	1350	8830	0	450	0.75	76	60
6	400	50	1350	8150	50	500	0.82	72	60
7	400	50	1350	7300	100	550	0.87	71	60
8	400	50	1350	6400	142	587	0.92	71	60
9	400	50	1100	7200	0	243	0.4	72	60
10	400	50	1100	6600	33	267	0.44	68	60
11	400	50	1100	6000	65	298	0.47	67	60
12	400	50	1100	5200	95	318	0.5	67	60
13	400	50	850	5560	0	112	0.19	66	60
14	400	50	850	5150	20	124	0.2	62	60
15	400	50	850	4600	40	138	0.22	61	60
16	400	50	850	4000	55	147	0.23	61	60

Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\ max}$ [°C]	Max. ambient temperature

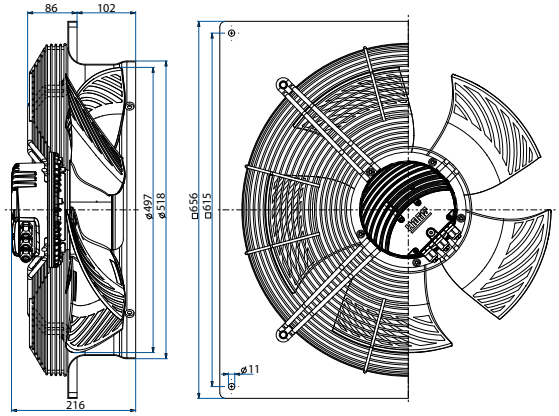
Airflow direction - blowing

Type: R14R-50APB-ET60B-13B23
Code: 0314-4-0045
Weight: 12.6 kg



Airflow direction - blowing

Type: R14P-50APB-ET60B-13B23
Code: 0314-4-0046
Weight: 17.3 kg



Diameter: 560 mm

R10_-56LP_-ES50B-04C10



COMPLIANT TO ErP2015

Nominal data according to standard EN 60335:	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	200-240 V
Frequency	50-60 Hz
Input power	240 W
Input current	1.68 A
Nominal speed	950 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

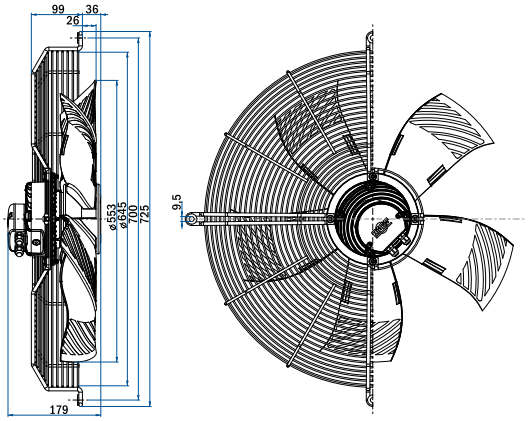
ErP data according to EU regulation 327/2011:	
Overall efficiency	45.0 %
Measurement category	A
Efficiency category	static
Efficiency grade N	54.9
Variable speed drive	INTEGRATED
Power input	280 W
Air flow	5269 m^3/h
Pressure drop	80 Pa
Rotational speed	953 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-0006	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

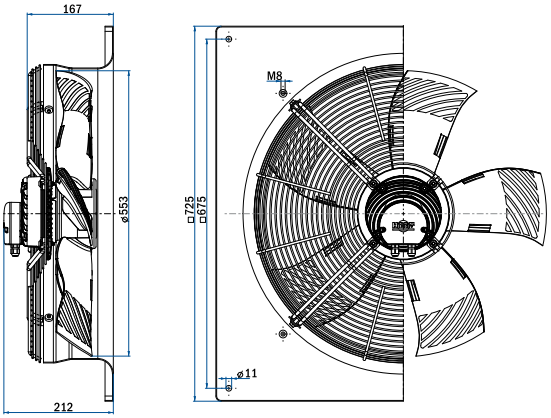
Airflow direction - sucking

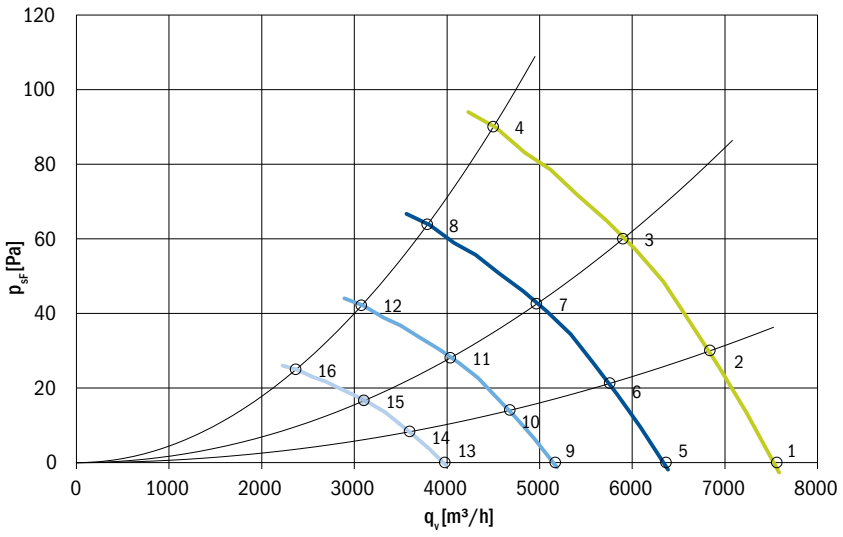
Type: R10R-56LPS-ES50B-04C10
Code: 0310-4-0135
Weight: 6.0 kg



Airflow direction - sucking

Type: R10P-56LPS-ES50B-04C10
Code: 0310-4-0136
Weight: 13.7 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

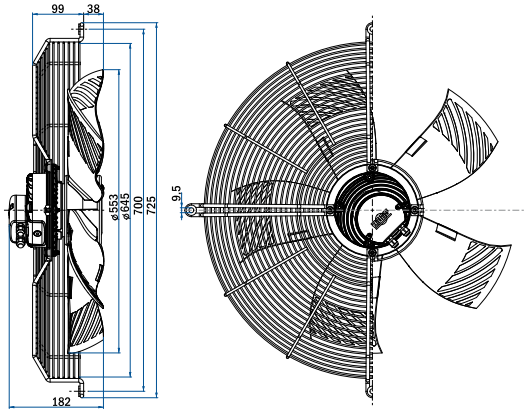
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	950	7560	0	188	1.28	70	65
2	230	50	950	6840	30	219	1.48	69	65
3	230	50	950	5900	60	251	1.68	66	65
4	230	50	950	4500	90	272	1.82	66	65
5	230	50	800	6366	0	113	0.80	66	65
6	230	50	800	5760	21	134	0.93	65	65
7	230	50	800	4968	43	151	1.04	62	65
8	230	50	800	3789	64	162	1.11	62	65
9	230	50	650	5173	0	62	0.47	61	65
10	230	50	650	4680	14	74	0.54	60	65
11	230	50	650	4037	28	82	0.60	57	65
12	230	50	650	3079	42	88	0.64	56	65
13	230	50	500	3979	0	31	0.26	54	65
14	230	50	500	3600	8	36	0.29	53	65
15	230	50	500	3105	17	41	0.32	51	65
16	230	50	500	2368	25	44	0.35	49	65

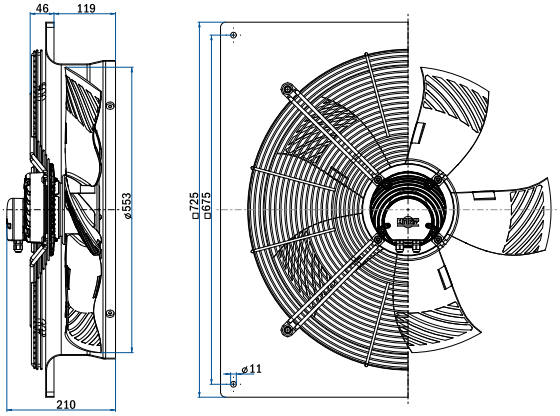
Airflow direction - blowing

Type: R10R-56LPB-ES50B-04C10
Code: 0310-4-0137
Weight: 6.0 kg



Airflow direction - blowing

Type: R10P-56LPB-ES50B-04C10
Code: 0310-4-0138
Weight: 13.7 kg



Diameter: 560 mm

R14_-56AP_-ES60B-13A18



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	200-277 V
Frequency	50-60 Hz
Input power	600 W
Input current	2.6 A
Nominal speed	1150 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

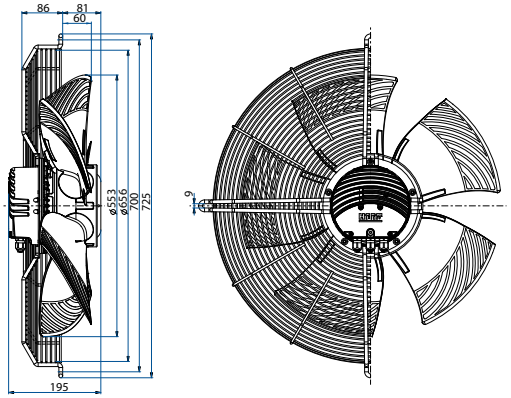
ErP data according to EU regulation 327/2011:	
Overall efficiency	49.7 %
Measurement category	A
Efficiency category	static
Efficiency grade N	57.3
Variable speed drive	INTEGRATED
Power input	0.63 kW
Air flow	6789 m^3/h
Pressure drop	156 Pa
Rotational speed	1161 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-1005	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

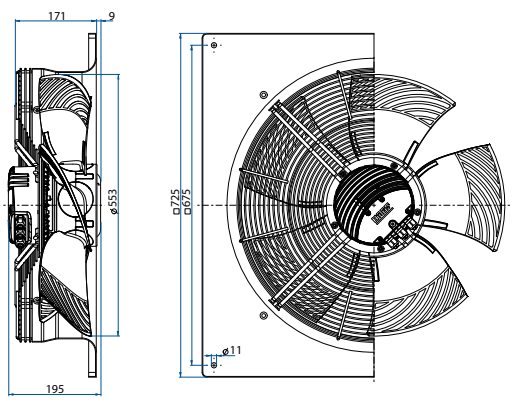
Airflow direction - sucking

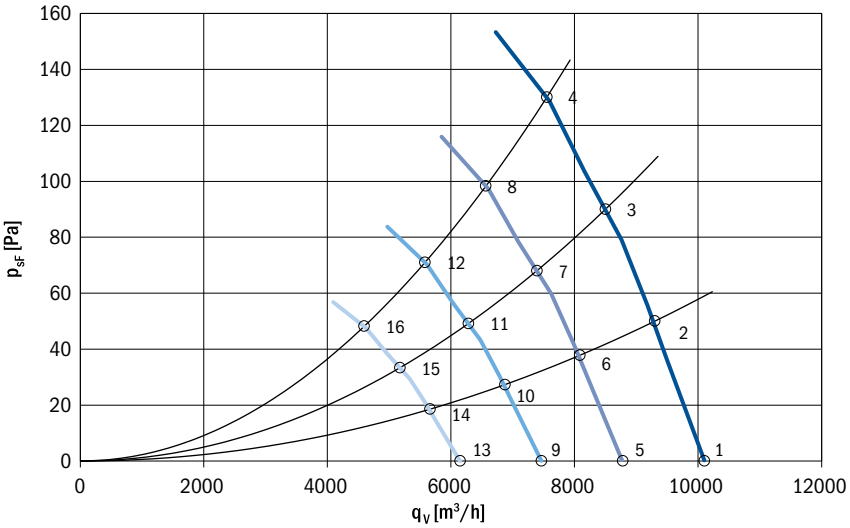
Type: R14R-56APS-ES60B-13A18
Code: 0314-4-0055
Weight: 13.6 kg



Airflow direction - sucking

Type: R14P-56APS-ES60B-13A18
Code: 0314-4-0056
Weight: 19.3 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

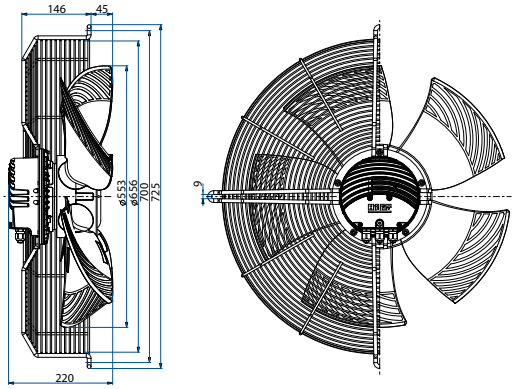
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	1150	10100	0	463	1.99	73	60
2	230	50	1150	9300	50	523	2.28	72	60
3	230	50	1150	8500	90	574	2.50	71	60
4	230	50	1150	7550	130	607	2.65	74	60
5	230	50	1000	8783	0	304	1.31	70	60
6	230	50	1000	8087	38	344	1.50	69	60
7	230	50	1000	7391	68	377	1.64	68	60
8	230	50	1000	6565	98	399	1.74	71	60
9	230	50	850	7465	0	187	0.80	66	60
10	230	50	850	6874	27	211	0.92	65	60
11	230	50	850	6283	49	232	1.01	64	60
12	230	50	850	5580	71	245	1.07	67	60
13	230	50	700	6148	0	104	0.45	62	60
14	230	50	700	5661	19	118	0.51	61	60
15	230	50	700	5174	33	129	0.56	60	60
16	230	50	700	4596	48	137	0.60	63	60

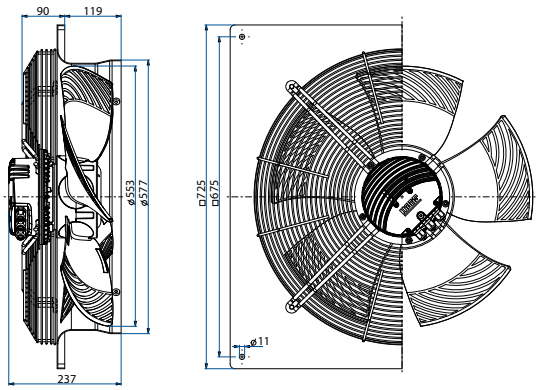
Airflow direction - blowing

Type: R14R-56APB-ES60B-13A18
Code: 0314-4-0057
Weight: 13.8 kg



Airflow direction - blowing

Type: R14P-56APB-ES60B-13A18
Code: 0314-4-0058
Weight: 19.3 kg



Diameter: 560 mm

R14_-56AP_-ET60B-03B18



Nominal data according to standard IEC 60034 (max. load):	
Phase	3~
Nominal voltage	400 V
Nominal voltage range	380-460 V
Frequency	50-60 Hz
Input power	600 W
Input current	1.1 A
Nominal speed	1150 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

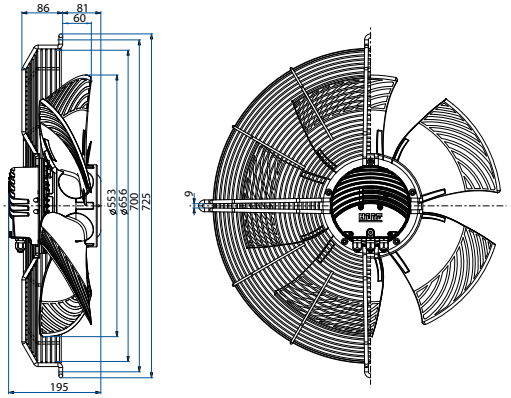
ErP data according to EU regulation 327/2011:	
Overall efficiency	50.2 %
Measurement category	A
Efficiency category	static
Efficiency grade N	57.8
Variable speed drive	INTEGRATED
Power input	630 W
Air flow	6608 m^3/h
Pressure drop	160 Pa
Rotational speed	1157 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-1006	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

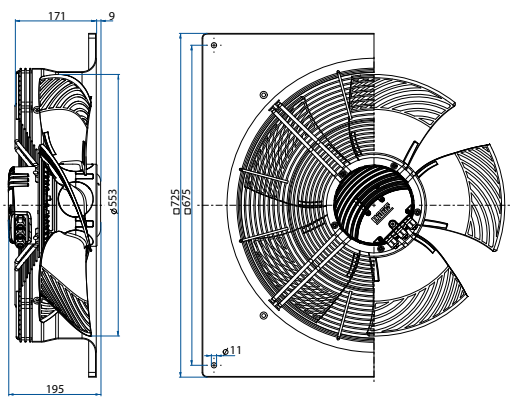
Airflow direction - sucking

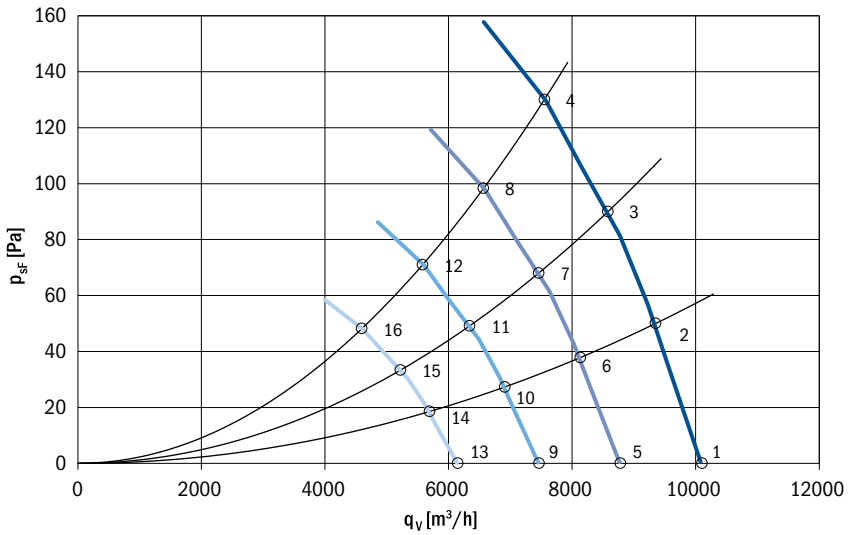
Type: R14R-56APS-ET60B-03B18
Code: 0314-4-0089
Weight: 13.4 kg



Airflow direction - sucking

Type: R14P-56APS-ET60B-03B18
Code: 0314-4-0090
Weight: 19.3 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

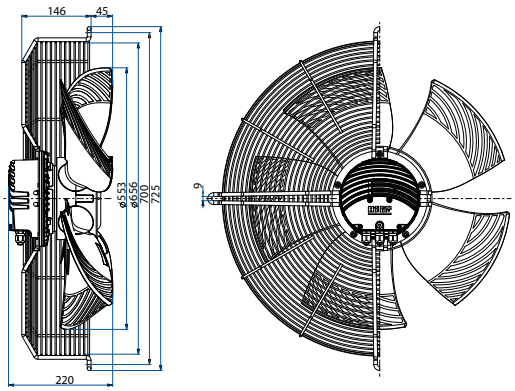
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	400	50	1150	10100	0	465	0.89	73	60
2	400	50	1150	9350	50	520	0.99	72	60
3	400	50	1150	8580	90	570	1.09	71	60
4	400	50	1150	7550	130	610	1.13	74	60
5	400	50	1000	8783	0	306	0.59	70	60
6	400	50	1000	8130	38	342	0.65	69	60
7	400	50	1000	7461	68	375	0.72	68	60
8	400	50	1000	6565	98	401	0.74	71	60
9	400	50	850	7465	0	188	0.36	66	60
10	400	50	850	6911	27	210	0.40	65	60
11	400	50	850	6342	49	230	0.44	64	60
12	400	50	850	5580	71	246	0.46	67	60
13	400	50	700	6148	0	105	0.20	62	60
14	400	50	700	5691	19	117	0.22	61	60
15	400	50	700	5223	33	129	0.25	60	60
16	400	50	700	4596	48	138	0.25	63	60

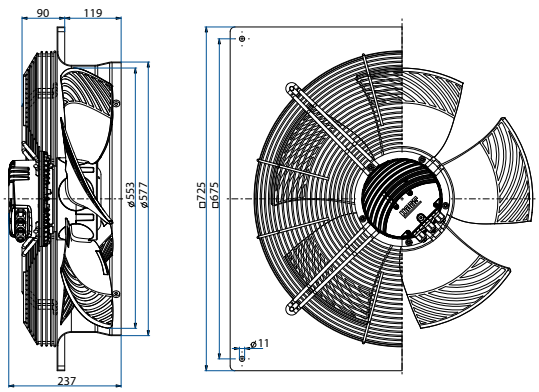
Airflow direction - blowing

Type: R14R-56APB-ET60B-03B18
Code: 0314-4-0091
Weight: 13.6 kg



Airflow direction - blowing

Type: R14P-56APB-ET60B-03B18
Code: 0314-4-0092
Weight: 15.9 kg



Diameter: 630 mm

R10_-63LP_-ES50B-03C11



COMPLIANT TO ErP2015

Nominal data according to standard EN 60335:	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	230-240 V
Frequency	50-60 Hz
Input power	250 W
Input current	1.65 A
Nominal speed	770 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

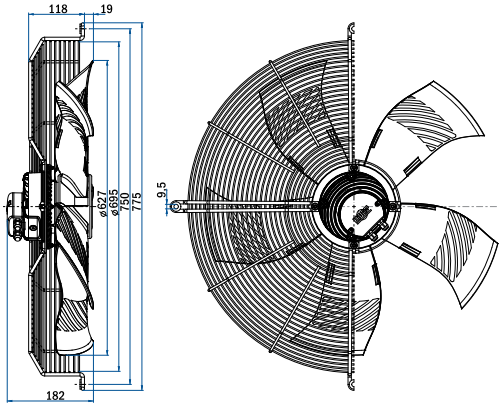
ErP data according to EU regulation 327/2011:	
Overall efficiency	40.4 %
Measurement category	A
Efficiency category	static
Efficiency grade N	50.3
Variable speed drive	INTEGRATED
Power input	270 W
Air flow	5787 m^3/h
Pressure drop	62 Pa
Rotational speed	760 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-0006	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

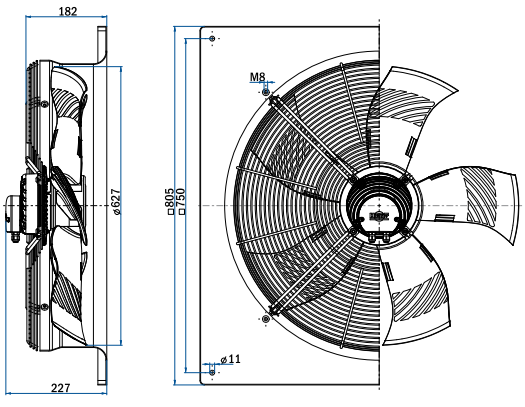
Airflow direction - sucking

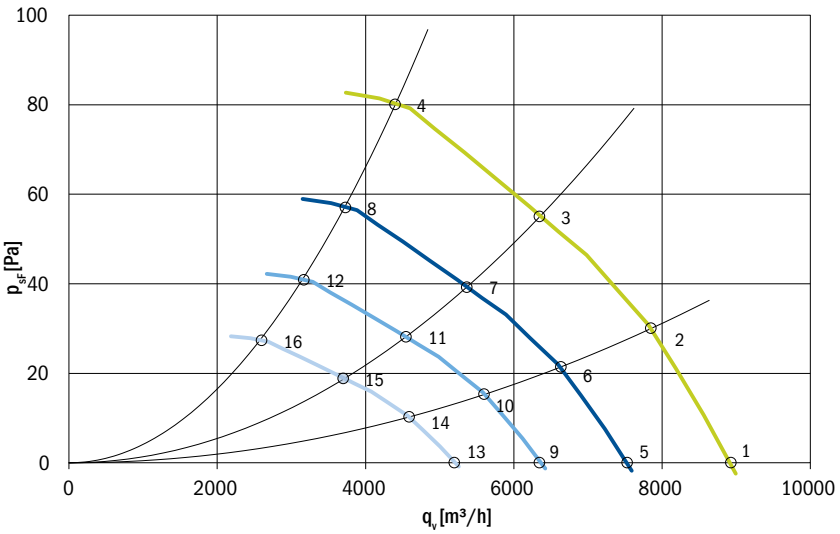
Type: R10R-63LPS-ES50B-03C11
Code: 0310-4-0139
Weight: 6.4 kg



Airflow direction - sucking

Type: R10P-63LPS-ES50B-03C11
Code: 0310-4-0140
Weight: 15.2 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

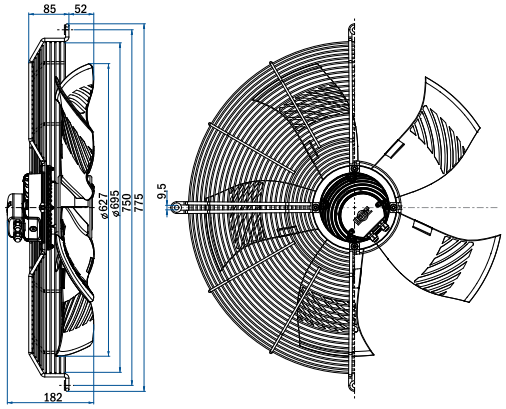
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	770	8930	0	201	1.36	67	60
2	230	50	770	7850	30	240	1.61	65	60
3	230	50	770	6350	55	266	1.78	64	60
4	230	50	770	4400	80	274	1.82	71	60
5	230	50	650	7530	0	115	0.81	62	60
6	230	50	650	6640	21	136	0.95	60	60
7	230	50	650	5370	39	155	1.06	60	60
8	230	50	650	3730	57	146	1.02	67	60
9	230	50	550	6350	0	71	0.53	57	60
10	230	50	550	5600	15	82	0.60	56	60
11	230	50	550	4550	28	94	0.68	56	60
12	230	50	550	3170	41	89	0.65	62	60
13	230	50	450	5200	0	40	0.31	51	60
14	230	50	450	4590	10	46	0.35	51	60
15	230	50	450	3700	19	52	0.40	51	60
16	230	50	450	2600	27	50	0.39	57	60

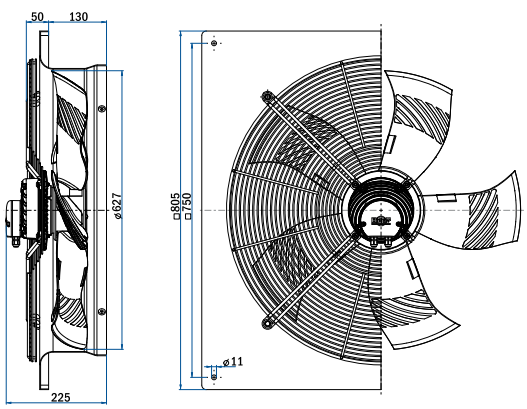
Airflow direction - blowing

Type: R10R-63LPB-ES50B-03C11
Code: 0310-4-0141
Weight: 6.4 kg



Airflow direction - blowing

Type: R10P-63LPB-ES50B-03C11
Code: 0310-4-0142
Weight: 15.2 kg



Diameter: 630 mm

R14_-63AP_-ES60B-01A04



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	200-277 V
Frequency	50-60 Hz
Input power	620 W
Input current	2.7 A
Nominal speed	1000 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

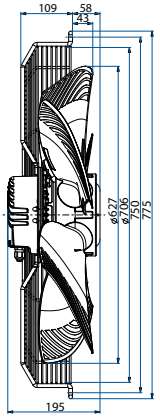
ErP data according to EU regulation 327/2011:	
Overall efficiency	50.5 %
Measurement category	A
Efficiency category	static
Efficiency grade N	57.9
Variable speed drive	INTEGRATED
Power input	0.67 kW
Air flow	8955 m^3/h
Pressure drop	128 Pa
Rotational speed	1008 RPM
Specific ratio	1.00

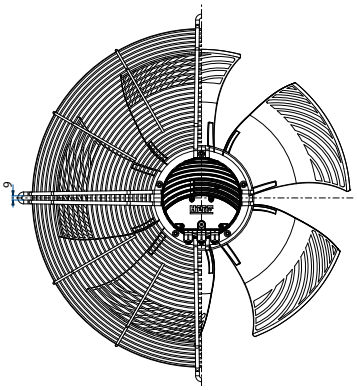
General notes	
Connection diagram: 0302-0-1005	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

Airflow direction - sucking

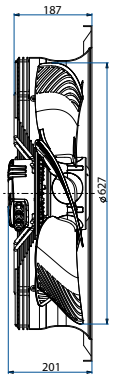
Type: R14R-63APS-ES60B-01A04
Code: 0314-4-0047
Weight: 14.4 kg

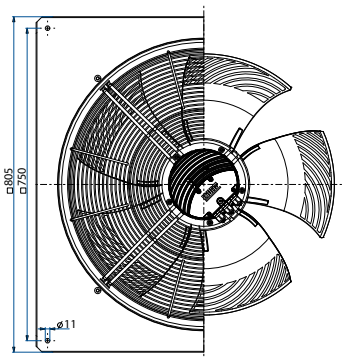


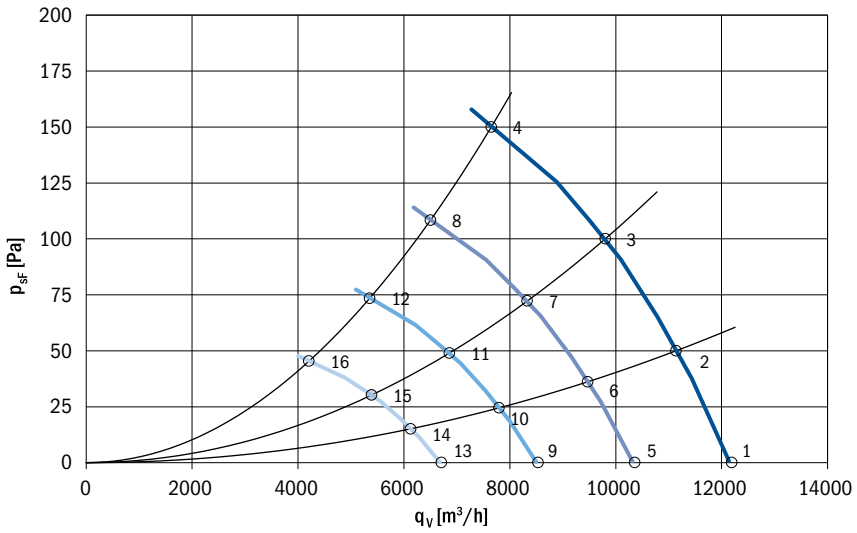


Airflow direction - sucking

Type: R14P-63APS-ES60B-01A04
Code: 0314-4-0048
Weight: 23.1 kg







Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

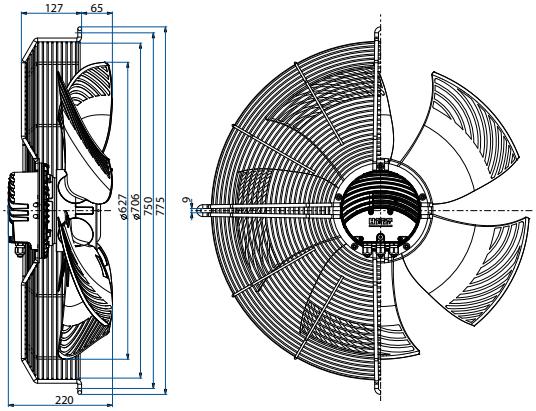
Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	1000	12190	0	480	2.07	71	60
2	230	50	1000	11140	50	571	2.47	68	60
3	230	50	1000	9800	100	640	2.76	69	60
4	230	50	1000	7650	150	713	3.07	70	60
5	230	50	850	10362	0	295	1.27	68	60
6	230	50	850	9469	36	351	1.52	65	60
7	230	50	850	8330	72	393	1.69	66	60
8	230	50	850	6503	108	438	1.89	67	60
9	230	50	700	8533	0	165	0.71	64	60
10	230	50	700	7798	25	196	0.85	61	60
11	230	50	700	6860	49	220	0.95	62	60
12	230	50	700	5355	74	245	1.05	63	60
13	230	50	550	6705	0	80	0.34	58	60
14	230	50	550	6127	15	95	0.41	55	60
15	230	50	550	5390	30	106	0.46	56	60
16	230	50	550	4208	45	119	0.51	57	60

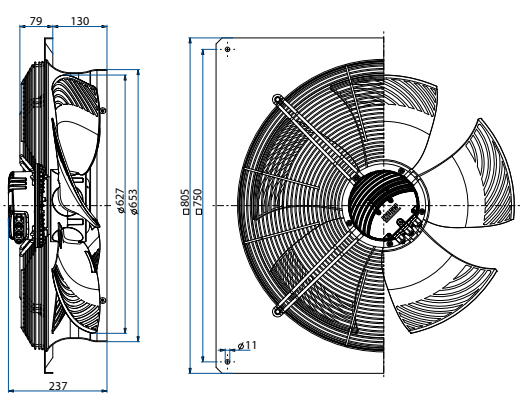
Airflow direction - blowing

Type: R14R-63APB-ES60B-01A04
Code: 0314-4-0049
Weight: 14.4 kg



Airflow direction - blowing

Type: R14P-63APB-ES60B-01A04
Code: 0314-4-0050
Weight: 23.1 kg



Diameter: 630 mm

R14_-63AP_-ET80B-14B17



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	3~
Nominal voltage	400 V
Nominal voltage range	380-480 V
Frequency	50-60 Hz
Input power	900 W
Input current	1.57 A
Nominal speed	1100 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

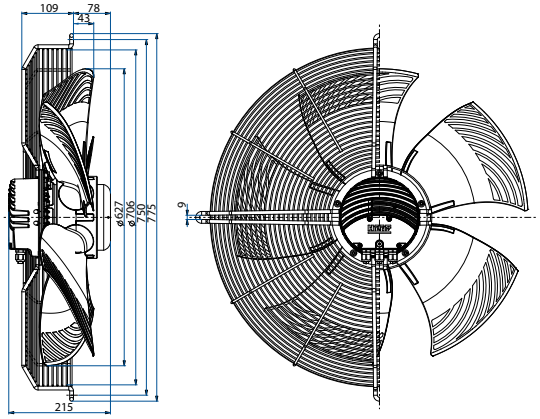
ErP data according to EU regulation 327/2011:	
Overall efficiency	52.4 %
Measurement category	A
Efficiency category	static
Efficiency grade N	53.1
Variable speed drive	INTEGRATED
Power input	0.88 kW
Air flow	9846 m^3/h
Pressure drop	160 Pa
Rotational speed	1112 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-1006	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

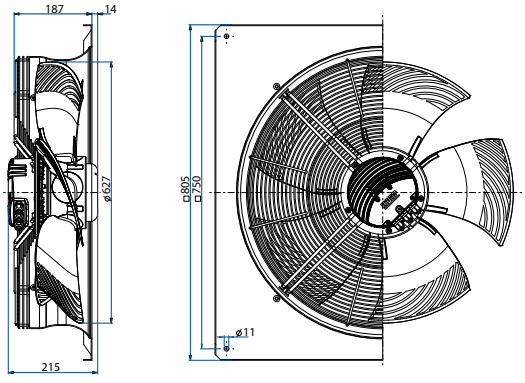
Airflow direction - sucking

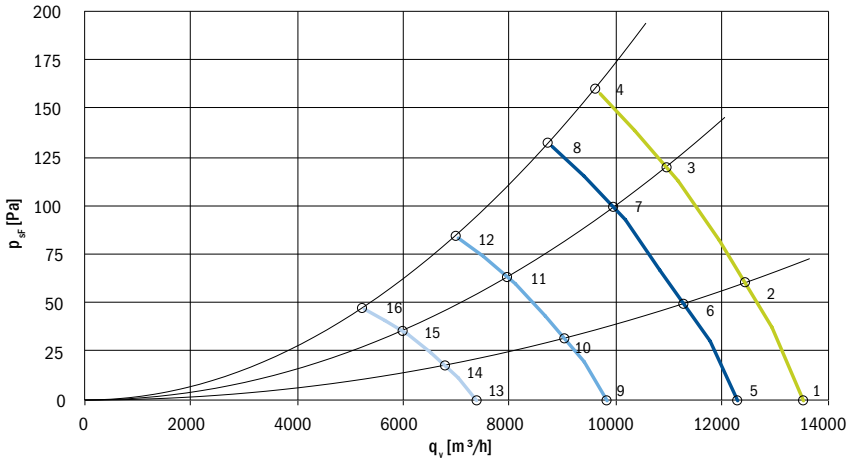
Type: R14R-63APS-ET80B-14B17
Code: 0314-4-0051
Weight: 16.1 kg



Airflow direction - sucking

Type: R14P-63APS-ET80B-14B17
Code: 0314-4-0052
Weight: 24.4 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

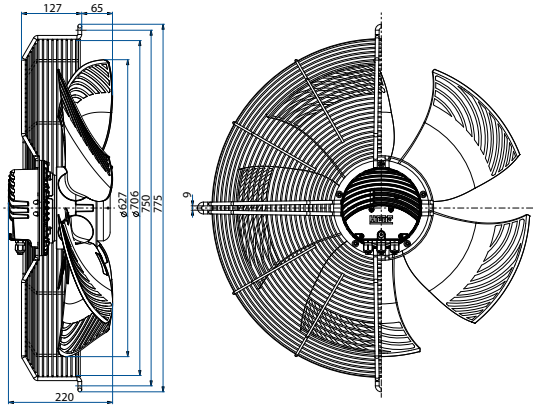
	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\ out}$ [dB (A)]	$T_{a\ max}$ [°C]
1	400	50	1110	13530	0	640	1.37	74	60
2	400	50	1110	12400	60	730	1.53	71	60
3	400	50	1110	10950	120	838	1.75	72	60
4	400	50	1110	9600	160	900	1.88	73	60
5	400	50	1000	12300	0	482	1.03	72	60
6	400	50	1000	11300	50	545	1.15	69	60
7	400	50	1000	9950	100	630	1.31	70	60
8	400	50	1000	8800	130	677	1.42	71	60
9	400	50	800	9840	0	247	0.53	67	60
10	400	50	800	9030	32	280	0.59	64	60
11	400	50	800	8000	63	322	0.67	65	60
12	400	50	800	7020	83	345	0.73	66	60
13	400	50	600	7380	0	104	0.22	61	60
14	400	50	600	6800	17	118	0.25	58	60
15	400	50	600	6000	35	135	0.28	59	60
16	400	50	600	5280	48	145	0.30	60	60

Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\ max}$ [°C]	Max. ambient temperature

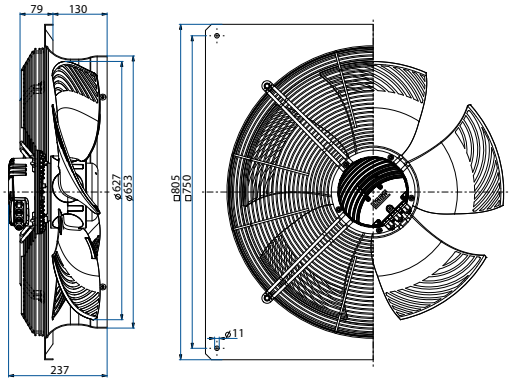
Airflow direction - blowing

Type: R14R-63APB-ET80B-14B17
Code: 0314-4-0053
Weight: 16.4 kg



Airflow direction - blowing

Type: R14P-63APB-ET80B-14B17
Code: 0314-4-0054
Weight: 24.6 kg



Diameter: **710 mm**

R14_-71AP_-ES80B-05A02



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	200-277 V
Frequency	50-60 Hz
Input power	400 W
Input current	1.7 A
Nominal speed	700 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

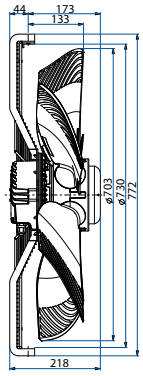
ErP data according to EU regulation 327/2011:	
Overall efficiency	51.0 %
Measurement category	A
Efficiency category	static
Efficiency grade N	59.8
Variable speed drive	INTEGRATED
Power input	0.42 kW
Air flow	9324 m^3/h
Pressure drop	77 Pa
Rotational speed	717 RPM
Specific ratio	1.00

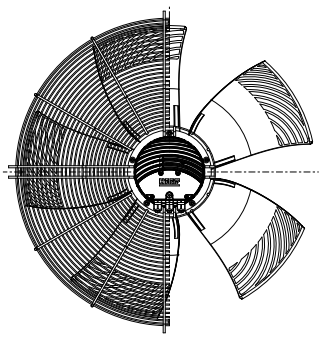
General notes	
Connection diagram: 0302-0-1005	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

Airflow direction - sucking

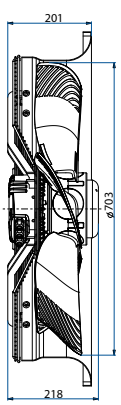
Type: R14R-71APS-ES80B-05A02
Code: 0314-4-0059
Weight: 16.4 kg

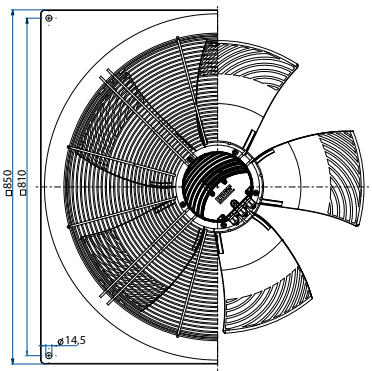


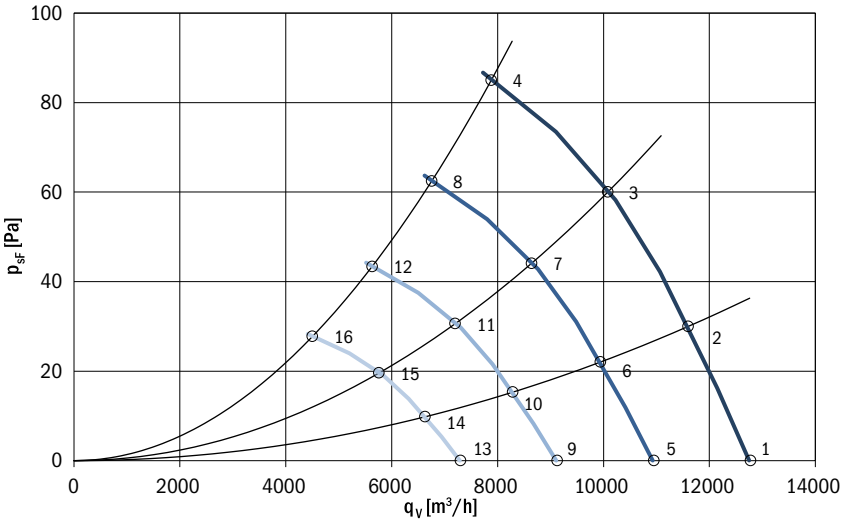


Airflow direction - sucking

Type: R14P-71APS-ES80B-05A02
Code: 0314-4-0060
Weight: 27.4 kg







Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	230	50	700	12780	0	300	1.30	70	60
2	230	50	700	11600	30	364	1.57	66	60
3	230	50	700	10080	60	405	1.73	65	60
4	230	50	700	7880	85	435	1.87	68	60
5	230	50	600	10954	0	189	0.82	68	60
6	230	50	600	9943	22	229	0.99	63	60
7	230	50	600	8640	44	255	1.09	62	60
8	230	50	600	6754	62	274	1.18	65	60
9	230	50	500	9129	0	109	0.47	63	60
10	230	50	500	8286	15	133	0.57	59	60
11	230	50	500	7200	31	148	0.63	58	60
12	230	50	500	5629	43	159	0.68	61	60
13	230	50	400	7303	0	56	0.24	57	60
14	230	50	400	6629	10	68	0.29	53	60
15	230	50	400	5760	20	76	0.32	52	60
16	230	50	400	4503	28	81	0.35	55	60



Type: R14R-71APB-ES80B-05A02
Code: On request
Weight:



Type: R14P-71APB-ES80B-05A02
Code: On request
Weight:

Diameter: **710 mm**

R14_-71AP_-ET80B-07B07



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	3~
Nominal voltage	400 V
Nominal voltage range	380-480 V
Frequency	50-60 Hz
Input power	800 W
Input current	1.38 A
Nominal speed	900 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

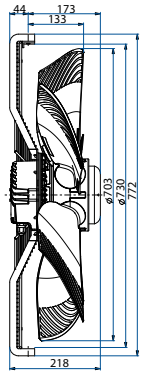
ErP data according to EU regulation 327/2011:	
Overall efficiency	49.9 %
Measurement category	A
Efficiency category	static
Efficiency grade N	56.7
Variable speed drive	INTEGRATED
Power input	0.86 kW
Air flow	11099 m^3/h
Pressure drop	133 Pa
Rotational speed	907 RPM
Specific ratio	1.00

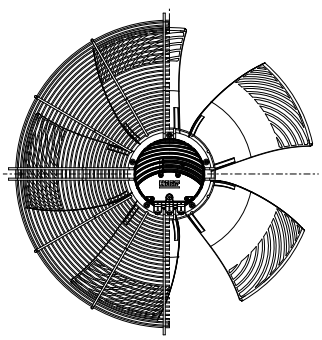
General notes	
Connection diagram: 0302-0-1006	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

Airflow direction - sucking

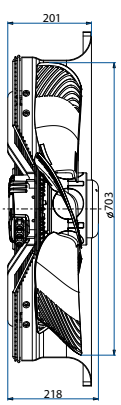
Type: R14R-71APS-ET80B-07B07
Code: 0314-4-0061
Weight: 16.6 kg

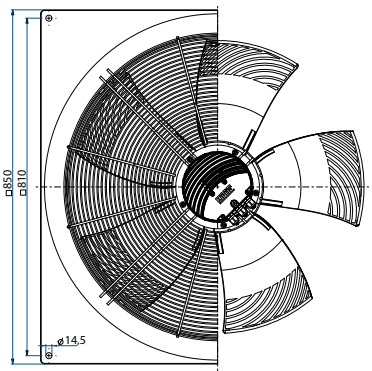


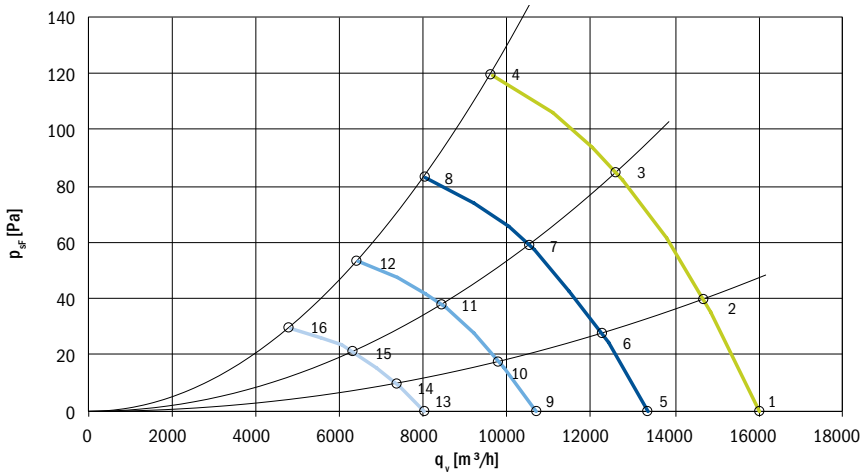


Airflow direction - sucking

Type: R14P-71APS-ET80B-07B07
Code: 0314-4-0062
Weight: 27.4 kg







Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\ out}$ [dB (A)]	$T_{a\ max}$ [°C]
1	400	50	900	16000	0	580	1.00	70	50
2	400	50	900	14700	40	669	1.12	69	50
3	400	50	900	12600	85	768	1.26	70	50
4	400	50	900	9600	120	881	1.45	74	50
5	400	50	750	13350	0	336	0.57	66	50
6	400	50	750	12250	27	386	0.64	65	50
7	400	50	750	10500	59	444	0.70	66	50
8	400	50	750	8000	83	510	0.79	70	50
9	400	50	600	10700	0	172	0.29	61	50
10	400	50	600	9850	17	197	0.33	60	50
11	400	50	600	8400	38	228	0.37	61	50
12	400	50	600	6450	53	261	0.40	65	50
13	400	50	450	8000	0	72	0.12	55	50
14	400	50	450	7350	10	84	0.13	54	50
15	400	50	450	6350	21	95	0.15	55	50
16	400	50	450	4800	30	110	0.17	59	50

Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\ max}$ [°C]	Max. ambient temperature

Airflow direction - blowing

Type: R14R-71APB-ET80B-07B07
Code: On request
Weight:

Airflow direction - blowing

Type: R14P-71APB-ET80B-07B07
Code: On request
Weight:

Diameter: 800 mm

R14_-80AP_-ES80B-14A01



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	1~
Nominal voltage	230 V
Nominal voltage range	200-277 V
Frequency	50-60 Hz
Input power	660 W
Input current	2.8 A
Nominal speed	710 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

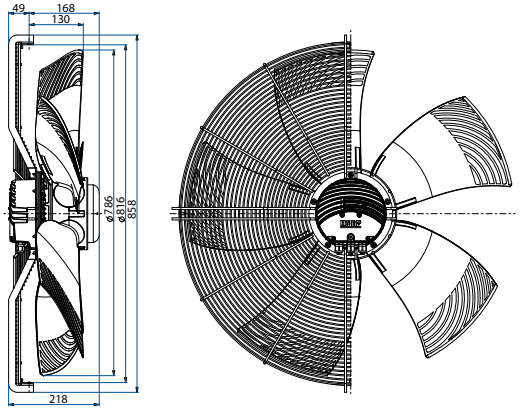
ErP data according to EU regulation 327/2011:	
Overall efficiency	49.6 %
Measurement category	A
Efficiency category	static
Efficiency grade N	56.3
Variable speed drive	INTEGRATED
Power input	0.71 kW
Air flow	11798 m^3/h
Pressure drop	101 Pa
Rotational speed	716 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-1005	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

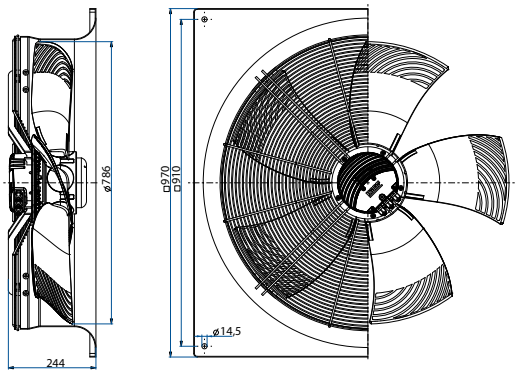
Airflow direction - sucking

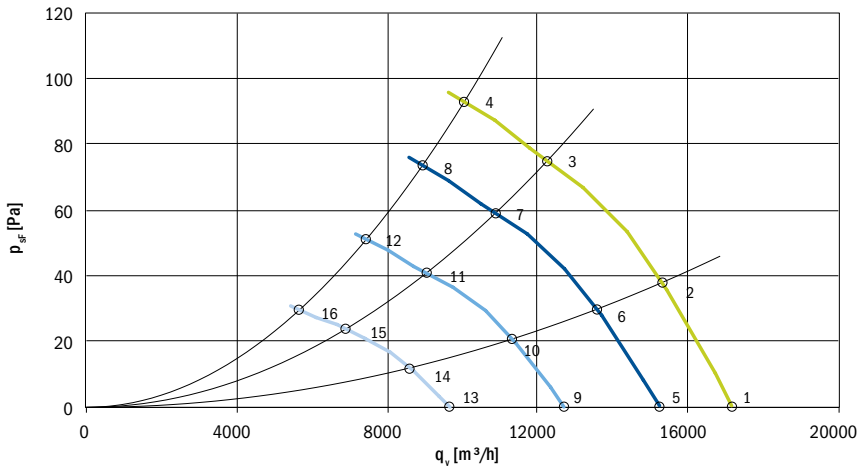
Type: R14R-80APS-ES80B-14A01
Code: 0314-4-0063
Weight: 17.2 kg



Airflow direction - sucking

Type: R14P-80APS-ES80B-14A01
Code: 0314-4-0064
Weight: 32.7 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\ out}$ [dB (A)]	$T_{a\ max}$ [°C]
1	230	50	710	17200	0	455	2.03	69	50
2	230	50	710	15300	38	555	2.48	64	50
3	230	50	710	12250	75	665	3.04	63	50
4	230	50	710	10050	93	720	3.35	68	50
5	230	50	630	15250	0	315	1.42	66	50
6	230	50	630	13550	30	390	1.72	61	50
7	230	50	630	10850	59	465	2.12	60	50
8	230	50	630	8950	73	505	2.36	65	50
9	230	50	525	12700	0	185	0.82	62	50
10	230	50	525	11350	20	225	1.00	57	50
11	230	50	525	9100	40	265	1.21	56	50
12	230	50	525	7400	51	292	1.36	61	50
13	230	50	400	9700	0	81	0.37	57	50
14	230	50	400	8700	11	97	0.43	52	50
15	230	50	400	7000	23	117	0.55	51	50
16	230	50	400	5700	29	128	0.62	56	50

Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\ max}$ [°C]	Max. ambient temperature

Airflow direction - blowing

Type: R14R-80APB-ES80B-14A01
Code: On request
Weight:

Airflow direction - blowing

Type: R14P-80APS-ES80B-14A01
Code: On request
Weight:

Diameter: **800 mm**

R14_-80AP_-ET80B-07B03



COMPLIANT TO ErP2015

Nominal data according to standard IEC 60034 (max. load):	
Phase	3~
Nominal voltage	400 V
Nominal voltage range	380-480 V
Frequency	50-60 Hz
Input power	660 W
Input current	1.15 A
Nominal speed	720 RPM
Min. ambient temperature	-25 °C
Protection class	IP54
Insulation class	130

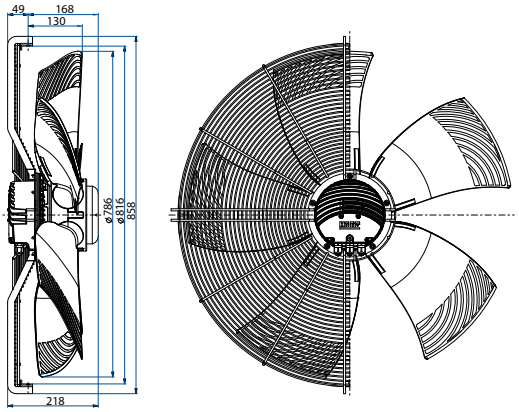
ErP data according to EU regulation 327/2011:	
Overall efficiency	49.3 %
Measurement category	A
Efficiency category	static
Efficiency grade N	56.6
Variable speed drive	INTEGRATED
Power input	0.71 kW
Air flow	11806 m^3/h
Pressure drop	101 Pa
Rotational speed	720 RPM
Specific ratio	1.00

General notes	
Connection diagram: 0302-0-1006	See section Connection diagrams
Guard grills & wall-plates	See section Accessories
Standards compliance	See introduction page

Dimensions and fan ordering information

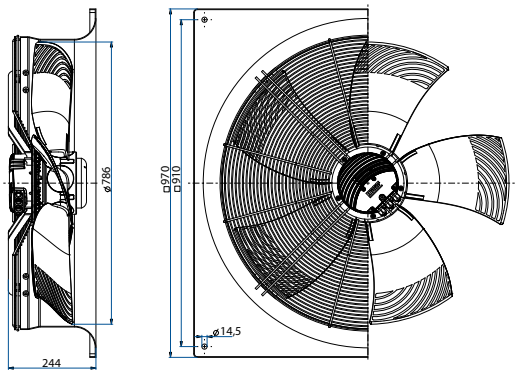
Airflow direction - sucking

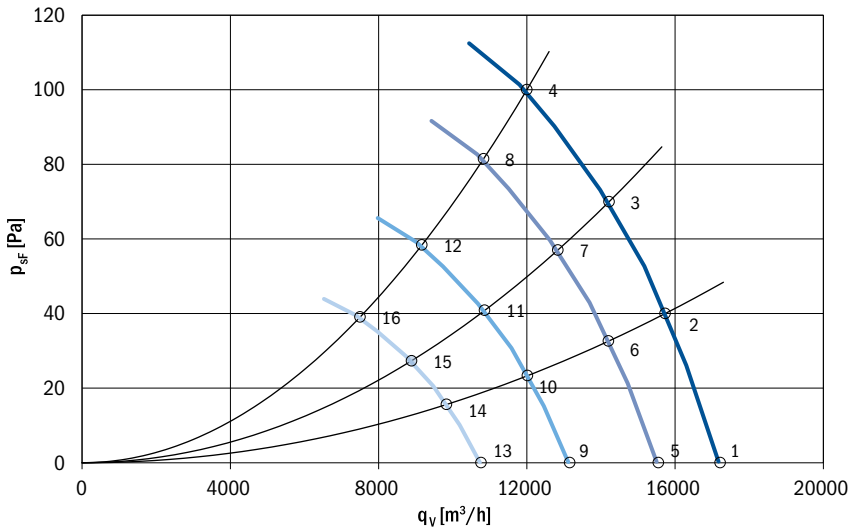
Type: R14R-80APS-ET80B-07B03
Code: 0314-4-0065
Weight: 17.2 kg



Airflow direction - sucking

Type: R14P-80APS-ET80B-07B03
Code: 0314-4-0066
Weight: 32.2 kg





Aerodynamic characteristic:

- measured in full bell mouth without guard grill
- instalation category A according to ISO 5801

Sound power level:

- measured on pressure side
- fan mounted in full bell mouth without guard grill
- measured according to ISO 3741; instalation type A

The values given may vary according to actual installation in the unit.

Definition of symbols

U [V]	Supply voltage
f [Hz]	Frequency
n [RPM]	Fan speed
q_v [m³/h]	Air flow
p_{sF} [Pa]	Pressure drop
P_e [W]	Power input
I [A]	Current
L_{wA} [dB (A)]	Sound power level A weighted
$T_{a\,max}$ [°C]	Max. ambient temperature

	U [V]	f [Hz]	n [RPM]	q_v [m³/h]	p_{sF} [Pa]	P_e [W]	I [A]	$L_{wA\,out}$ [dB (A)]	$T_{a\,max}$ [°C]
1	400	50	720	17220	0	470	0.87	70	60
2	400	50	720	15730	40	571	1.02	66	60
3	400	50	720	14220	70	648	1.07	65	60
4	400	50	720	12000	100	705	1.23	68	60
5	400	50	650	15546	0	346	0.64	68	60
6	400	50	650	14201	33	420	0.75	63	60
7	400	50	650	12838	57	477	0.79	62	60
8	400	50	650	10833	82	519	0.90	65	60
9	400	50	550	13154	0	210	0.39	63	60
10	400	50	550	12016	23	255	0.45	59	60
11	400	50	550	10863	41	289	0.48	58	60
12	400	50	550	9167	58	314	0.55	61	60
13	400	50	450	10763	0	115	0.21	57	60
14	400	50	450	9831	16	139	0.25	53	60
15	400	50	450	8888	27	158	0.26	52	60
16	400	50	450	7500	39	172	0.30	55	60



Type: R14R-80APB-ET80B-07B03
Code: On request
Weight:



Type: R14P-80APB-ET80B-07B03
Code: On request
Weight:

02



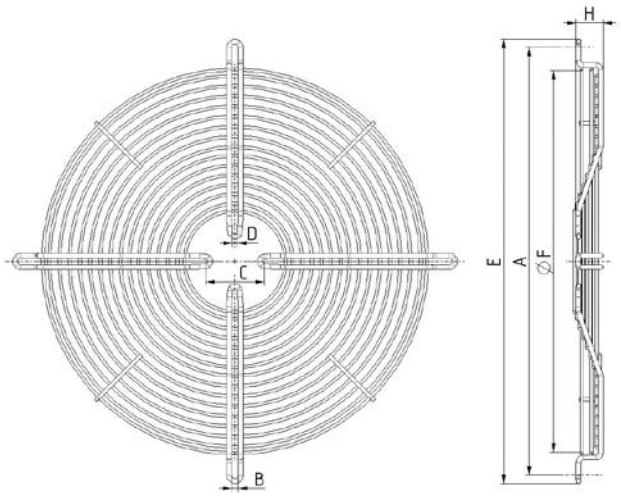
Accessories

Guard grills

Main dimensions – Basket grills Type 1

Fan dia	Motor type	A	B	C	D	E	∅F	G	H	Code
300	EC09	360	6.5	125	5	380	323	63	83	0300-1-3513
300	EC09	360	6.5	125	5	380	323	4	24	0300-1-3517
300	EC09	360	6.5	125	5	380	323	28	47.5	0300-1-3523
350	EC09	422	6.5	125	5	440	380	43	70	0300-1-3502
350	EC09	422	6.5	125	5	440	389	-12	30	0300-1-3516
350	EC09	422	6.5	125	5	440	380	48	75	0300-1-3520
350	EC09	422	6.5	125	5	440	389	25	52	0300-1-3524
400	EC09	455	6.5	125	5	474	419	45	73	0300-1-3510
400	EC09	502	6.5	125	5	520	459	-12	30	0300-1-3518
400	EC09	455	6.5	125	5	474	419	70	98	0300-1-3521
400	EC09	502	6.5	125	5	520	459	30	57	0300-1-3525
450	EC09	515	6.5	125	5	534	479	48	76	0300-1-3515
450	EC09	560	6.5	125	5	578	521	-12	30	0300-1-3519
450	EC09	515	6.5	125	5	534	479	66.5	94	0300-1-3522
450	EC09	560	6.5	125	5	578	521	27	54	0300-1-3526

Basket grills Type 1

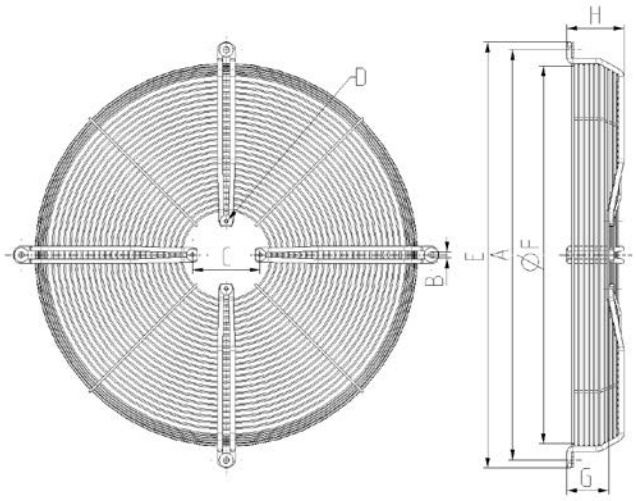


Notes: Surface black painted RAL9005

Main dimensions – Basket grills Type 2

Fan dia	Motor type	A	∅ B	C	∅ D	E	∅ F	G	H	Code
450	EC10	515	9	164	7	534	475	47	82	0300-1-3349
450	EC10	515	9	164	7	534	475	68	103	0300-1-3388
500	EC10	565	9	164	7	590	522	56	93	0300-1-3348
560	EC10	700	9	164	7	725	645	62	99	0300-1-3409
630	EC10	750	9	164	7	775	695	81	118	0300-1-3347
630	EC10	750	9	164	7	775	695	48	85	0300-1-3386
500	EC14	565	9.5	186	7	591	521	55.5	97	0300-1-3412
500	EC14	565	9	186	7	594	521	80.5	122	0300-1-3468
500	EC14	615	9	186	7	645	571	28.5	70	0300-1-3489
560	EC14	658	9	186	7	690	616	32.5	74	0300-1-3490
560	EC14	700	9	186	7	725	656	44.5	86	0300-1-3466
560	EC14	700	9	186	7	725	656	104.5	146	0300-1-3487
630	EC14	720	9	186	7	753	684	17	59	0300-1-3491
630	EC14	750	9	186	7	775	706	67	109	0300-1-3469
630	EC14	750	9	186	7	775	706	85	127	0300-1-3488

Basket grills Type 2



Notes: Surface black painted RAL9005

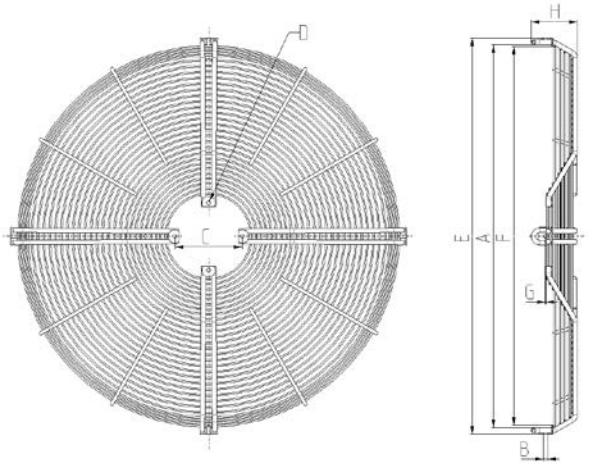
Main dimensions – Basket grills Type 3

Fan dia	Motor type	A	∅ B	C	∅ D	E	F	G	H	Code
500	EC10	519	7	164	6.5	537	507	1	50	0300-1-3381
560	EC10	578	7	164	6.5	596	566	6	66	0300-1-3398
630	EC10	654	7	164	6.5	672	642	6	66	0300-1-3382
500	EC14	519	7	186	7	539	513	2	71	0300-1-3441
630	EC14	654	7	186	7	674	648	- 8	61	0300-1-3451

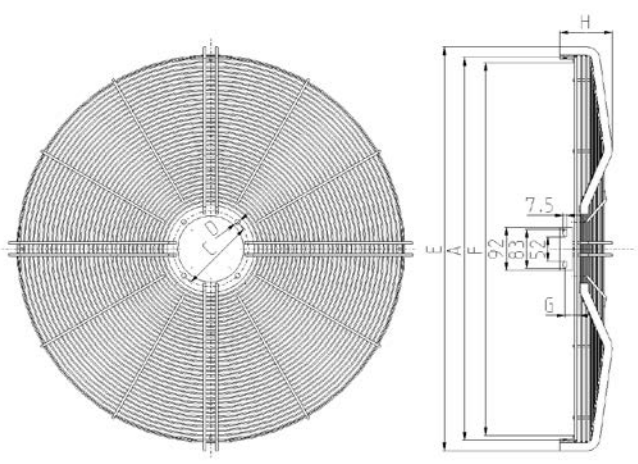
Main dimensions – Basket grills Type 4

Fan dia	Motor type	A	B	C	∅ D	E	F	G	H	Code
710	EC14	730	8 x 15	186	7	772	707	-28	60	0300-1-3445
800	EC14	816	8 x 15	186	7	858	793	-23	60	0300-1-3442

Basket grills Type 3



Basket grills Type 4



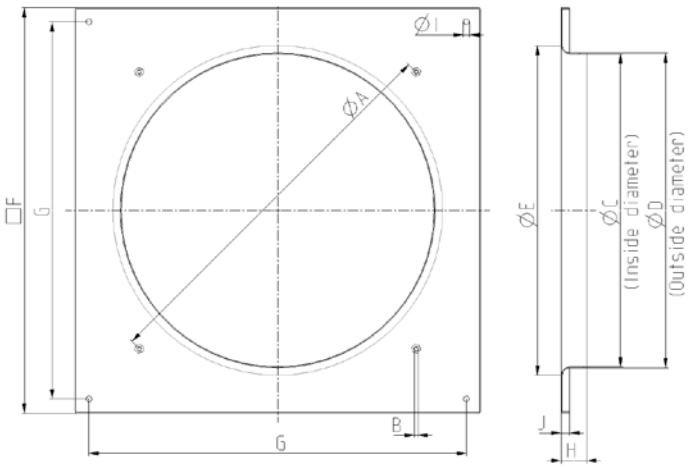
Notes: Surface black painted RAL9005

Wall plates

Main dimensions – Square short wall plates

Fan dia	Airflow direction	A	B	∅C	∅D	∅E	q F	G	H	∅I	J	Code
300	sucking	360	M6	307	310	337	430	380	45	11	15	0300-6-7122
300	blowing	360	M6	307	310	337	430	380	45	11	15	0300-6-7073
315	sucking	375	M6	319	322	349	430	380	45	11	15	0300-6-7120
315	blowing	375	M6	319	322	349	430	380	45	11	15	0300-6-7075
330	sucking	400	M6	337	340	367	485	435	45	11	15	0300-6-7118
330	blowing	400	M6	337	340	367	485	435	45	11	15	0300-6-7104
350	sucking	422	M6	360	363	390	485	435	45	11	15	0300-6-7116
350	blowing	422	M6	360	363	390	485	435	45	11	15	0300-6-7077
400	sucking	455	M8	403	406	433	540	490	45	11	15	0300-6-7114
400	blowing	455	M8	403	406	433	540	490	45	11	15	0300-6-7079
420	blowing	483	M8	426	429	460	575	535	45	11	15	0300-6-7087
450	sucking	515	M8	452	455	482	575	535	45	11	15	0300-6-7112
450	blowing	515	M8	452	455	482	575	535	45	11	15	0300-6-7069
500	sucking	565	M8	504	507	534	655	615	45	11	15	0300-6-7110
500	blowing	565	M8	504	507	534	655	615	45	11	15	0300-6-7081
560	sucking	700	M8	560	563	590	725	675	45	11	15	0300-6-7108
560	blowing	700	M8	560	563	590	725	675	45	11	15	0300-6-7083
630	sucking	750	M8	635	638	675	805	750	60	11	15	0300-6-7106
630	blowing	750	M8	635	638	675	805	750	60	11	15	0300-6-7071

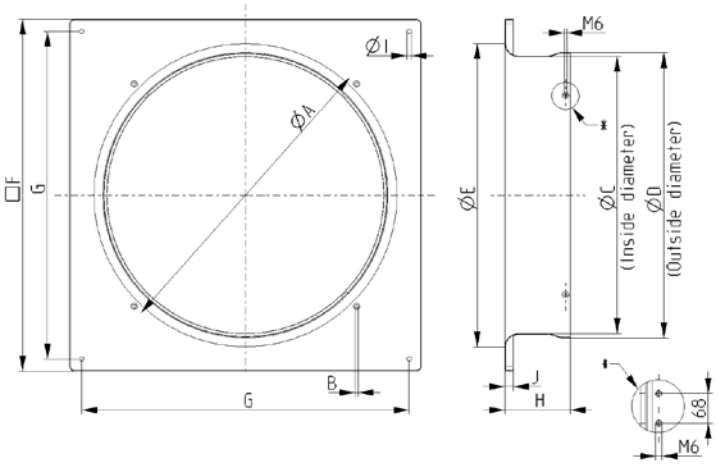
Square short wall plate



Main dimensions – Square long wall plates

Fan dia	Airflow direction	A	B	∅C	∅D	∅E	q F	G	H	∅I	J	Code
500	sucking	615	M8	504	518	585	656	615	118	11	16	0300-6-7089
560	sucking	658	M8	560	577	630	725	675	135	11	16	0300-6-7095
630	sucking	720	M8	634	653	695	805	750	150	11	20	0300-6-7091
710	sucking	/	/	711	729	790	850	810	167	14.5	20	0300-6-7085
800	sucking	/	/	797	815	915	970	910	210	14.5	17	0300-6-7068

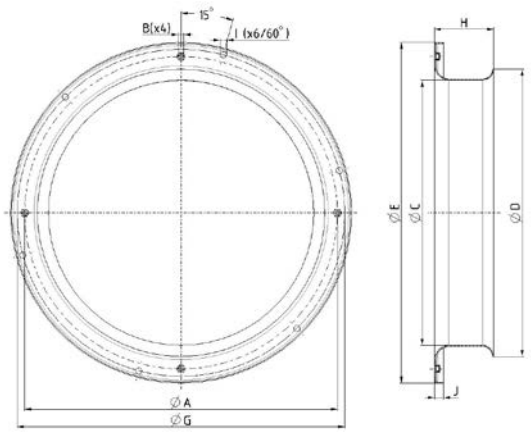
Square long wall plate



Main dimensions – Round long wall plates 1

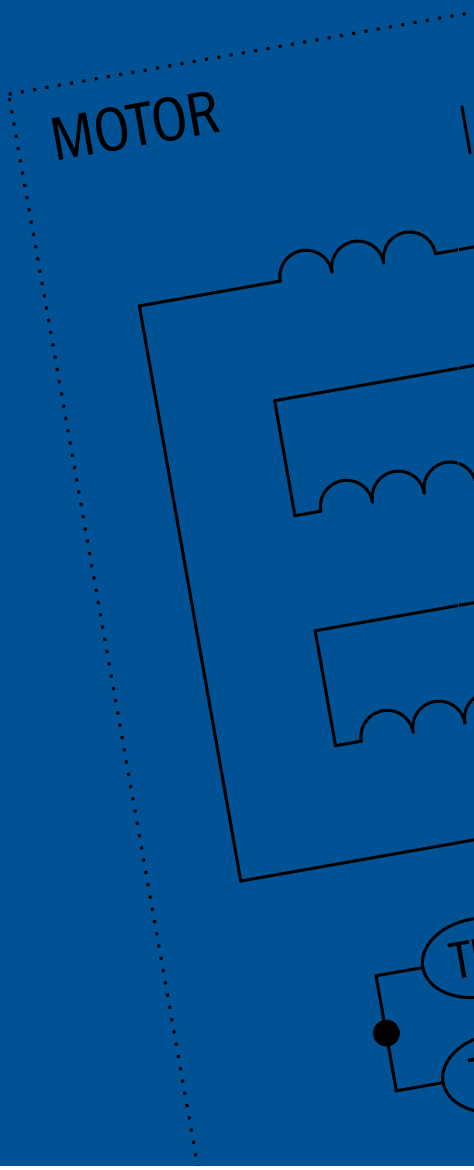
Fan dia	Airflow direction	A	B	∅C	∅D	∅E	q F	G	H	∅I	J	Code
300	sucking	361	M6	306	326	397	/	380	80	9	11	0300-6-7144
315	sucking	375.5	M6	317	347	397	/	380.5	74	9	11	0300-6-7146
330	sucking	408	M6	336	369	440	/	404	80	9	9	0300-6-7148
350	sucking	422	M6	358	388	460	/	442	80	9	12	0300-6-7150
400	sucking	502	M6	400	419	528	/	504	96	9	12	0300-6-7166
420	sucking	502	M8	426	447	544	/	520	96	9	12	0300-6-7168
450	sucking	560	M8	454	465	607	/	578	100	9	14	0300-6-7170

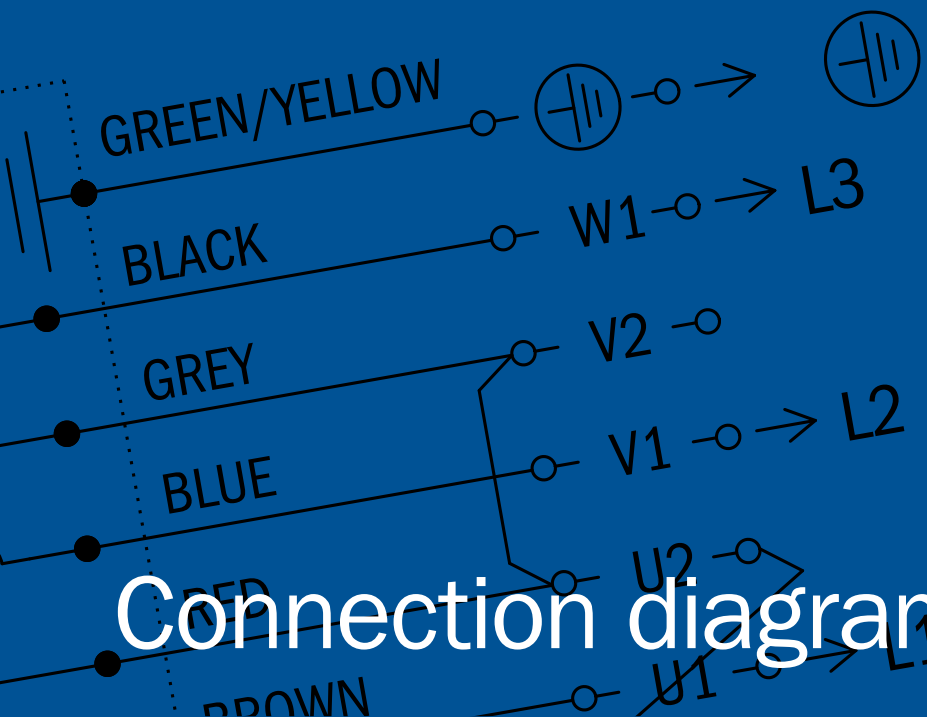
Round long wall plate Type 1



Notes: Surface black painted RAL9005

03

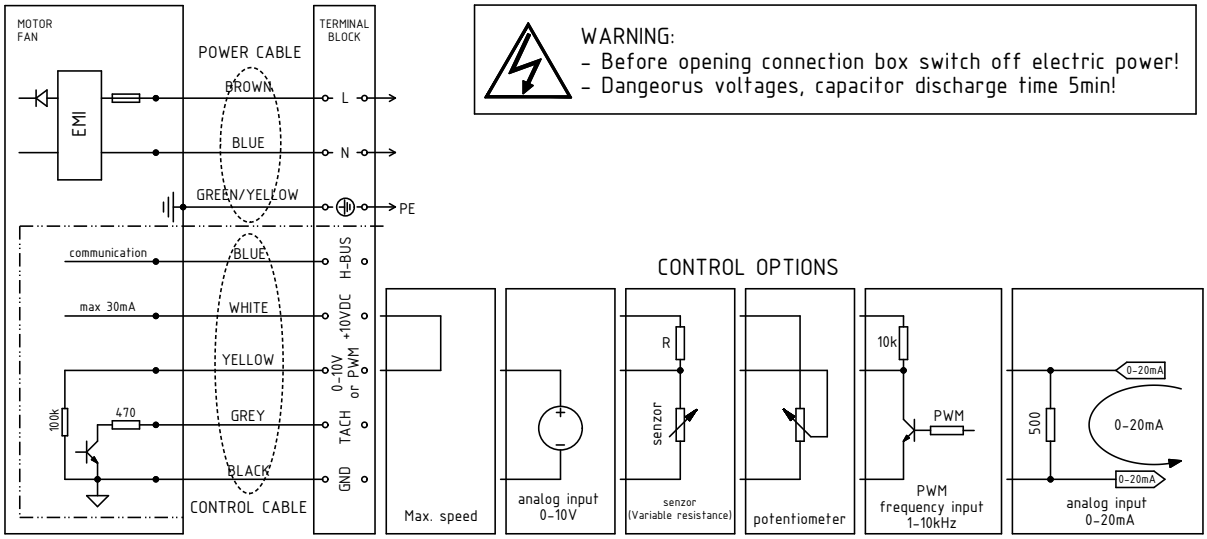




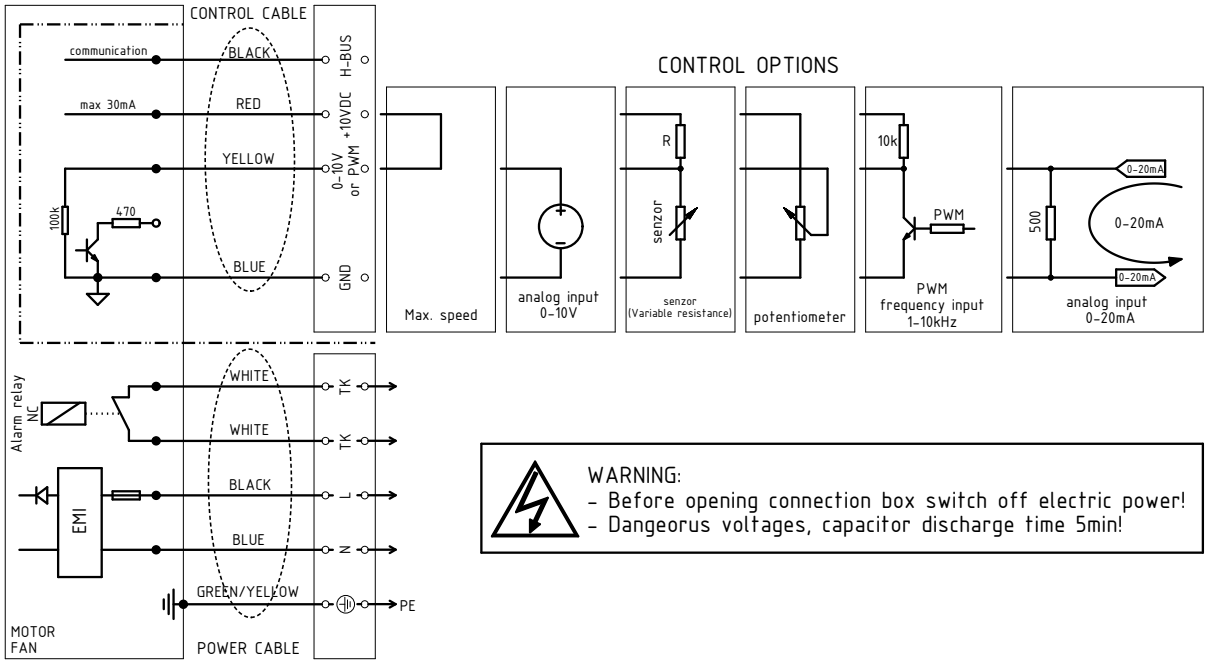
Connection diagrams

Connection diagrams

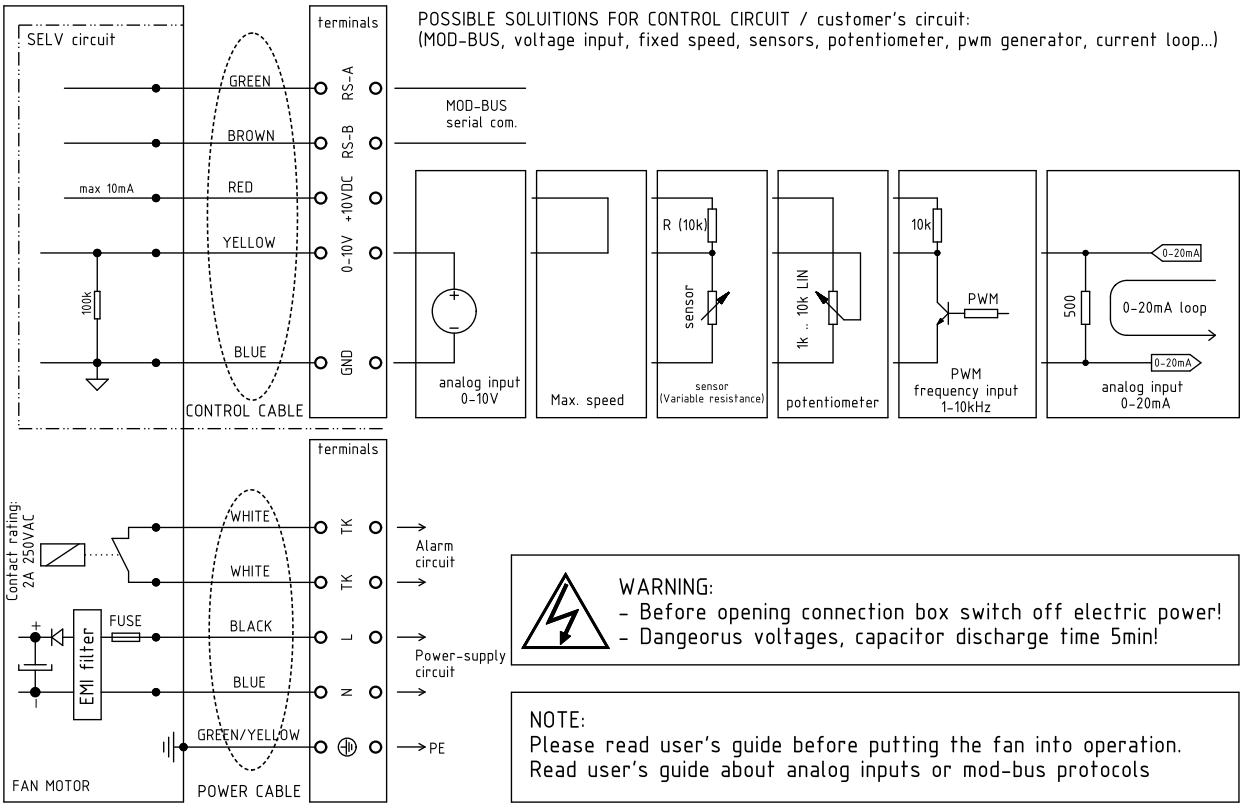
Connection diagrams 0302-1-0000



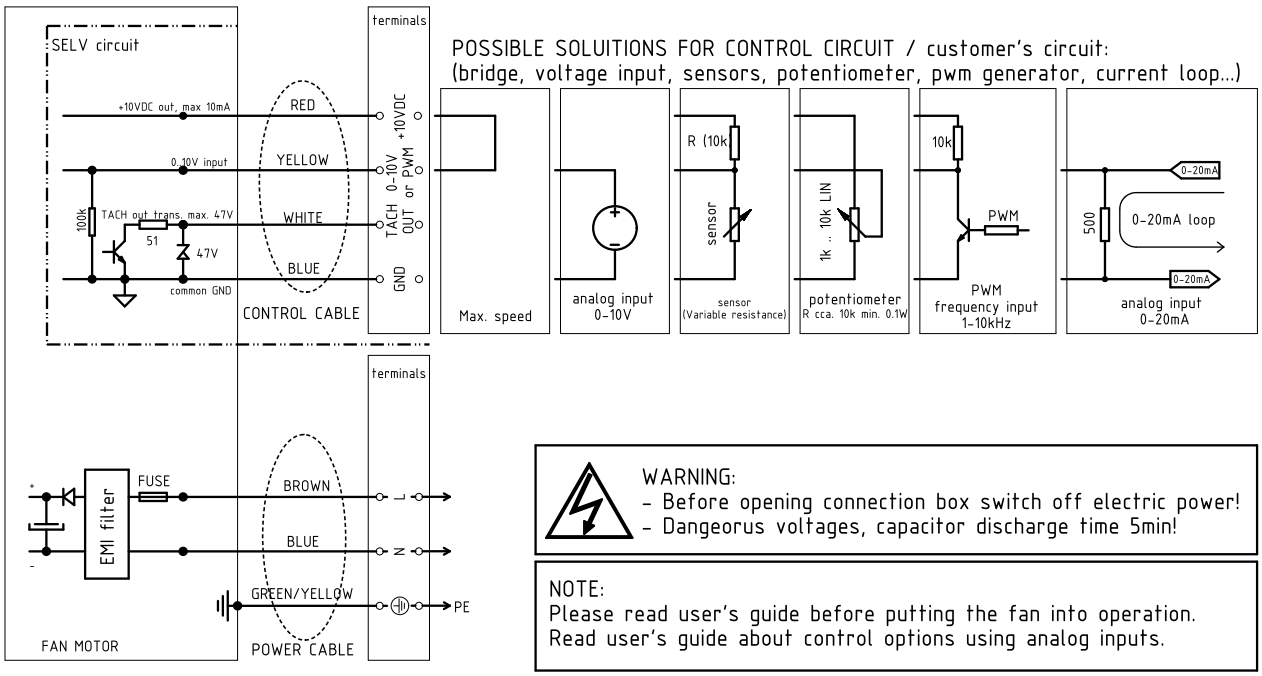
Connection diagrams 0302-0-0001



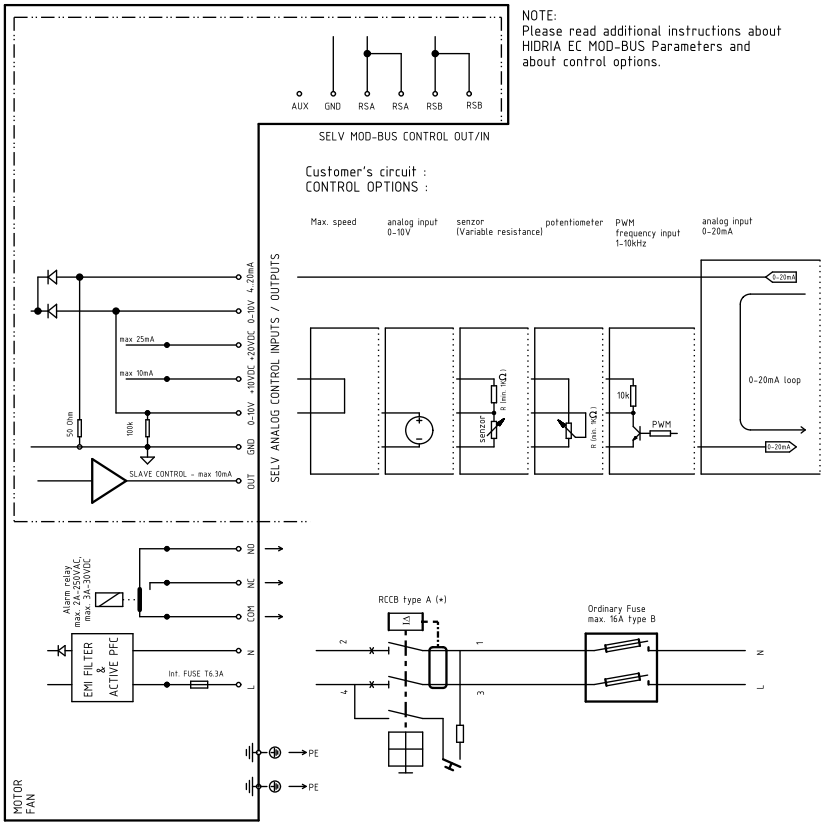
Connection diagrams 0302-0-0006



Connection diagrams 0302-0-0008



Connection diagrams 0302-0-1005

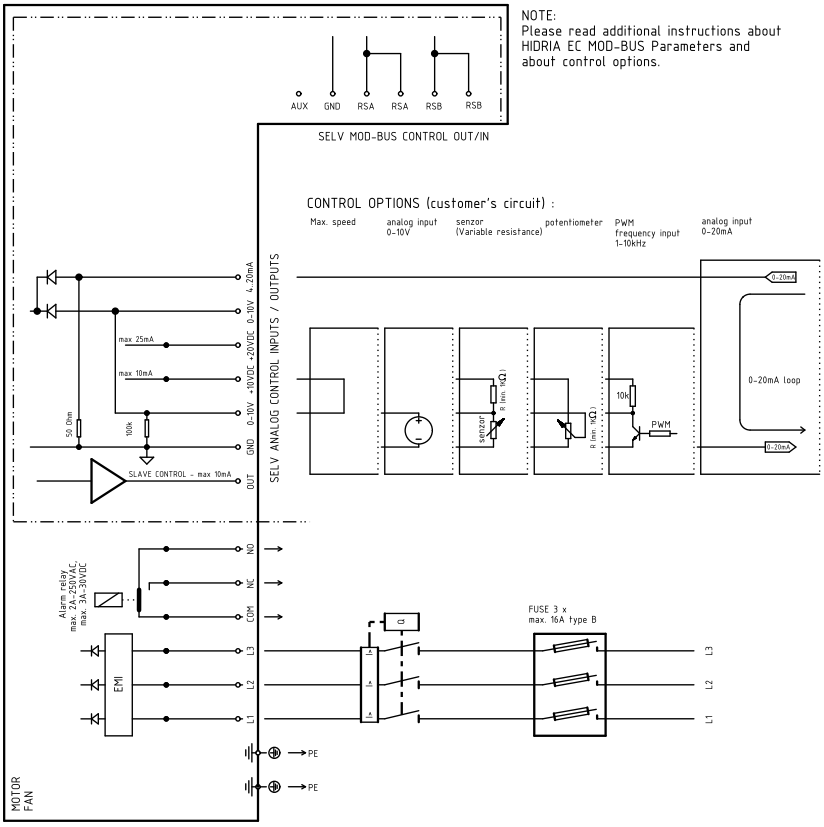


Leakage current exceeds 3.5mA!

WARNING:
- Before opening connection box switch off electric power!
- Dangeorus voltages, capacitor discharge time 5min!

NOTE:
Please read user's guide for more instructions about control options and before putting the fan into operation.

Connection diagrams 0302-0-1006



Leakage current exceeds 3.5mA!

WARNING:
- Before opening connection box switch off electric power!
- Dangeorus voltages, capacitor discharge time 5min!

NOTE:
Please read user's guide for more instructions about control options and before putting the fan into operation.

04

Appendix

$$\frac{V_1}{V_2} = \frac{n_1}{n_2}$$

$$\frac{p_1}{p_2} = \left(\frac{n_1}{n_2}\right)^2 = \left(\frac{V_1}{V_2}\right)^2$$

$$\frac{P_1}{P_2} = \left(\frac{n_1}{n_2}\right)^3 = \left(\frac{V_1}{V_2}\right)^3$$

$$L_{wA_2} = L_{wA_1} + 50 \log\left(\frac{n_2}{n_1}\right)$$

Conversion tables

Volume flow	
[m^3/h]	[ft^3/min]
0	0
100	59
200	118
300	177
400	235
500	294
600	353
700	412
800	471
900	530
1000	589
1200	706
1400	824
1600	942
1800	1059
2000	1177
2500	1471
3000	1766
3500	2060
4000	2354
4500	2649
5000	2943
6000	3531
7000	4120
8000	4709
9000	5297
10000	5886
11000	6474
12000	7063
13000	7652
14000	8240
15000	8829
16000	9417
17000	10006
18000	10594
19000	11183
20000	11772
21000	12360
22000	12949
23000	13537
24000	14126
25000	14714
26000	15303

Pressure		
[Pa]	[mmHg]	[mmH_2O]
0	0,000	0,000
5	0,038	0,510
10	0,075	1,020
15	0,113	1,530
20	0,150	2,039
25	0,188	2,549
30	0,225	3,059
35	0,263	3,569
40	0,300	4,079
45	0,338	4,589
50	0,375	5,099
55	0,413	5,608
60	0,450	6,118
65	0,488	6,628
70	0,525	7,138
75	0,563	7,648
80	0,600	8,158
85	0,638	8,668
90	0,675	9,177
95	0,713	9,687
100	0,750	10,197
125	0,938	12,746
150	1,125	15,296
175	1,313	17,845
200	1,500	20,394
300	2,250	30,591
400	3,000	40,789
500	3,750	50,986
600	4,500	61,183
700	5,250	71,380
800	6,001	81,577
900	6,751	91,774
1000	7,501	101,972
1100	8,251	112,169
1200	9,001	122,366
1300	9,751	132,563
1400	10,501	142,760
1500	11,251	152,957
1600	12,001	163,155
1700	12,751	173,352
1800	13,501	183,549
1900	14,251	193,746
2000	15,001	203,943

Temperature	
[C°]	[F]
-30,0	-22,0
-27,5	-17,5
-25,0	-13,0
-22,5	-8,5
-20,0	-4,0
-17,5	0,5
-15,0	5,0
-12,5	9,5
-10,0	14,0
-7,5	18,5
-5,0	23,0
-2,5	27,5
0,0	32,0
2,5	36,5
5,0	41,0
7,5	45,5
10,0	50,0
12,5	54,5
15,0	59,0
17,5	63,5
20,0	68,0
22,5	72,5
25,0	77,0
27,5	81,5
30,0	86,0
32,5	90,5
35,0	95,0
37,5	99,5
40,0	104,0
42,5	108,5
45,0	113,0
47,5	117,5
50,0	122,0
52,5	126,5
55,0	131,0
57,5	135,5
60,0	140,0
62,5	144,5
65,0	149,0
67,5	153,5
70,0	158,0
72,5	162,5
75,0	167,0

Fluid flow rules for fans

Speed variation at constant fan size and constant density:

$$\frac{V_1}{V_2} = \frac{n_1}{n_2}$$

The volume flow changes proportionately to the speed.

$$\frac{p_1}{p_2} = \left(\frac{n_1}{n_2}\right)^2 = \left(\frac{V_1}{V_2}\right)^2$$

All pressures (static, dynamic and total) change proportionately to the square of speed or volume flow.

$$\frac{P_1}{P_2} = \left(\frac{n_1}{n_2}\right)^3 = \left(\frac{V_1}{V_2}\right)^3$$

The power requirement changes proportionately to the third power of speed or volume flow.

$$L_{wA_2} = L_{wA_1} + 50 \log\left(\frac{n_2}{n_1}\right)$$

Correlation between sound power level (A weighted) and fan rotation speed.

In the case of changes in the wheel diameter of geometrically similar wheels at constant speed:

$$\frac{V_1}{V_2} = \left(\frac{D_1}{D_2}\right)^3$$

The volume flow changes proportionately to the third power of wheel diameter.

$$\frac{p_1}{p_2} = \left(\frac{D_1}{D_2}\right)^2$$

All pressures (static, dynamic and total) change proportionately to the square of wheel diameter.

$$\frac{P_1}{P_2} = \left(\frac{D_1}{D_2}\right)^5$$

The power requirement changes proportionately to the fifth power of wheel diameter.

Changes in the density at constant speed (or change of the Kelvin temperature at a constant volume flow):

$$V = \text{Const}$$

The volume flow is not affected.

$$\frac{p_1}{p_2} = \frac{\rho_1}{\rho_2} = \frac{T_2}{T_1}$$

All pressures (static, dynamic and total) change proportionately to the density.*

$$\frac{P_1}{P_2} = \frac{\rho_1}{\rho_2} = \frac{T_2}{T_1}$$

The power requirement changes proportionately to the density.*

*Temperature is expressed in kelvin scale [K]

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