

Tangential-, radial-, axial blowers  
Hot air blowers  
Pumps

Catalogue 2009







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## Company profile: ebm-papst

The entire scope of air and drive technology: this is the world of ebm-papst. Originating from the companies ebm, PAPST and mvl, all three rich in tradition, ebm-papst has at its disposal a unique range of products that makes us world market leader. We unite the fortes of three remarkable companies – each of them having worked hard to succeed in attaining a leading position in the most diverse fields and segments. More than 9.700 members of staff in Germany and throughout the world develop, produce and distribute our motors and fans. Striving for perfect solutions in applications in the different industries is what determines our daily work. Those who know us know the high standards we apply to our work and our creed: to be as close to our customers as possible and to be simply the best in terms of innovation and reliability.



*Our location in Landshut*



*Left:  
Our headquarters in Muldingen  
Right:  
Our location in St. Georgen*

For years, ebm, PAPST und mvl have been working together hand in hand. For the benefit of our customers, we use the synergy effect generated by our co-operation and the product ranges that complement each other so well. And now, in 2003, we move even closer and document this closeness in a joint public appearance and a joint name: ebm-papst.

#### **We remain the same- only better!!**

Though our outward appearance may have changed, our “inner” values remain the same. We still want you to enjoy being close to your established contacts, making their commitment and know-how help you succeed in your specific task. And, of course, we also want you to enjoy the same quality and selection of ebm, PAPST and mvl products:  
ebm products are now available from ebm-papst Muldingen  
PAPST products are now available from ebm-papst St. Georgen  
mvl are now available from ebm-papst Landshut.

#### **Passionately involved in R&D**

Our catalogues just list the results of our incessant efforts in R&D: products of highest quality and reliability. After all, it is our passion to constantly try something new and improve what we have. In doing so, we take advantage of the latest development methods and state-of-the-art technology and invest quite heavily in R&D facilities. Best of all, though: we rely on excellently trained and skilled engineers and technicians to be at your service in R&D and Sales & Distribution.

#### **Producing and safeguarding high-quality products and services**

This is our promise that knows no boundaries. Whether we manufacture in our national headquarters or in one of our 17 international production facilities – we insist on the same high level of quality! No cheap compromises when it comes to quality control! And this across all levels of production and throughout all processes: consulting customers, development, material selection through to picking certified, choice suppliers and on to the production of parts and final delivery. On top of this, our products have to pass the most rigorous test procedures under all realistic operating conditions: continuous stress test, salt spray test, vibration test, or in the room for precision noise measuring, just to mention a few. And the product gets

clearance for serial production only after all the desired characteristics have been determined to be just right.

Environmental care is another priority with ebm-papst. This is why we have developed our product line in EC technology, which makes for very low power consumption, and why we take pride in our manufacturing philosophy. There is absolute focus on environmental care in production, recycling, waste and waste water disposal.

#### **Global Domestic**

In order to be specialist for customised solutions throughout the world, you need strong partners. Global Domestic – i.e. being present all over the world and being a national company in each individual country – is how we have established ourselves with our successful subsidiaries in all important markets on this globe. And so you will always find ebm-papst close to home and knowing the demands of your very markets. Besides, our worldwide production alliance serves as a basis for competitive pricing. Our global services and logistic outlets, i.e. IT networking, safeguard short reaction times and just-in-time delivery.

All our efforts are documented in a comprehensive quality management system, both for products and services. Being certified as complying with the tough requirements of the international standards DIN EN ISO 9001:2000, ISO/TS 16949-2 and of standard DIN EN ISO 14001 is just one seal of approval we have got for our incessant strife to provide only the best quality products and services.

# Our keys to success

**Our innovations and technologies keep on turning into new industrial standards. This competitive capability can only be maintained by seeing ventilation as a whole: the interrelationship between and the system of motor engineering, aerodynamics, and electronics. These are our three core competences, imminently connected and linked in each of our products. And so we handle air intelligently and quietly and continue to set new standards in drive technology. Our system solutions already form the main part of our product range. And they will be the main key to our success.**



*Production*



*Winding machine*

## **Motor engineering, aero-dynamics, electronics**

Our drive is well known and famous with specialists: our external-rotor motor, which has made us world market leader, quietly, yet powerfully. Being versatile as to integration, it is ideally suited to the most diverse applications. Based on this principle, we here at ebm-papst have developed the widest range of fans and motor types in the world. And for hot or aggressive blower mediums, the internal-rotor motor is the perfect complement.

Also, in drive technology, certain applications simply require the internal-rotor motor principle, and they are then realised with our motors specifically developed for such cases. Take, for instance, the steering support motor in the automotive field developed as innovation in active steering.

When it comes to airflow: this can be engineered, too. Be it axial or centrifugal fans, centrifugal blowers, compact fans or tangential blowers: we always design fan blades, impeller blades and ducted housings with the specific application in mind. We strive to minimise noise and to optimise efficiency. This is the challenge that we have taken up and which we meet working away powerfully and quietly.

Finally, intelligence will become the decisive factor on all markets in future. After all, only in connection with electronics can drive and air-flow - as system solution - have an optimal effect in a product or application. Interfaces are avoided, and thus potential faults and failures.

## **Setting standards with EC technology**

Wherever intelligent air handling is required, where energy consumption needs to be reduced and performance has to be maximised, there our EC motors are your reliable answer. They do not waste financial or natural resources. But they boost high efficiency, continuous controllability via analogue or digital inputs, long and maintenance-free service life and robustness.



*Left: Endurance test lab  
Centre: Shaker  
Right: Measurement station*



*Top: Betz manometer  
Left: Precision noise measurement lab*

Without any problems, the ebm-papst EC technology allows you to realise networked, bus-linked appliances, to integrate simple or complex controls at low cost and to also realise time and again new and customised and complete solutions. Here, ebm-papst excels as competent development partner, with our experience of more than 25 years and our excellent know-how in R & D and production also being well documented in a few hundred national and international patents. And there is also our ability to listen intently, to pay good attention to our customers and their demands – in order to come up with new and pioneering ideas, such as:

- EC fan units for clean room technology, where the fan is supplied as fan filter unit. As the electronics are integrated and the unit is wired up completely and ready to plug in, there is no need for our customers to waste time and money on laborious wiring work.
- Sensitive EC sensor fans for the automotive industry providing optimal selection of the air-conditioning unit in the car and, combined with booster blowers, individual air-conditioning of each and every passenger seat.
- EC gas blowers with commutation and control electronics including a processor. They are developed in such a way as to make the blower pre-mix the required amount of air with the gas. Aero-dynamics with these blowers are adjusted in such a way as to make these blowers ideal for use in very limited space at high back pressure.

**The introductory pages preceding the various product groups and the product pages contain specific instructions for and technical information on the relevant products. The following general information applies to the entire range of products.**



#### **Electromagnetic compatibility (EMC):**

ebm-papst products are components supplied to other industrial and trade companies with expert knowledge of electromagnetic compatibility.

ebm-papst products are therefore not subject to the Law on Electromagnetic Compatibility of Equipment. Compliance with the EMC Directive must be assessed on the final product since different EMC properties may be created when products interact with other components.

ebm-papst AC motors meet the requirements of Low Voltage Directive and EMC Directive. Statutory limit values are being kept.

ebm-papst motors are not safety-relevant components requiring an EMC test by an independent institute. ebm-papst, therefore, does not issue EMC test protocols.

For squirrel-cage induction motors and their connection to mains voltages the "GUIDELINES IN THE APPLICATION OF COUNCIL DIRECTIVE 89/336/EEC OF 3 MAY 1989 ON THE APPROXIMATION OF THE LAWS OF THE MEMBER STATES RELATING TO EMC" apply.

Section 5.4, p.21ff states that compliance with the EMC regulations is generally assumed for induction motors (e.g. shaded pole motors and capacitor motors).



#### **DQS certificate:**

The high quality standards in R & D, production and sales are monitored by a quality management system that complies with the tough requirements of DIN EN ISO 9001. ebm-papst Landshut has been certified by DQS since 1991.



#### **Product liability:**

ebm-papst motors and blowers are components the function of which is determined in the customer's unit. ebm-papst offers a warranty for the function of its products according to EN 60335-1, EN 50178 and EN 60950, provided that the ebm-papst products are used correctly and that, during the development of the customer's product, ebm-papst made sure of this and issued a confirmation in writing as to this effect.

Only after the product has passed product-specific and application-specific tests agreed on between ebm-papst and the customer, can subsequent liability be assumed; this will be done exclusively in accordance with relevant statutory regulations.

**Important Information:** Fans and motors may only be used after installation and may not be put into operation before being properly installed. Installation has to be effected by trained, briefed and qualified staff.

The information and images in this catalogue are non-binding. We reserve the right to modify our products (deviation from images and technical data provided herein) without prior notice in writing.



## Glossary

symbol	term	unit
$\dot{V}$	air flow	m <sup>3</sup> /h, l/sec
$\Delta P_{fa}$	pressure difference at free air flow	Pa (Pascal)
$\Delta P_{st}$	static pressure difference	Pa
	former units	1 mmWS $\cong$ 10 Pa 1 mbar $\cong$ 100 Pa
$n$	speed formerly	min <sup>-1</sup> , 1/min U/min, Upm
$U$	voltage	V (Volt)
$f$	frequency	Hz (Hertz)
$P_1$	power input	W (Watt)
$P_2$	power output	W (Watt)
$I_N$	nominal current draw	mA (Milliampere)
$M$	torque former unit	Ncm, Nm, mNm 1 kpm $\cong$ 10 Nm

## Structure of type code

**QLZ 06/2400 A17 -30 25 LH-124 aeh**  
**EM 30 25 LH-124 aeh**



### 1 Blower design/series

- QLx** = tangential blower
- RLx** = radial blower AC
- ...x** = blower series
- RG** = radial blower EC
- AL** = axial blower
- RR** = hot air blower

### 2 Diameter of impeller cm/mm

### 3 Width of impeller, side of motor mounting

- XX00** = motor right
- 00XX** = motor left
- XX** = width of impeller cm/mm

### 4 Code for mechanical design of the blower

### 5 Type of motor

- EM** = shaded pole motor
- KM** = capacitor motor
- BG** = DC motor

### 6 Motor series

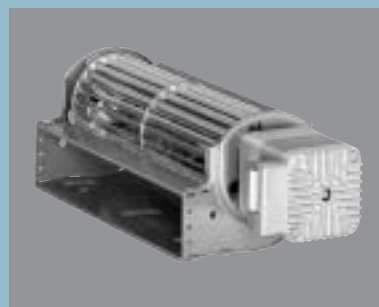
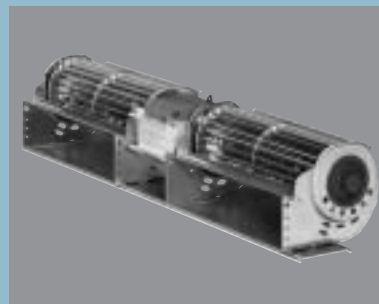
z.B. 20, 21, 22, 25, 30, 36, 43

### 7 Stack size mm

- L** = longlife bearing bracket
- LH** = high temperature version
- LN** = low temperature version
- B** = brake

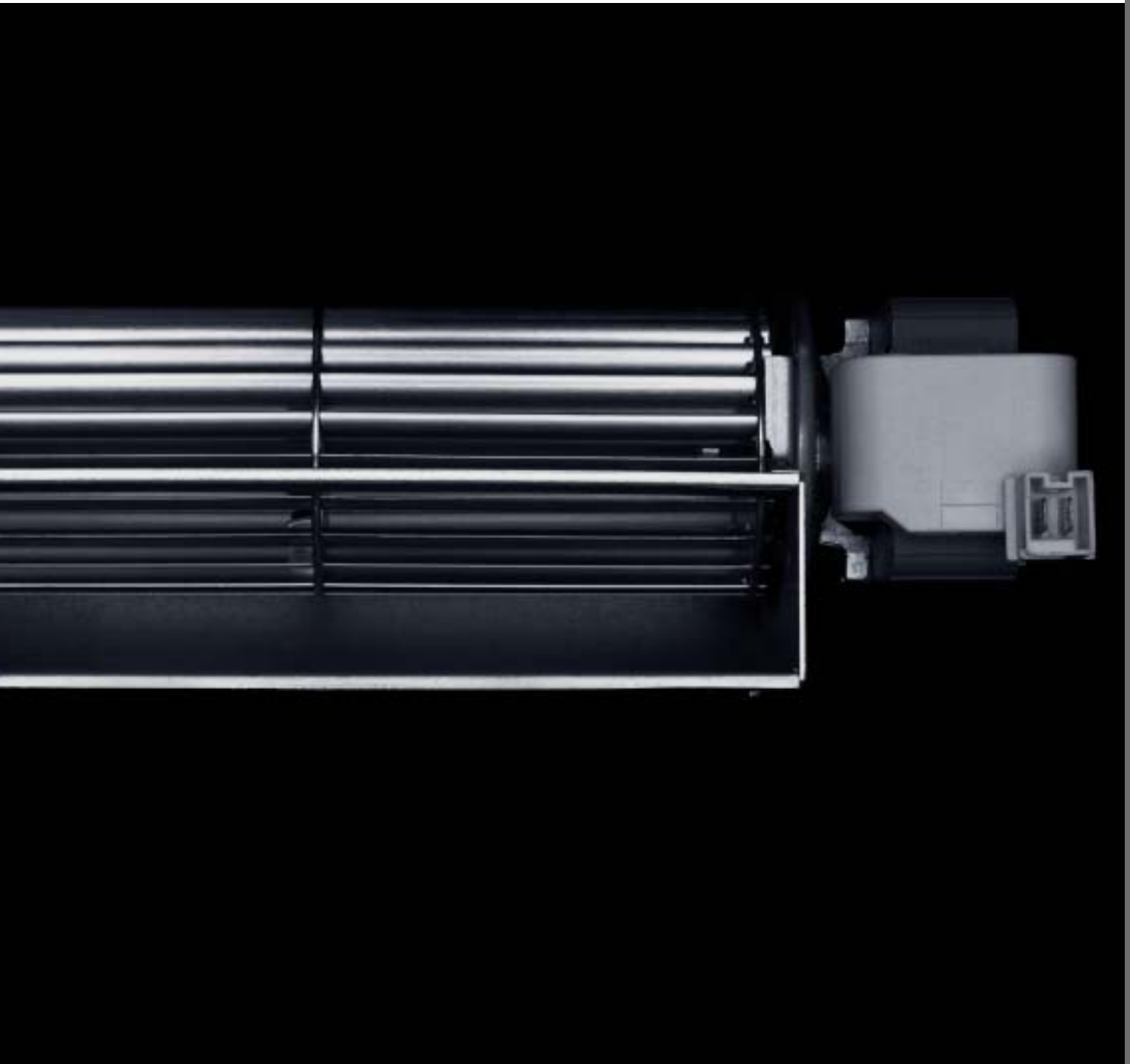
### 9 Code for mechanical design of the motor

### 10 Code for electrical design of the motor



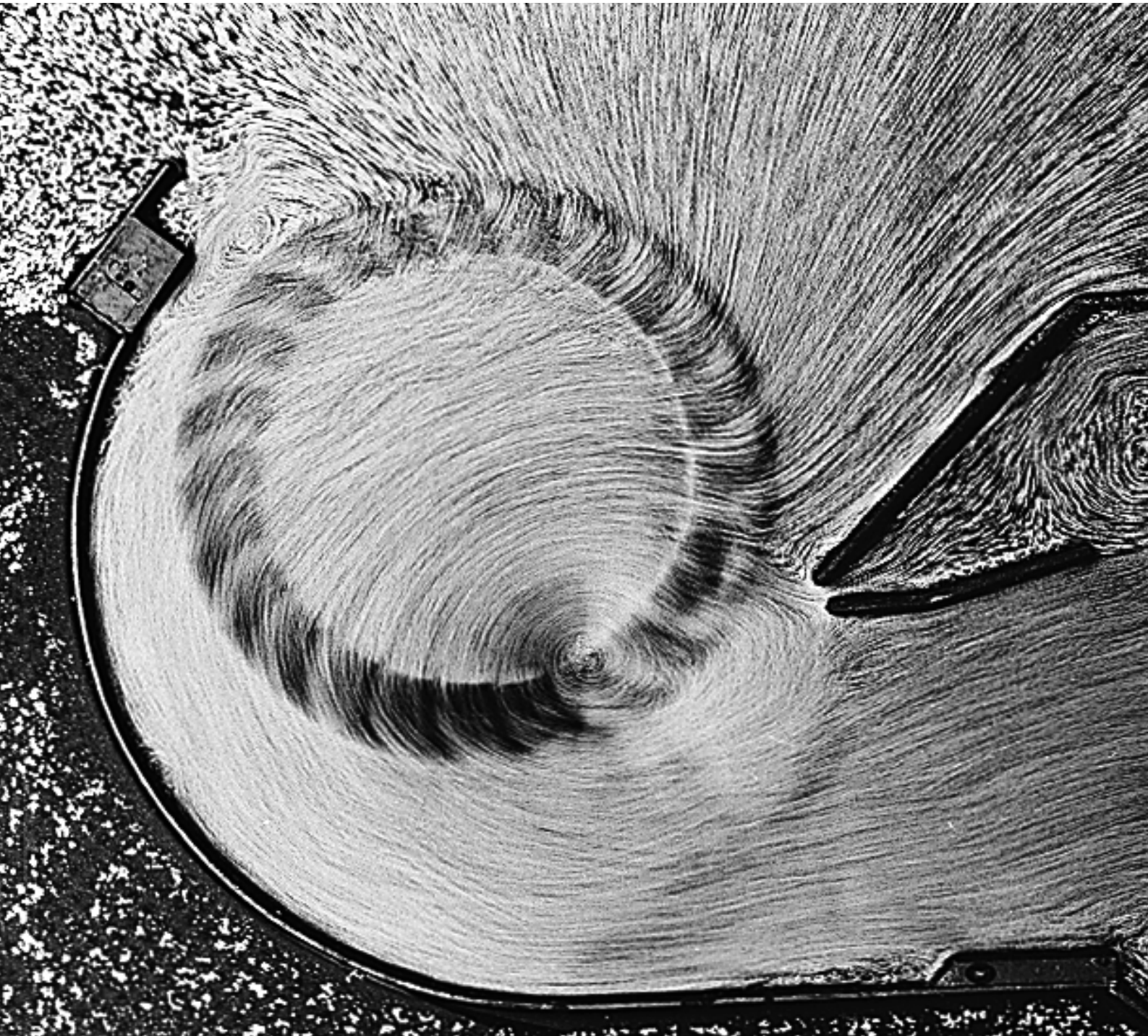
# Tangential blowers

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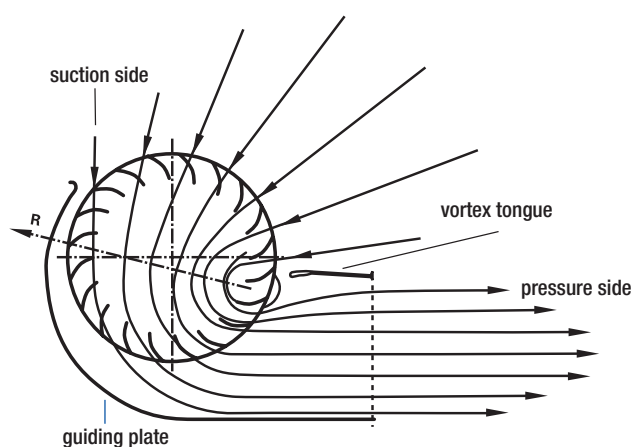


## Tangential blowers series QL 3, QL 4, QLK 45, QLZ 06, QLN 65

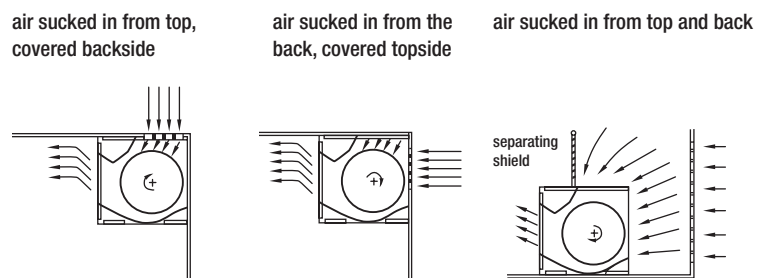
The small ratio of the impeller diameter (30 to 65 mm) to the impeller length in most cases allow a flat and stretched design. The large cross section on the suction and pressure side makes for high air delivery at low flow rates. The air being thrown a long distance and low noise level are additional features of tangential blowers.



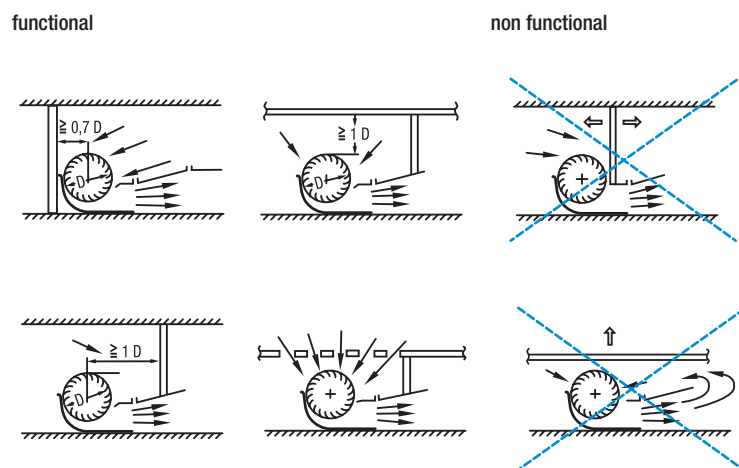
### Vortex stream through tangential blower



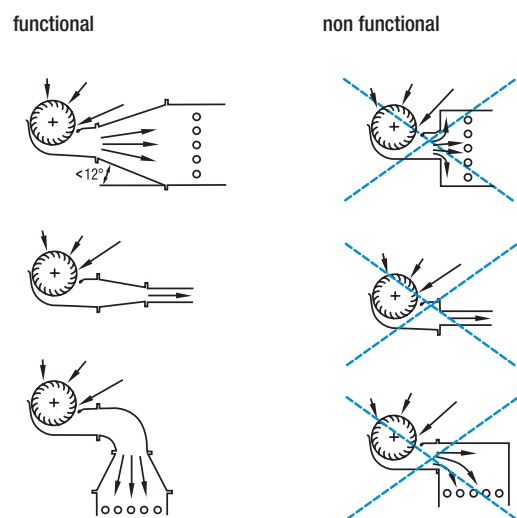
#### Mounting conditions for QL 4 series



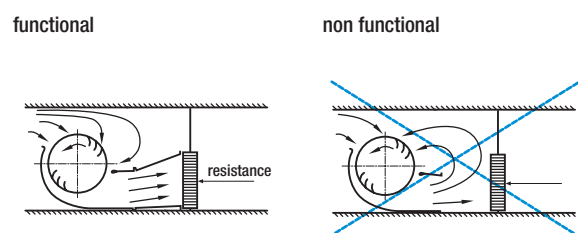
#### Mounting conditions on suction side QL 3, QLK, QLZ, QLN



#### Mounting conditions on pressure side QL 3, QLK, QLZ, QLN



#### Separation of suction and pressure area



# Tangential blowers

## QL 3

- impeller diameter 30 mm
- mounting position horizontal or vertical with motor at the bottom
- permissible ambient temperature 0 - 60°C
- insulation class B, class F or H on request

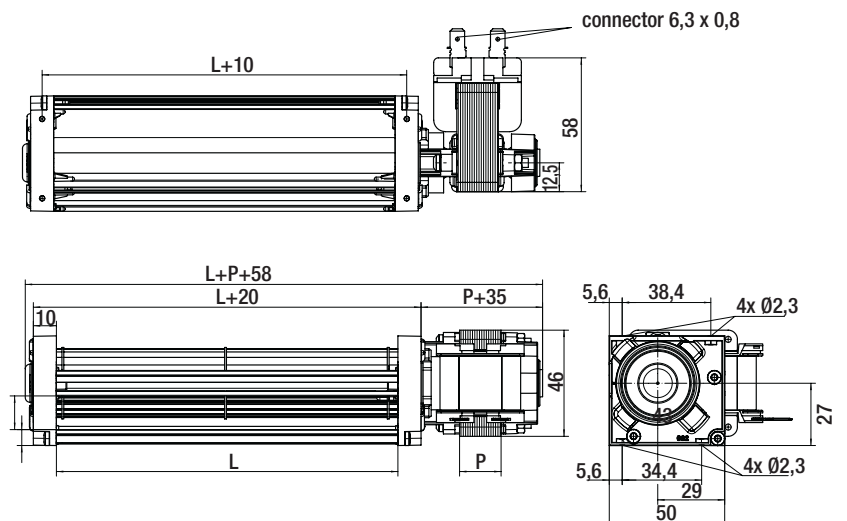
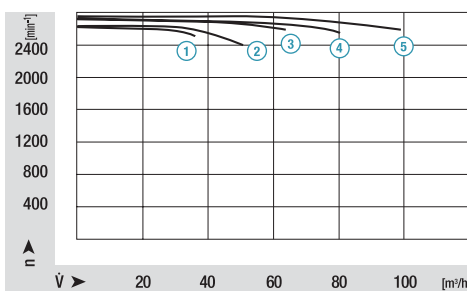
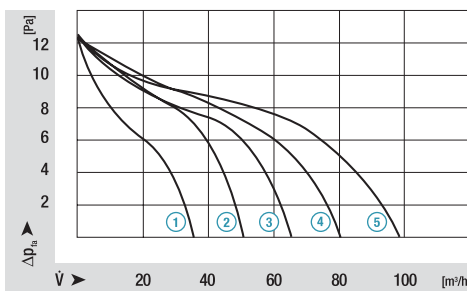


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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm	
motor right*	motor left										V	Hz
QL3/1500-2112	QL3/0015-2112	①	230	50	35	12,3	8	77	2550	0,36	148,0	12
QL3/2000-2112	QL3/0020-2112	②	230	50	51	12,6	8	79	2400	0,40	198,0	12
QL3/2500-2118	QL3/0025-2118	③	230	50	67	12,2	10	82	2600	0,56	248,0	18
QL3/3000-2118	QL3/0030-2118	④	230	50	80	12,7	10	82	2580	0,60	302,6	18
QL3/3500-2124	QL3/0035-2124	⑤	230	50	98	12,3	10	77	2600	0,68	352,6	24

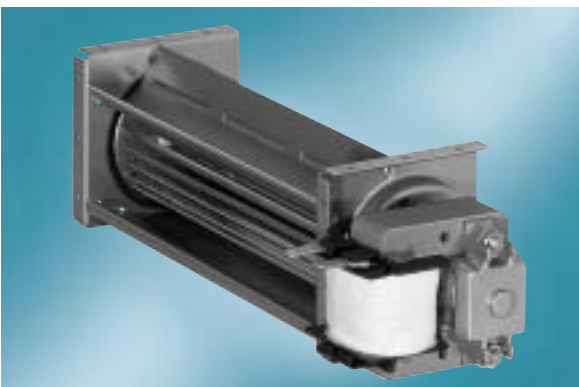
\*) Corresponding to dimensional drawing; Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

### Characteristic curves



# Tangential blowers

## QL 4



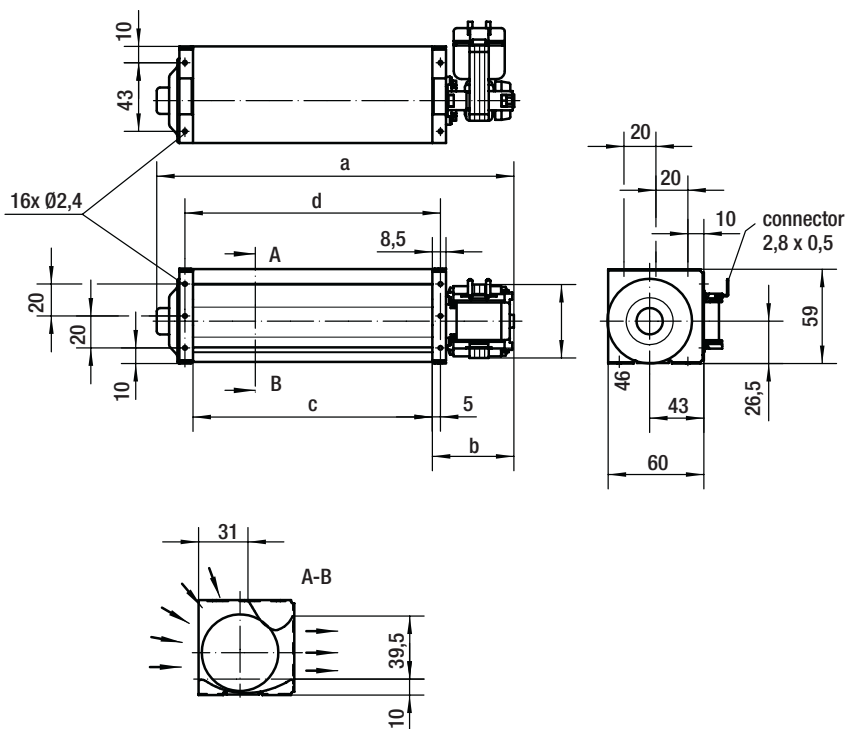
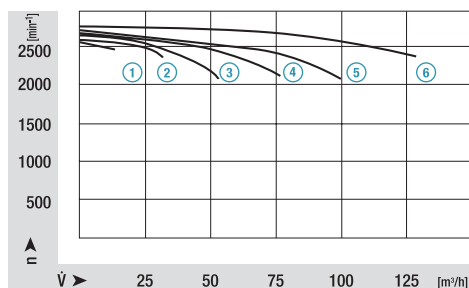
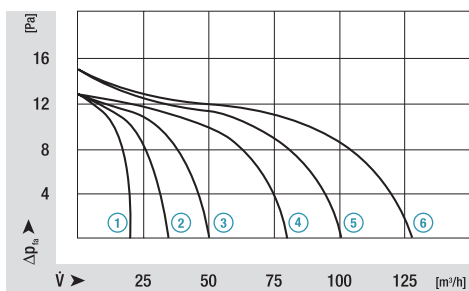
- impeller diameter 40 mm
- airflow direction of 180° possible
- mounting position horizontal or vertical with motor at the bottom
- permissible ambient temperature 0 - 60°C
- insulation class B, class F or H on request

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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm			
motor right*	motor left										V	Hz	m³/h	Pa
QL4/0500-2112	QL4/0005-2112	①	230	50	18	13	8	100	2500	0,40	126	51	50	60
QL4/1000-2112	QL4/0010-2112	②	230	50	36	13	9	100	2300	0,45	176	51	100	110
QL4/1500-2112	QL4/0015-2112	③	230	50	50	13	12	130	2150	0,50	226	51	150	160
QL4/2000-2118	QL4/0020-2118	④	230	50	80	14	14	140	2250	0,60	282	57	200	210
QL4/2500-2118	QL4/0025-2118	⑤	230	50	100	15	15	140	2200	0,65	338	63	250	260
QL4/3000-2124	QL4/0030-2124	⑥	230	50	126	15	20	170	2300	0,80	388	63	300	310

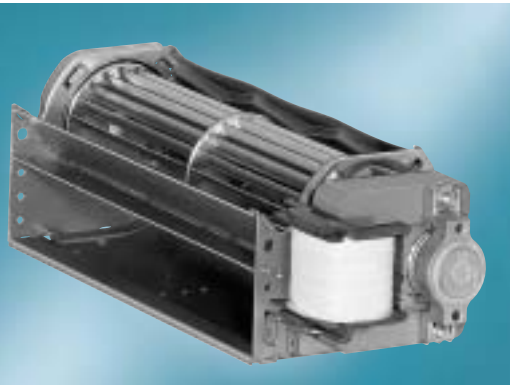
\* ) Corresponding to dimensional drawing; Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

### Characteristic curves



# Tangential blowers

## QLK 45



- impeller diameter 45 mm
- horizontal or vertical mounting position with motor at the bottom
- permissible ambient temperature 0 - 60°C
- insulation class B, class F or H on request

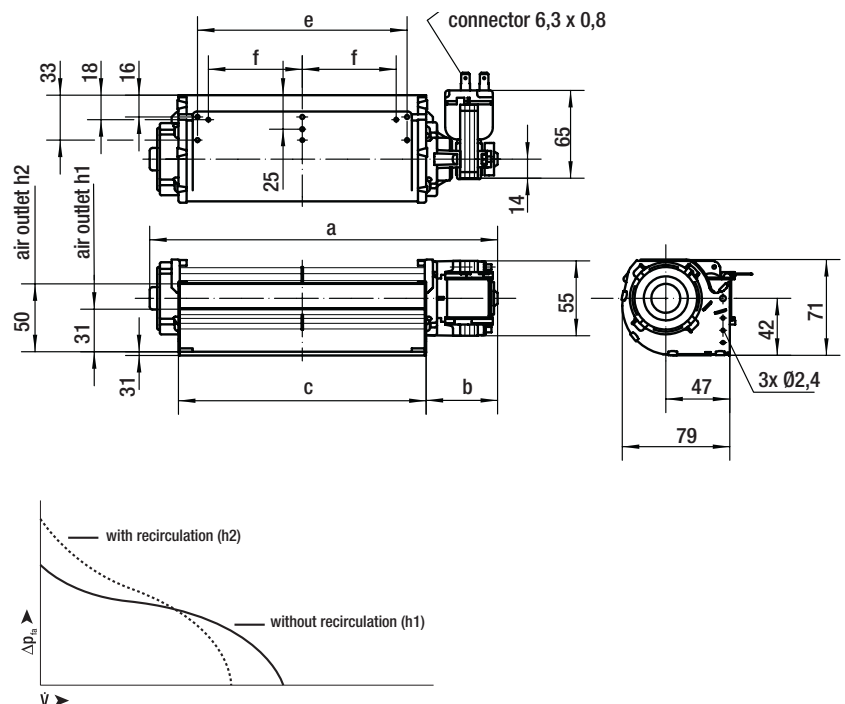
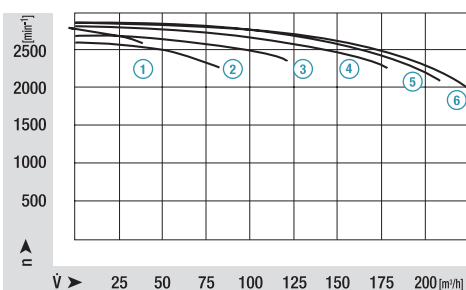
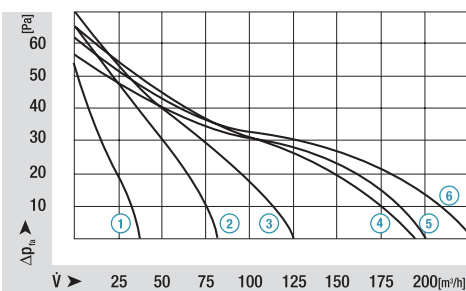
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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm				
motor right*	motor left										V	Hz	m <sup>3</sup> /h	Pa	W
QLK45/0600-2513	QLK45/0006-2513	①	230	50	36	55	15	170	2650	0,60	140	55	62	32	-
QLK45/1200-2513	QLK45/0012-2513	②	230	50	80	66	17	180	2250	0,65	200	55	122	94	-
QLK45/1800-2518	QLK45/0018-2518	③	230	50	125	67	26	245	2350	0,85	265	60	182	154	69
QLK45/2400-2524	QLK45/0024-2524	④	230	50	190	64	32	280	2200	1,10	331	66	242	212	98
QLK45/3000-2524	QLK45/0030-2524	⑤	230	50	200	56	32	280	2100	1,25	391	66	302	272	128
QLK45/3600-2524	QLK45/0036-2524	⑥	230	50	230	63	35	300	1800	1,40	451	66	362	332	158

\*) Corresponding to dimensional drawing; Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

### Characteristic curves

with recirculation (air outlet h2)



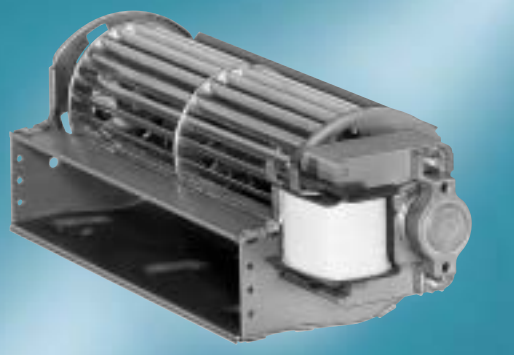


# Tangential blowers

## QLZ 06

- impeller diameter 60 mm
- horizontal or vertical mounting position with motor at the bottom
- permissible ambient temperature 0 - 60°C
- insulation class B, class F or H on request

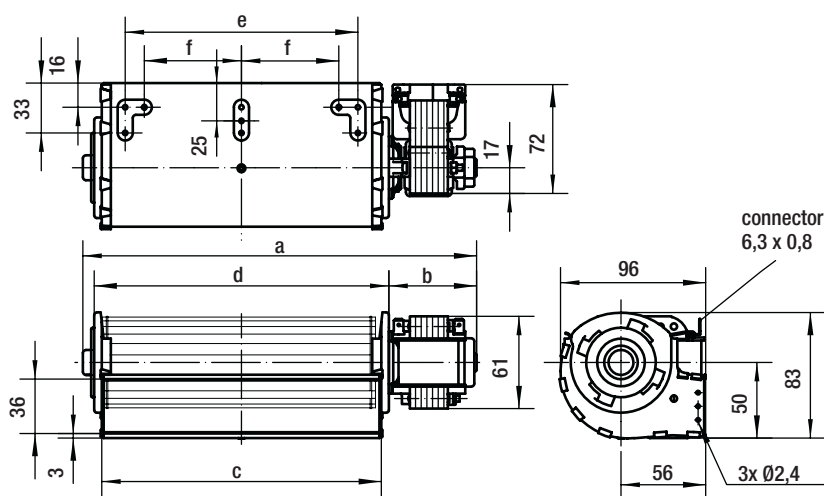
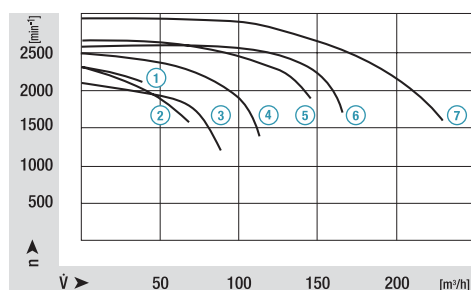
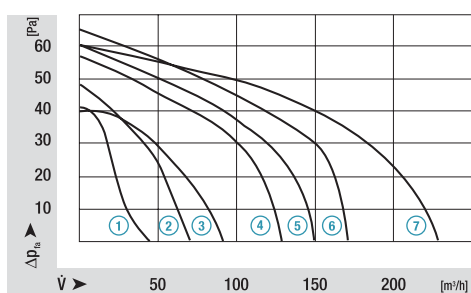
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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm					
motor right*	motor left										V	Hz	m <sup>3</sup> /h	Pa	W	mA
QLZ06/0600-2513	QLZ06/0006-2513	①	230	50	40	42	15	160	2500	0,60	124	42	63	73	32	-
QLZ06/1200-2513	QLZ06/0012-2513	②	230	50	70	48	20	180	1550	0,70	186	42	125	135	94	-
QLZ06/1800-2513	QLZ06/0018-2513	③	230	50	90	40	20	160	1200	0,80	246	42	183	196	154	64
QLZ06/1800-2518	QLZ06/0018-2518	④	230	50	130	58	30	220	1350	0,90	251	47	183	196	154	64
QLZ06/1800-2524	QLZ06/0018-2524	⑤	230	50	150	60	33	240	1800	1,00	257	53	183	196	154	64
QLZ06/2400-3030	QLZ06/0024-3030	⑥	230	50	170	63	33	290	1700	1,40	324	62	243	253	212	93
QLZ06/3000-3038	QLZ06/0030-3038	⑦	230	50	230	60	45	350	1600	1,70	395	72	303	313	272	123

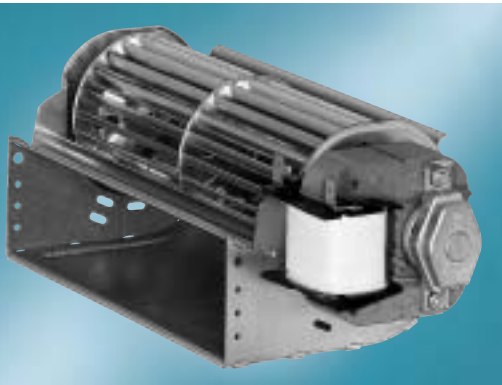
\*) Corresponding to dimensional drawing; Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

### Characteristic curves



# Tangential blowers

## QLN 65



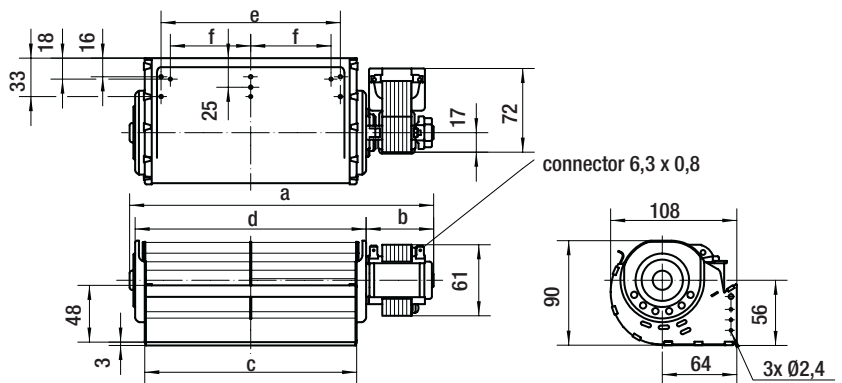
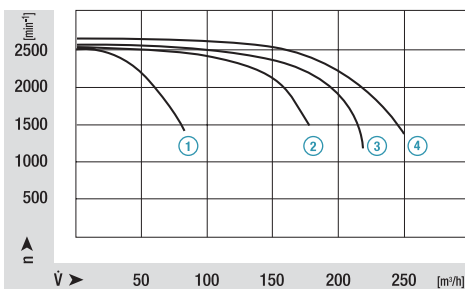
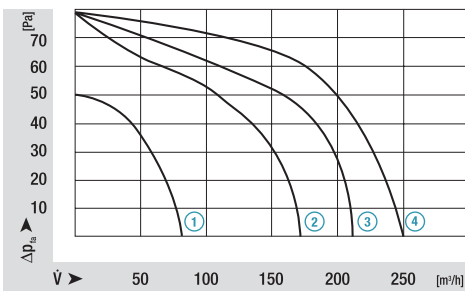
- impeller diameter 65 mm
- horizontal or vertical mounting position with motor at the bottom
- permissible ambient temperature 0 - 60°C
- insulation class B, class F or H on request

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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm					
motor right*	motor left										V	Hz	m <sup>3</sup> /h	Pa	W	mA
QLN65/1200-3015	QLN65/0012-3015	①	230	50	83	50	14	135	1300	0,90	196	49	122	139	94	-
QLN65/1800-3025	QLN65/0018-3025	②	230	50	170	80	30	270	1500	1,20	266	59	182	199	154	77
QLN65/2400-3030	QLN65/0024-3030	③	230	50	220	80	38	360	1200	1,45	331	65	242	259	212	106
QLN65/3000-3038	QLN65/0030-3038	④	230	50	250	80	45	415	1200	1,75	400	73	302	319	272	136

\*) Corresponding to dimensional drawing; Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

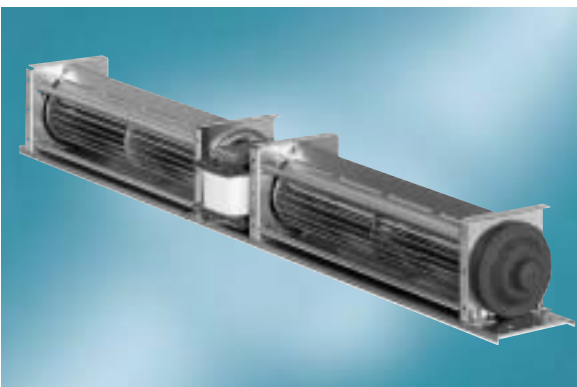
### Characteristic curves



# Tangential blowers

## QL 4 with double housing

- impeller diameter 40 mm
- airflow direction of 180° possible
- horizontal mounting position
- permissible ambient temperature 0 - 60°C
- insulation class B, class F or H on request

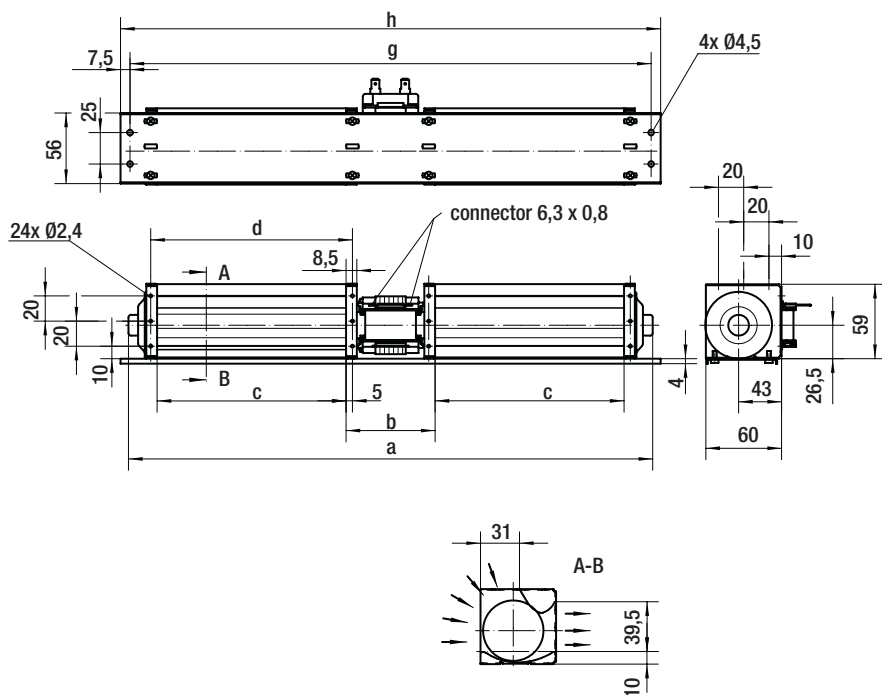
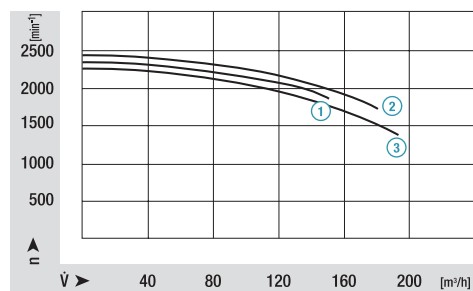
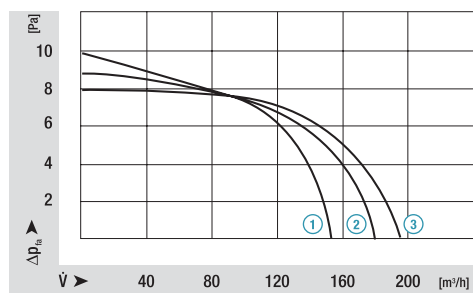


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Nominal data	characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm					
										type	V	Hz	m <sup>3</sup> /h	Pa	W
QL4/2020-2124	①	230	50	155	10	16	130	1900	1,2	522	72	200	210	515	530
QL4/2525-2124	②	230	50	180	9	16	135	1700	1,3	622	72	250	260	615	630
QL4/3030-2124	③	230	50	190	8	17	140	1500	1,4	722	72	300	310	715	730

Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

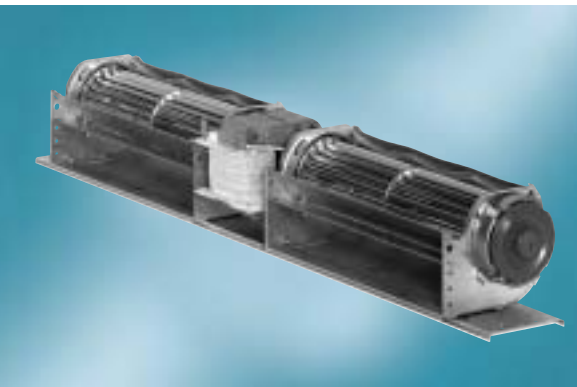
### Characteristic curves



# Tangential blowers

## QLK 45 with double housing

- impeller diameter 45 mm
- horizontal mounting position
- permissible ambient temperature 0 - 60°C
- insulation class B, class F or H on request

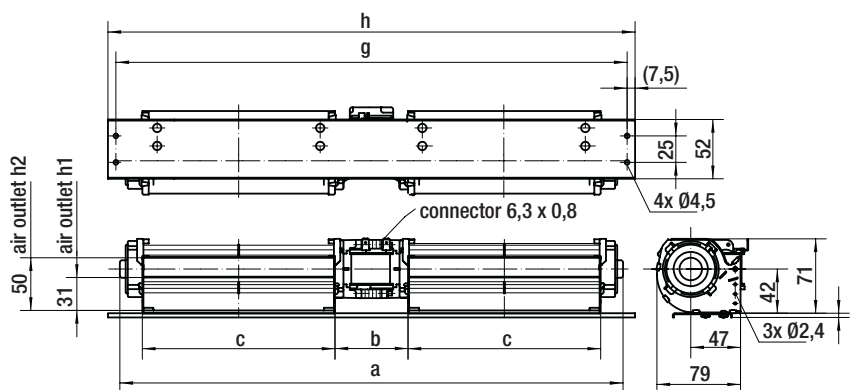
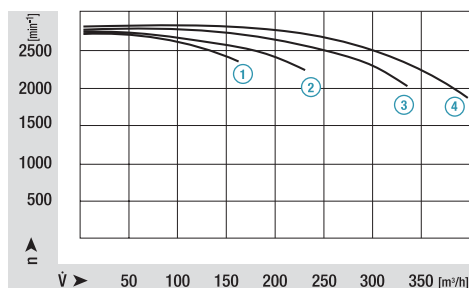
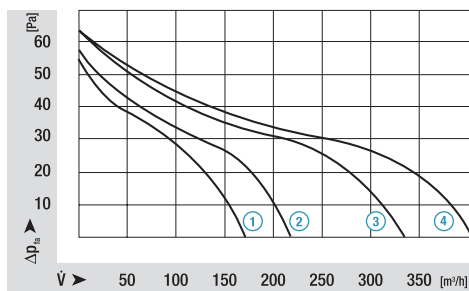


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Nominal data	characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm				
										type	V	Hz	m <sup>3</sup> /h	Pa
QLK45/1212-3030	①	230	50	160	55	29	250	2300	1,85	372	81	122	375	390
<b>QLK45/1818-3030</b>	②	230	50	220	59	32	265	2200	2,15	492	81	182	495	510
<b>QLK45/2424-3038</b>	③	230	50	330	64	46	385	2000	2,40	620	89	242	620	635
<b>QLK45/3030-3038</b>	④	230	50	400	64	48	390	1700	2,60	740	89	302	740	755

Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

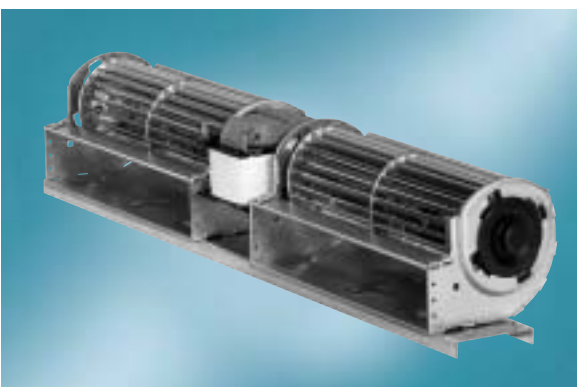
### Characteristic curves



# Tangential blowers

## QLZ 06 with double housing

- impeller diameter 60 mm
- horizontal mounting position
- permissible ambient temperature 0 - 60°C
- insulation class B, class F or H on request

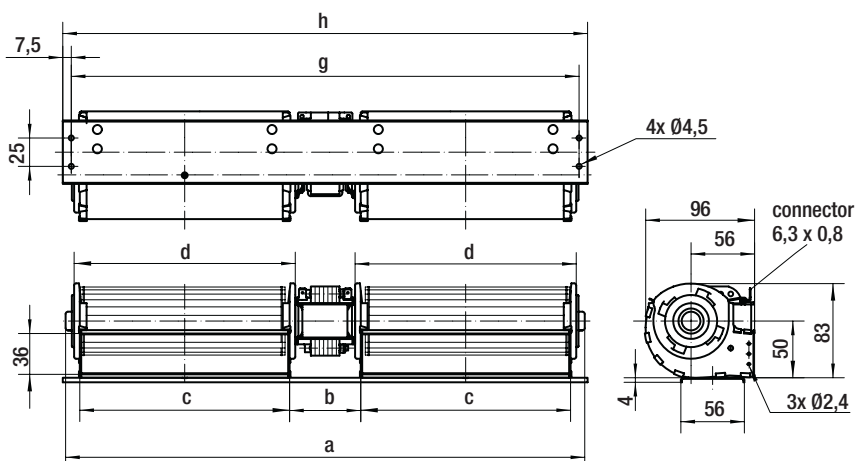
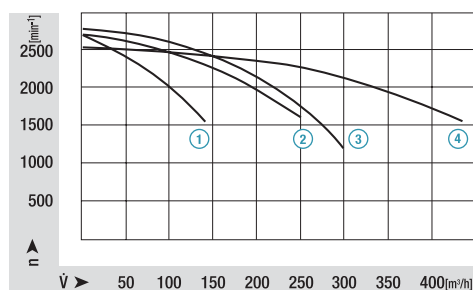
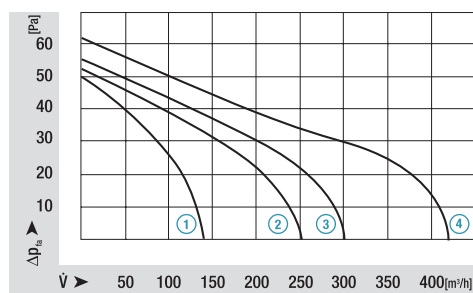


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Nominal data	characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm					
										type	V	Hz	m <sup>3</sup> /h	Pa	W
QLZ06/1212-3020	①	230	50	140	50	26	210	1500	1,55	340	58	125	135	-	-
<b>QLZ06/1818-3030</b>	②	230	50	250	52	45	400	1550	2,00	468	69	183	196	455	470
<b>QLZ06/2424-3038</b>	③	230	50	300	55	45	350	1150	2,30	591	76	243	253	579	594
<b>QLZ06/3030-3045</b>	④	230	50	420	62	65	550	1500	2,75	720	83	303	313	705	720

Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

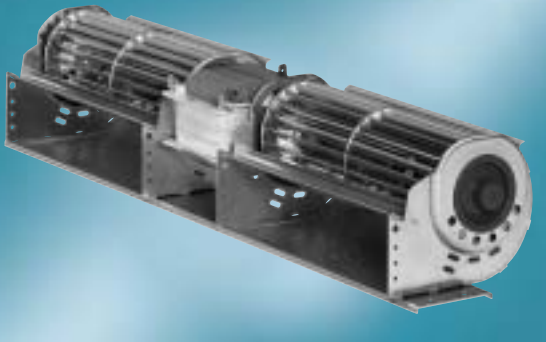
### Characteristic curves



# Tangential blowers

## QLN 65 with double housing

- impeller diameter 65 mm
- horizontal mounting position
- permissible ambient temperature 0 - 60°C
- insulation class B, class F or H on request

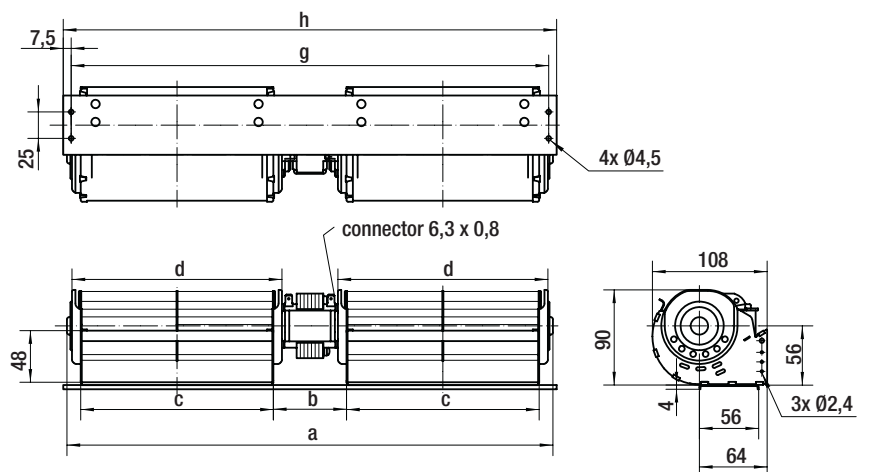
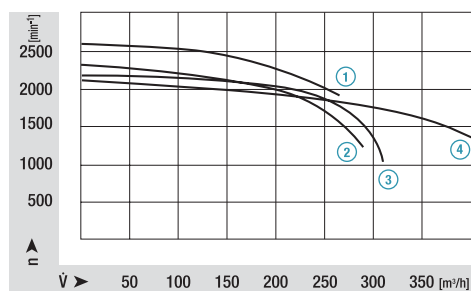
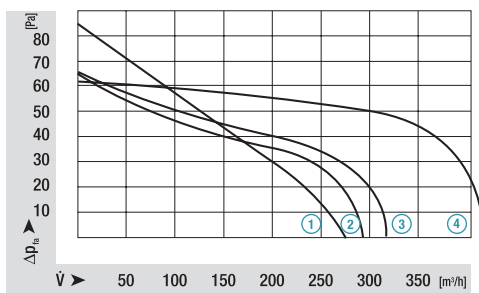


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Nominal data	characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm					
										type	V	Hz	m <sup>3</sup> /h	Pa	W
QLN65/1212-3030	①	230	50	270	85	54	460	1900	1,7	352	76	122	139	-	-
<b>QLN65/1818-3045</b>	②	230	50	295	66	51	420	1250	2,4	480	84	182	199	463	478
<b>QLN65/2424-3038</b>	③	230	50	320	65	55	480	1050	2,6	600	84	242	259	583	598
<b>QLN65/3030-3045</b>	④	230	50	410	62	72	560	1225	2,8	728	92	302	319	706	721

Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

### Characteristic curves



# Tangential blowers

with humidity protected bobbin

Special design for refrigeration.

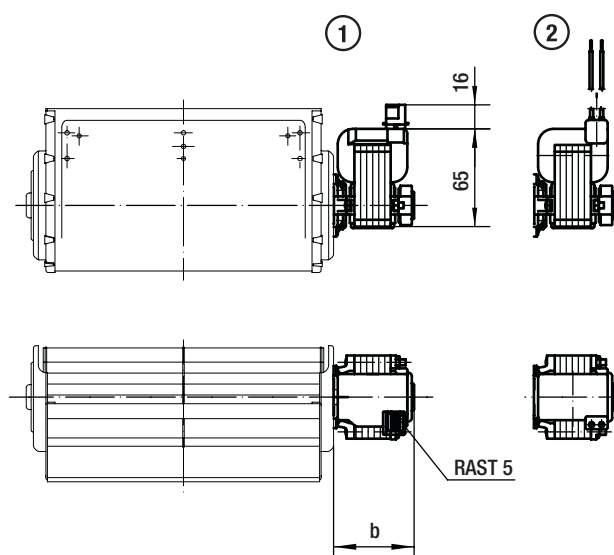
- shaded pole motor, humidity protected with plastic-encapsulated coil
- electrical connection with leads or Rast-5 plug
- permissible ambient temperature  $-40^{\circ} - +60^{\circ}\text{C}$

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Nominal data		rated voltage	frequency	air flow	max. pressure increase	power input	speed	electrical connection	mass	Dimensions mm
motor right*	motor left	V	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>		kg	b
QL4/1000-2118	QL4/0010-2118	230	50	40	13	10	2550	②	0,5	57
QL4/1500-2118	QL4/0015-2118	230	50	55	13	10	2350	②	0,55	57
QL4/2000-2118	QL4/0020-2118	230	50	75	13	10	2150	②	0,65	57
QL4/2500-2118	QL4/0025-2118	230	50	85	12	10	1900	②	0,7	57
QL4/3000-2118	QL4/0030-2118	230	50	90	12	10	1700	②	0,75	57
QLK45/0600-2513	QLK45/0006-2513	230	50	36	55	15	2650	②	0,65	55
QLK45/1200-2513	QLK45/0012-2513	230	50	82	65	15	2300	②	0,9	66
QLK45/1800-2524	QLK45/0018-2524	230	50	120	65	27	2300	①②	1	66
QLK45/2400-2524	QLK45/0024-2524	230	50	140	65	27	2100	①②	1,15	66
QLK45/3000-2524	QLK45/0030-2524	230	50	160	60	27	1600	①②	1,35	66
QLK45/3600-2524	QLK45/0036-2524	230	50	175	60	27	1400	①②	1,5	66
QLZ06/1200-2524	QLZ06/0012-2524	230	50	115	70	24	2200	①②	0,95	58
QLZ06/1800-2524	QLZ06/0018-2524	230	50	130	65	24	1600	①②	1,1	58
QLZ06/2400-2524	QLZ06/0024-2524	230	50	145	62	24	1100	①②	1,2	58
QLN65/1200-2524	QLN65/0012-2524	230	50	130	60	24	2000	①②	1,05	54
QLN65/1800-2524	QLN65/0018-2524	230	50	140	60	24	1200	①②	1,2	54

\*) Corresponding to dimensional drawing; subject to alterations



for blower Dimensions, see basic AC types

# Tangential blowers

## QL 4 with EC motor



Tangential blowers with electronically commutated EC-motors.

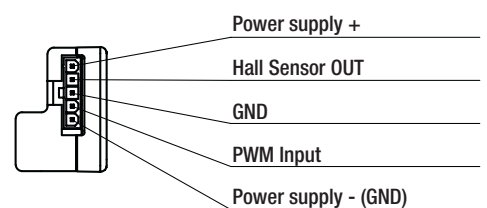
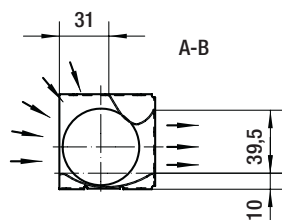
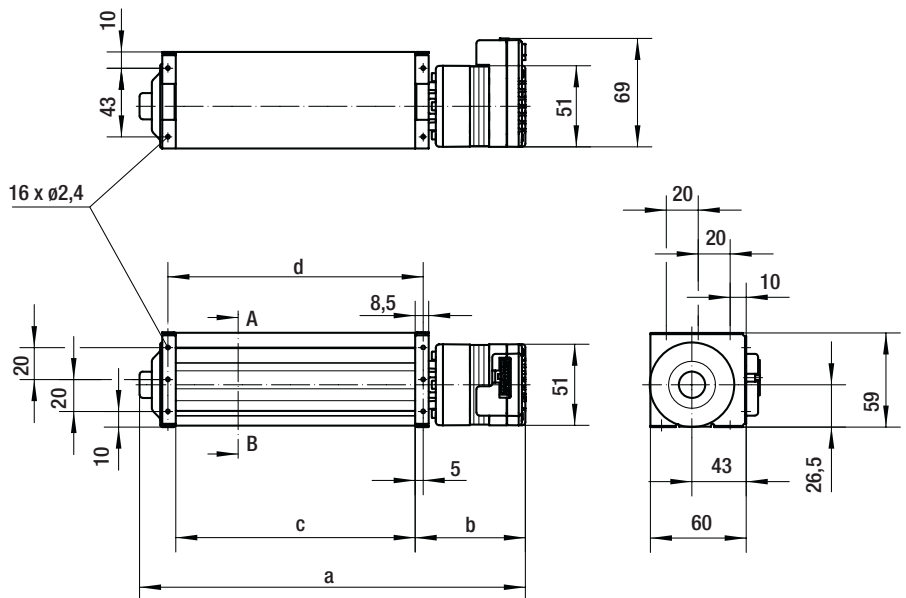
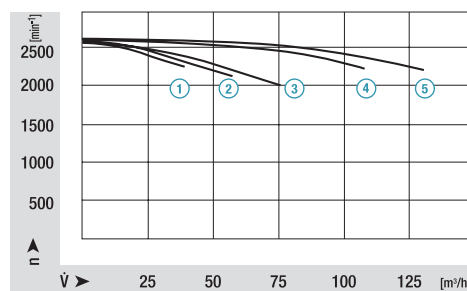
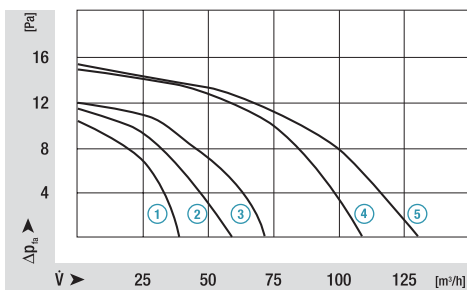
- integrated electronics
- blower speed variable via PWM (pulse width modulation) signal, optionally speed adjustment via 0 - 10 V analoguous voltage signal
- impeller diameter 40 mm
- airflow direction of 180° possible
- mounting position horizontal or vertical with motor at the bottom
- protection class IP20, insulation class F
- permissible ambient temperature 0 – 60 °C

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Nominal data		rated voltage	air flow	max. pressure increase	power input	speed	mass	Dimensions mm			
motor right*	motor left	VDC	m³/h	Pa	W	min <sup>-1</sup>	kg	a	b	c	d
QL4/1000-2212	QL4/0010-2212	24	35	10	5	2250	0,55	193	71	100	110
QL4/1500-2212	QL4/0015-2212	24	60	12	5	2150	0,6	243	71	150	160
QL4/2000-2212	QL4/0020-2212	24	75	12	6	2000	0,65	293	71	200	210
QL4/2500-2212	QL4/0025-2212	24	110	15	7	2250	0,7	343	71	250	260
QL4/3000-2212	QL4/0030-2212	24	130	15	7	2200	0,75	393	71	300	310

\*) Corresponding to dimensional drawing; Technical data are preliminary and valid at free air flow and rated voltage; subject to alterations

### Characteristic curves



suitable for connector Molex Mini-Fit, Jr. (not part of delivery)  
connector: order number 39-01-4050  
female terminal: for example 39-00-0059



# Tangential blowers

## QLK 45 with EC motor



Tangential blowers with electronically commutated EC-motors.

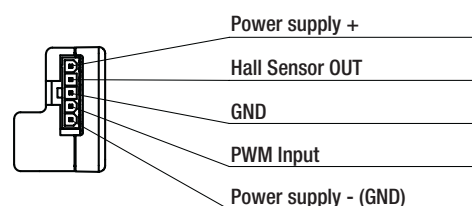
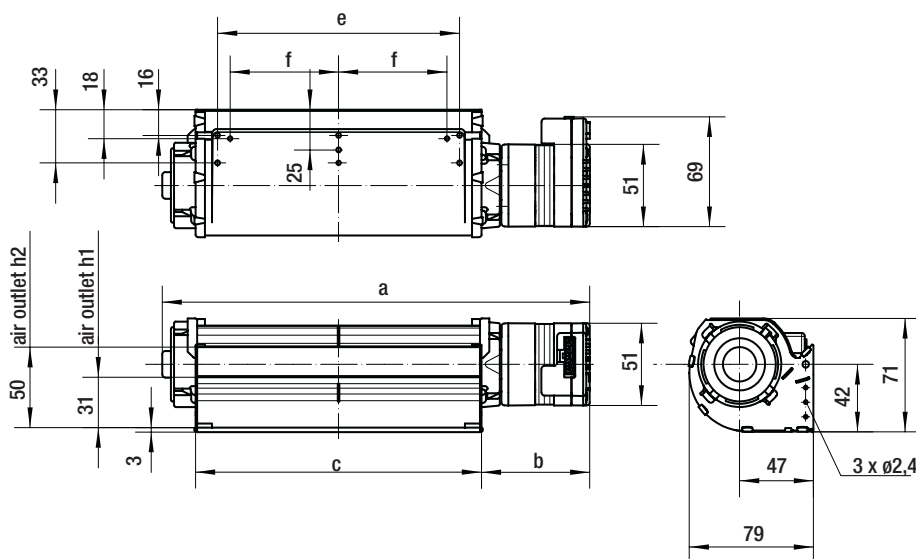
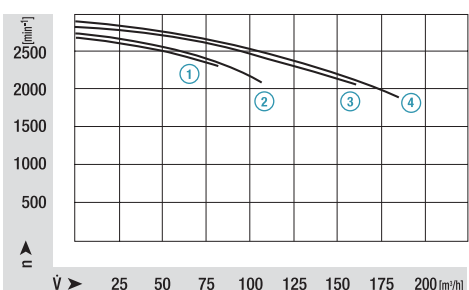
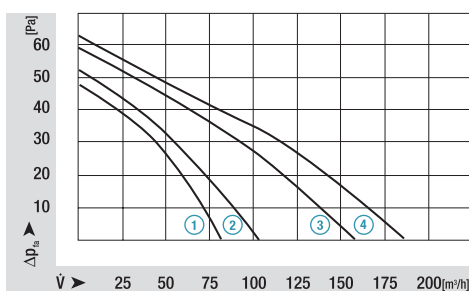
- integrated electronics
- blower speed variable via PWM (pulse width modulation) signal, optionally speed adjustment via 0 - 10 V analoguous voltage signal
- impeller diameter 45 mm
- horizontal or vertical mounting position with motor at the bottom
- protection class IP20, insulation class F
- permissible ambient temperature 0 – 60 °C

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Nominal data		rated voltage	air flow	max. pressure increase	power input	speed	mass	Dimensions mm				
motor right*	motor left	VDC	m³/h	Pa	W	min <sup>-1</sup>	kg	a	b	c	e	f
QLK45/1200-2212	QLK45/0012-2212	24	80	50	7	2250	0,65	215	70	122	94	39
QLK45/1800-2212	QLK45/0018-2212	24	110	55	8	2050	0,7	275	70	182	154	69
QLK45/2400-2212	QLK45/0024-2212	24	160	60	10	2050	0,75	335	70	242	212	98
QLK45/3000-2212	QLK45/0030-2212	24	190	60	11	1900	0,8	395	70	302	272	128

\*) Corresponding to dimensional drawing; Technical data are preliminary and valid at free air flow and rated voltage; subject to alterations

### Characteristic curves



suitable for connector Molex Mini-Fit, Jr. (not part of delivery)  
connector: order number 39-01-4050  
female terminal: for example 39-00-0059

# Tangential blowers

## QLZ 06 with EC motor



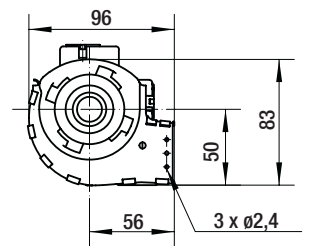
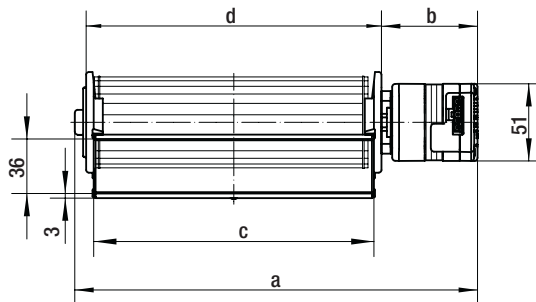
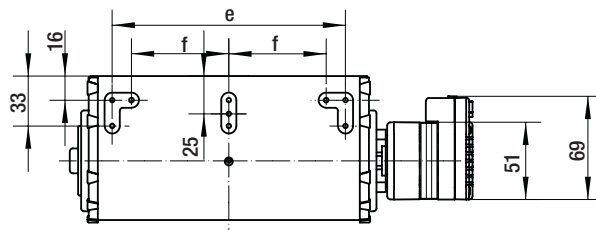
Tangential blowers with electronically commutated EC-motors.

- integrated electronics
- blower speed variable via PWM (pulse width modulation) signal, optionally speed adjustment via 0 - 10 V analoguous voltage signal
- impeller diameter 60 mm
- horizontal or vertical mounting position with motor at the bottom
- protection class IP20, insulation class F
- permissible ambient temperature 0 – 60 °C

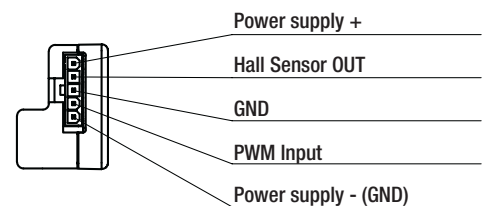
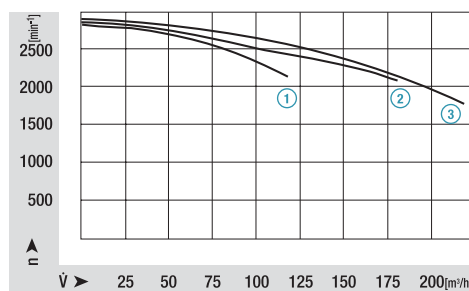
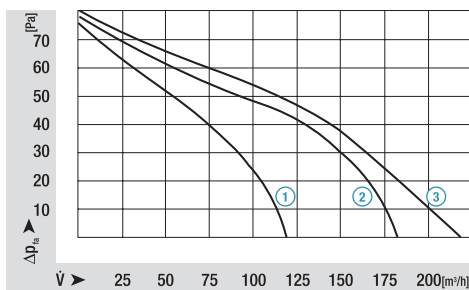
ebm-papst • Landshut

Nominal data		rated voltage	air flow	max. pressure increase	power input	speed	mass	Dimensions mm					
motor right*	motor left	VDC	m³/h	Pa	W	min <sup>-1</sup>	kg	a	b	c	d	e	f
QLZ06/1200-2212	QLZ06/0012-2212	24	120	75	10	2100	0,7	206,5	64,5	125	135	94	–
QLZ06/1800-2212	QLZ06/0018-2212	24	180	80	15	2050	0,75	267	64,5	185	195	154	64
QLZ06/2400-2212	QLZ06/0024-2212	24	220	80	17	1800	0,8	327	64,5	243	253	212	93

\*) Corresponding to dimensional drawing; Technical data are preliminary and valid at free air flow and rated voltage; subject to alterations



### Characteristic curves



suitable for connector Molex Mini-Fit, Jr. (not part of delivery)  
connector: order number 39-01-4050  
female terminal: for example 39-00-0059

# Tangential blowers

QLN 65 with EC motor

Tangential blowers with electronically commutated EC-motors.

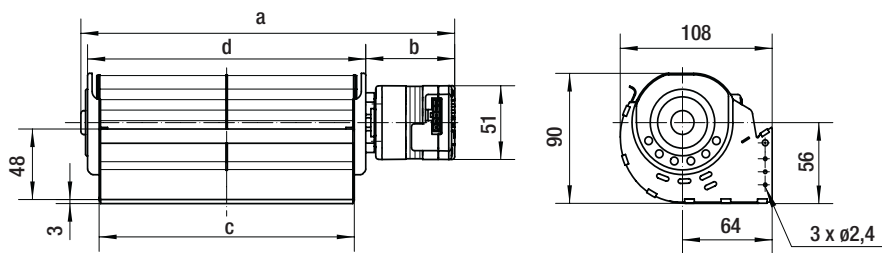
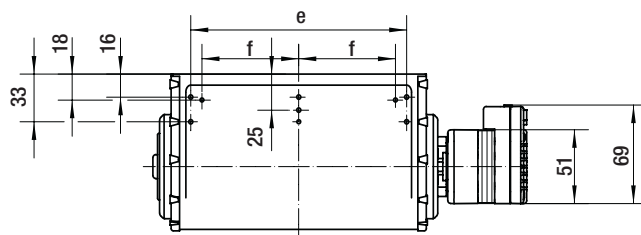
- integrated electronics
- blower speed variable via PWM (pulse width modulation) signal, optionally speed adjustment via 0 - 10 V analoguous voltage signal
- impeller diameter 65 mm
- horizontal or vertical mounting position with motor at the bottom
- protection class IP20, insulation class F
- permissible ambient temperature 0 – 60 °C

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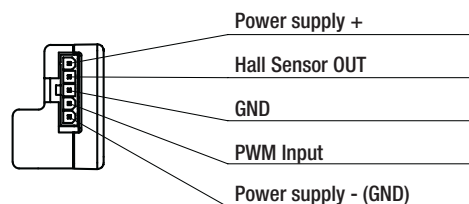
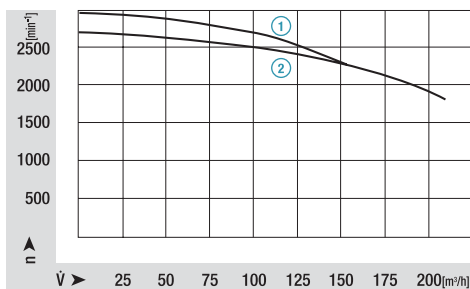
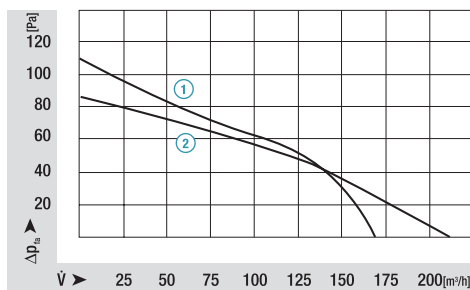


Nominal data		rated voltage	air flow	max. pressure increase	power input	speed	mass	Dimensions mm					
motor right*	motor left	VDC	m³/h	Pa	W	min⁻¹	kg	a	b	c	d	e	f
QLN65/1200-2212	QLN65/0012-2212	24	160	110	14	2200	0,75	209	64,5	122	139	94	–
QLN65/1800-2212	QLN65/0018-2212	24	210	85	16	1850	0,8	269	64,5	182	199	154	69

\*) \*) Corresponding to dimensional drawing; Technical data are preliminary and valid at free air flow and rated voltage; subject to alterations



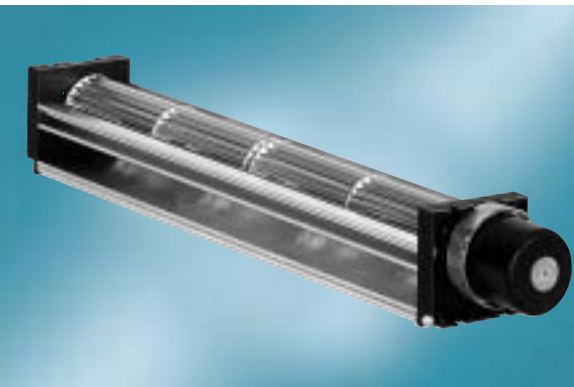
## Characteristic curves



suitable for connector Molex Mini-Fit, Jr. (not part of delivery)  
connector: order number 39-01-4050  
female terminal: for example 39-00-0059

# Tangential blowers with EC motor

## QG 030



- DC blower with electronically commutated external rotor motor. Fully integrated commutation electronics. With electronic protection against reverse polarity, blocking and overloading by PTC-resistor; partially impedance protected.
- motor with ball bearing system. Blower wheel mounting plate with sleeve bearings.
- fan propeller and air duct housing of aluminium. Plastic housing ends.
- rotational direction CW looking at rotor. Air exhaust through housing port.
- electrical connection via 2 leads. Stripped and tinned ends.

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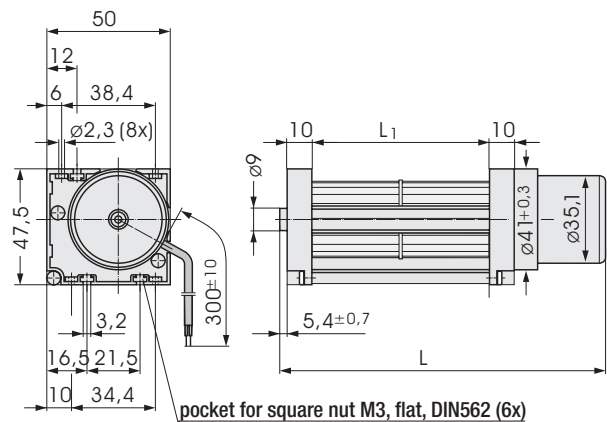
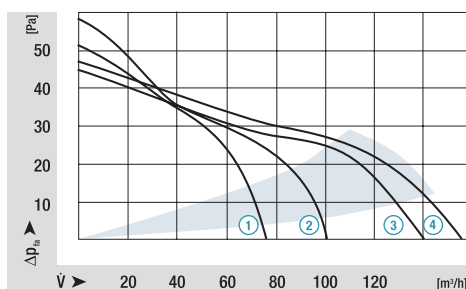
Nominal data	characteristic curve	rated voltage	voltage range	air flow	noise level	power input	perm. ambient temp.	service life L <sub>10</sub> at 40 °C	at t <sub>max</sub>	mass	Dimensions mm	
type		V DC	V DC	m <sup>3</sup> /h	db(A)	Watt	°C	Std.*	Std.*	kg	L	L1
QG 030-148/12	①	12	8...14	75	49	6,2	-20...+60	30 000 / 10 000		0,23	201	148
QG 030-198/12	②	12	8...14	100	51	8,0	-20...+60	30 000 / 10 000		0,29	258	198
QG 030-303/12	③	12	8...14	140	51	8,7	-20...+60	30 000 / 10 000		0,38	363	303
QG 030-353/12	④	12	8...14	155	51	9,6	-20...+60	30 000 / 10 000		0,41	413	353
QG 030-148/14	①	24	16...28	75	49	6,2	-20...+60	30 000 / 10 000		0,23	201	148
QG 030-198/14	②	24	16...28	100	51	8,0	-20...+60	30 000 / 10 000		0,29	258	198
QG 030-303/14	③	24	16...28	140	51	8,7	-20...+60	30 000 / 10 000		0,38	363	303
QG 030-353/14	④	24	16...28	155	51	9,6	-20...+60	30 000 / 10 000		0,41	413	353

\*) data for service life are valid at horizontal mounting position: subject to alterations

### present ebm designation:

Q2G 030-EA 21-01 → QG 030-148/12  
 Q2G 030-GC 01-01 → QG 030-198/12  
 Q2G 030-FB 01-01 → QG 030-303/12  
 Q2G 030-ID 01-01 → QG 030-353/12  
 Q2G 030-EA 19-01 → QG 030-148/14  
 Q2G 030-GC 03-01 → QG 030-198/14  
 Q2G 030-FB 03-01 → QG 030-303/14  
 Q2G 030-ID 03-01 → QG 030-353/14

### Characteristic curves



# Tangential blowers

QL 4 double housing with EC motor

Tangential blowers with electronically commutated EC-motors.

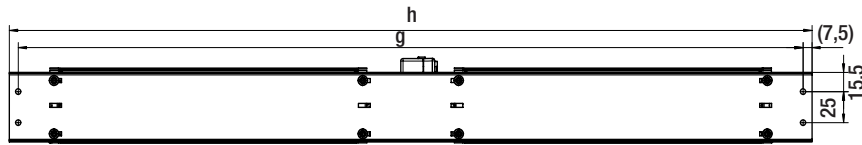
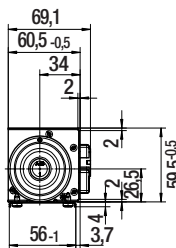
- integrated electronics
- speed setting via 0 - 10 V analogue voltage signal
- speed-adjustable (version) via PWM signal available upon request
- impeller diameter 40 mm
- airflow direction of 180° possible
- mounting position horizontal or vertical
- protection class IP20, insulation class F
- permissible ambient temperature 0 - 60 °C

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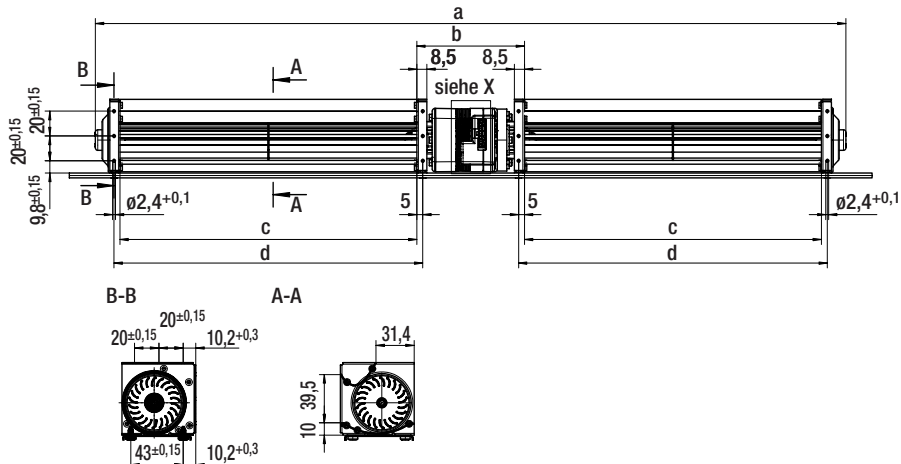
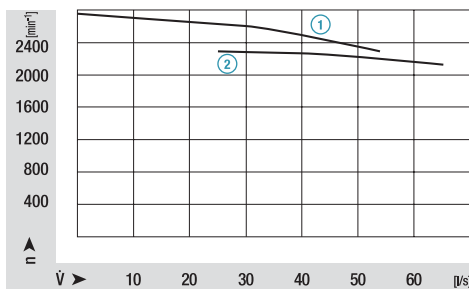
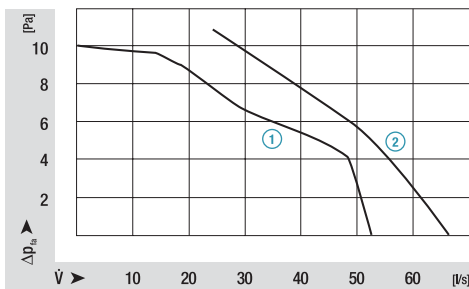


Nominal data	characteristic curve	rated voltage	air flow	max. pressure increase	power input	speed	mass	Dimensions mm							
								type	VDC	m³/h	Pa	W	min⁻¹	kg	a
QL4/2525-2212	①	24	194	12	7	2550	1,3								
QL4/3030-2212	②	24	234	15	8	2200	1,4								

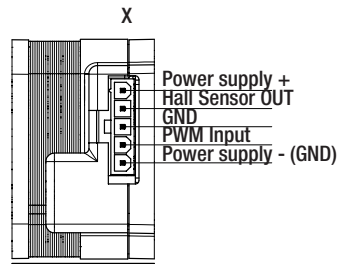
subject to alterations



Characteristic curves



- Power supply: 24 DC (10V...26,8V)
- Hall sensor out: 2 pulses per rotation
- U<sub>H</sub> = 12 V; R<sub>i</sub> = 1kOhm
- Input: control voltage: 0...10V
- input switched to GND: fan off
- input open: fan off



suitable for connector housing Mini-Fit, Jr. (Fa. Molex)  
order number 39-01-4050

# Tangential blowers

## QLK 45 double housing with EC motor



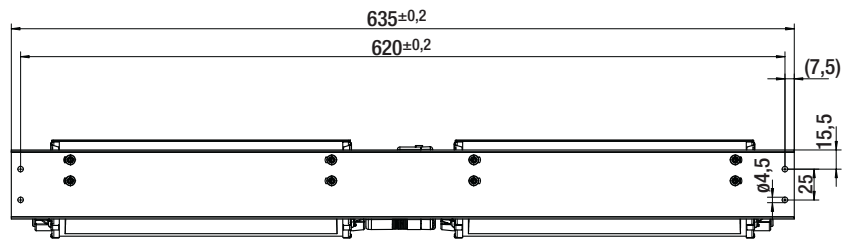
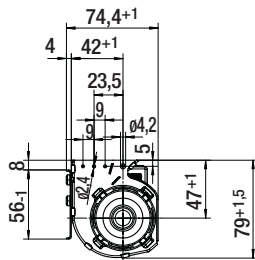
Tangential blowers with electronically commutated EC-motors.

- integrated electronics
- speed setting via 0 - 10 V analogue voltage signal
- speed-adjustable (version) via PWM signal available upon request
- impeller diameter 45 mm
- horizontal or vertical mounting position
- protection class IP20, insulation class F
- permissible ambient temperature 0 – 60 °C

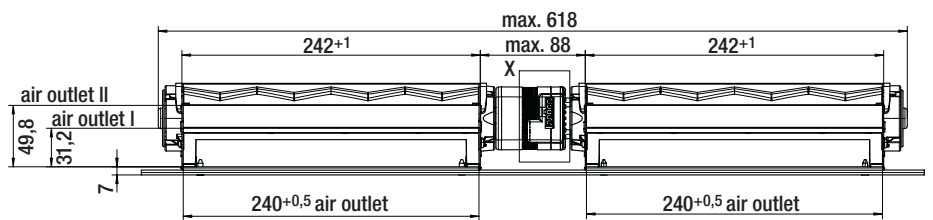
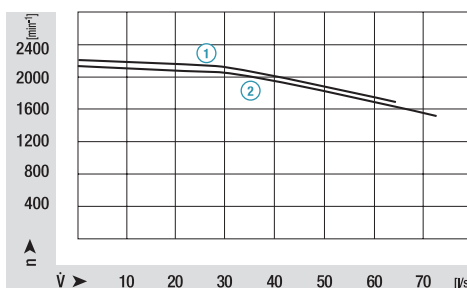
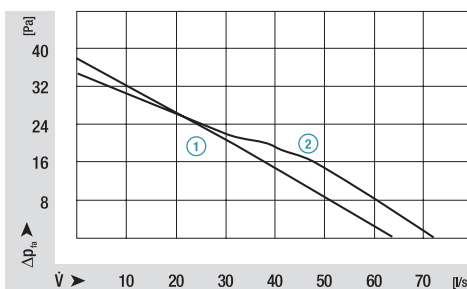
ebm-papst • Landshut

Nominal data	characteristic curve	rated voltage	air flow	max. pressure increase	power input	speed	mass	Dimensions mm									
								type	VDC	m³/h	Pa	W	min <sup>-1</sup>	kg	a	b	c
QLK45/2424-2212*	①	24	230	37	8	1650	2,4										
QLK45/3030-2212	②	24	265	34	10	1500	2,6										

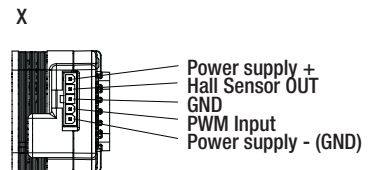
\*) Corresponding to dimensional drawing; subject to alterations



### Characteristic curves



Power supply: 24 DC (10V...26,8V)  
Hall sensor out: 2 pulses per rotation  
 $U_{H1} = 12V$ ;  $R_1 = 1k\Omega$   
Input: control voltage: 0...10V  
input switched to GND: fan off  
input open: fan off



suitable for connector housing Mini-Fit, Jr. (Fa. Molex)  
order number 39-01-4050

# Tangential blowers

## QLN 65 double housing with EC motor

Tangential blowers with electronically commutated EC-motors.

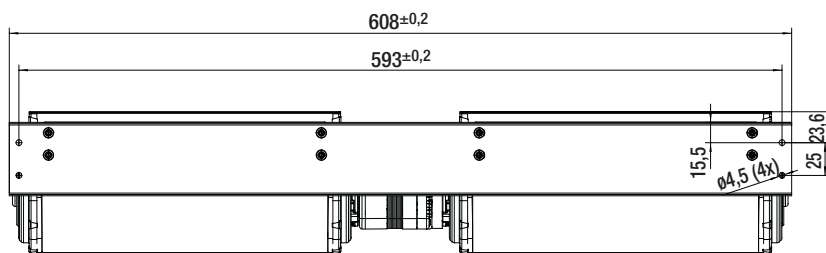
- integrated electronics
- speed setting via 0 - 10 V analogue voltage signal
- speed-adjustable (version) via PWM signal available upon request
- impeller diameter 65 mm
- horizontal or vertical mounting position
- protection class IP20, insulation class F
- permissible ambient temperature 0 – 60 °C



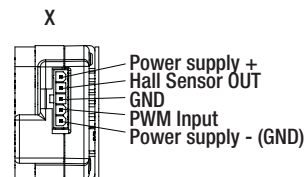
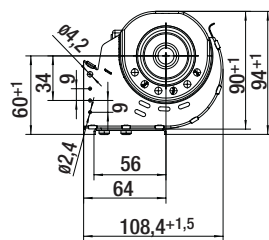
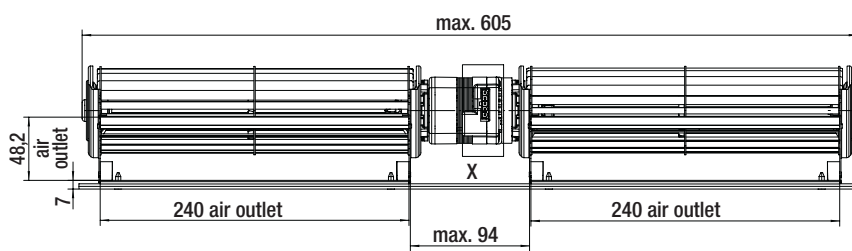
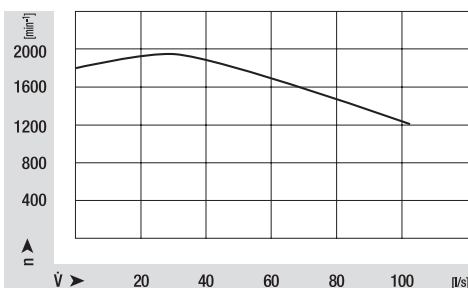
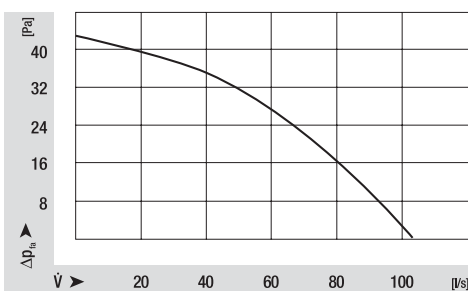
ebm-papst • Landshut

Nominal data	rated voltage	air flow	max. pressure increase	power input	speed	mass	Dimensions mm				
	V	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>	kg	a	b	c	g	h
QLN65/2424-2212	24	360	42	19	1250	1,5					

subject to alterations



### Characteristic curves



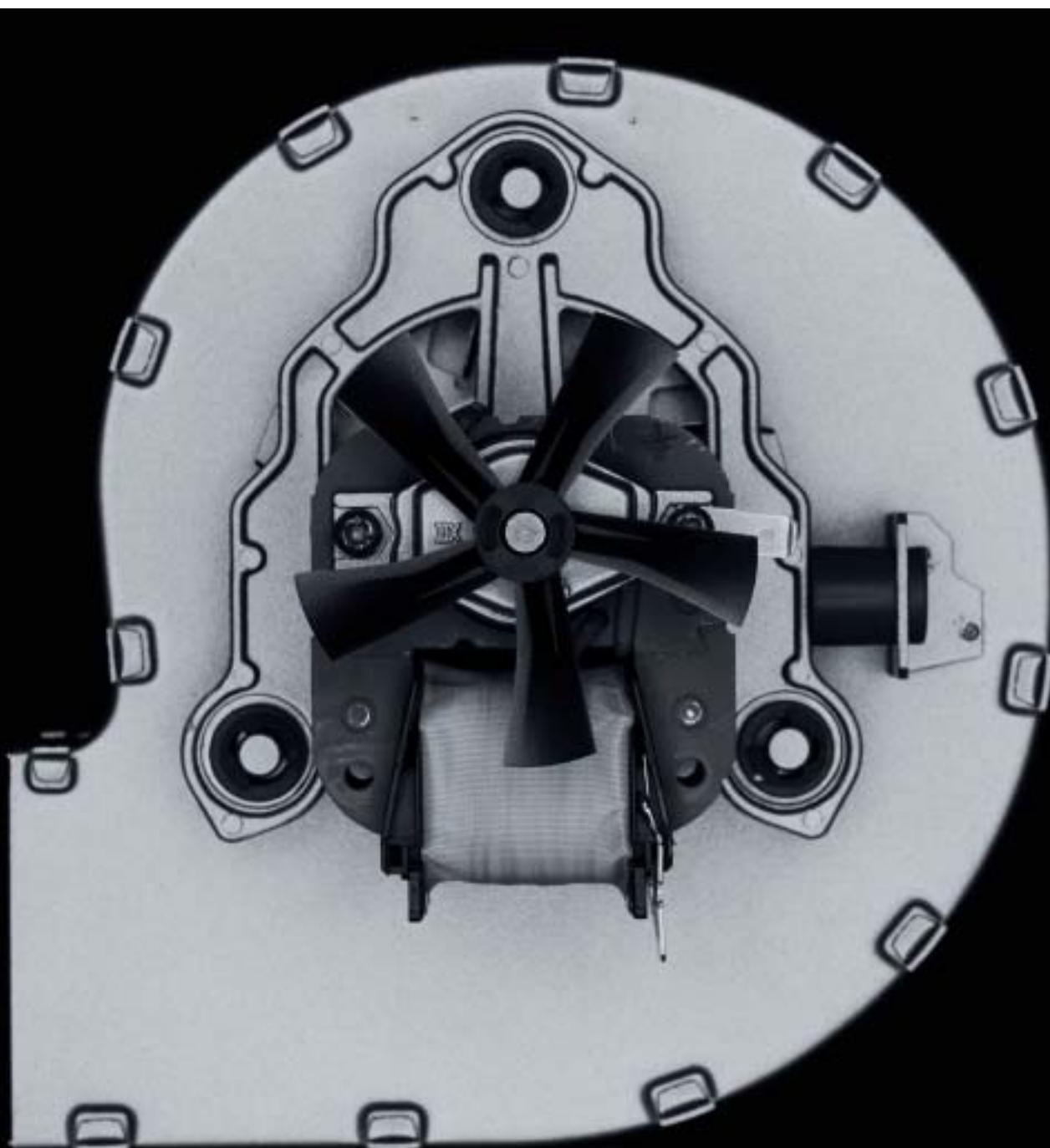
suitable for connector housing Mini-Fit, Jr. (Fa. Molex)  
order number 39-01-4050



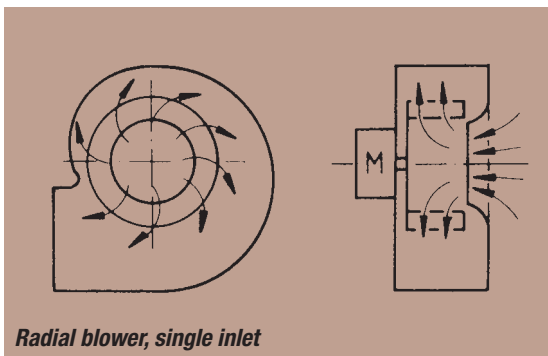


# Radial blowers with AC motor

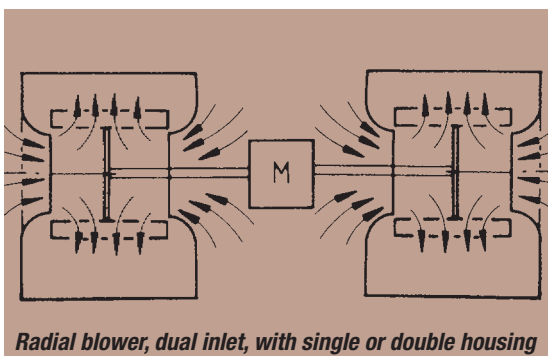
Description	32
Radial blowers, motor directly mounted RL, RLF, RLD, RLA, RLE, RLS	33
Radial blowers with double housing	37
Radial blowers, motor decoupled mounted, high temperature version	39
Radial blowers D2E.. with external-rotor motor for extractor hoods	47



## Radial blowers with AC internal-rotor motor



*Radial blower, single inlet*



*Radial blower, dual inlet, with single or double housing*

Radial blowers RL with forward curved impellers (drum impellers) feature high specific ratings at high maximum pressure, stable pressure/air flow characteristic curves, good efficiency and low noise levels. Both single and dual inlet versions are available, as are blowers with double housing. The motors are mounted outside the air current on the blower housing itself.

For increased requirements in terms of temperature resistance, e.g. for use as flue gas blowers in gas heating appliances, the motors are thermally and acoustically decoupled from the blower unit using silicon elements. A cooling vane on the motor shaft between the blower housing and the motor also reduces the temperatures transferred to the bearing system through the shaft. In conjunction with bearing systems suitable for high temperatures and a coil structure that complies with insulation class H, this means that all specific requirements for medium temperatures of between 180°C and 250°C can be met according to the design.

As a result of the elastic motor mounting, the mass of the motor must be supported depending on its mounting position. Therefore, it is essential that details of the mounting position are given.

Intake nozzles, guard grilles, pressure sensors, tachometers and other accessories can be supplied to adjust the units to suit specific requirements in heating systems.

# Radial blowers with AC internal-rotor motor

RL 59

- mounting position: shaft horizontal
- insulation class B
- permissible ambient temperature 0 – 60 °C
- housing: plastic PA6 GF
- impeller: forward curved, plastic PA6 GF

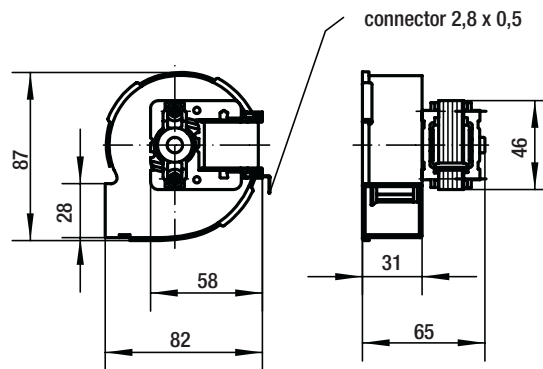
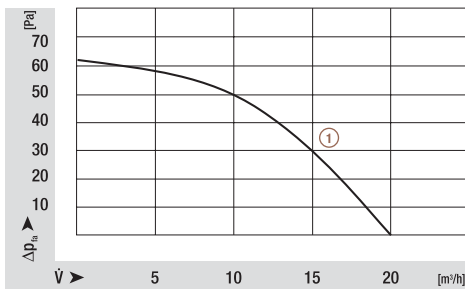


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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass
motor right*	motor left		V	Hz	m <sup>3</sup> /h	Pa	W	mA	min <sup>-1</sup>	kg
<b>RL59/2400-2112</b>	<b>RL59/0024-2112</b>	①	230	50	20	63	6	40	2400	0,30

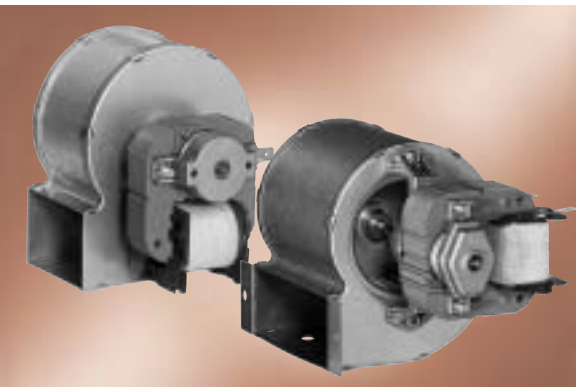
\*) Corresponding to dimensional drawing; Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

## Characteristic curves



# Radial blowers with AC internal-rotor motor

## RLF 67



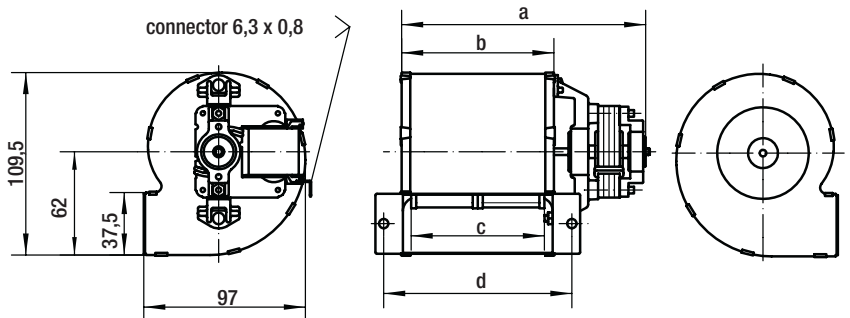
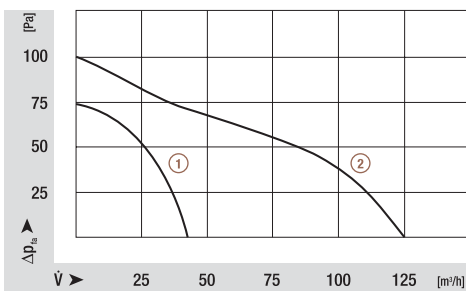
- mounting position: shaft horizontal
- insulation class B
- permissible ambient temperature 0 – 60 °C
- housing: galvanized sheet steel
- impeller: forward curved, aluminium (galvanized sheet steel)

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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm			
motor right*	motor left		V	Hz	m <sup>3</sup> /h	Pa	W	mA	min <sup>-1</sup>	kg	a	b	c	d
<b>RLF67/3800-3015L</b>	RLF67/0038-3015L	①	230	50	40	73	12	90	2000	0,7	104	49	38	70
<b>RLF67/7600Z-3025L</b>	RLF67/0076Z-3025L	②	230	50	125	115	27	220	2500	1,2	164	92	76	113

\*) Corresponding to dimensional drawing; Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

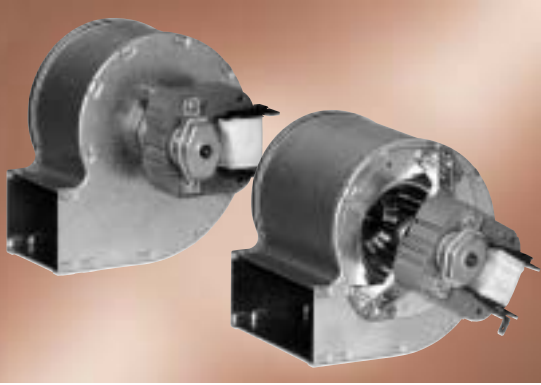
### Characteristic curves



# Radial blowers with AC internal-rotor motor

RLD 76 (85)

- mounting position: shaft horizontal
- insulation class B
- permissible ambient temperature 0 – 60 °C
- housing: FAL sheet steel
- impeller: forward curved, aluminium (FAL sheet steel)

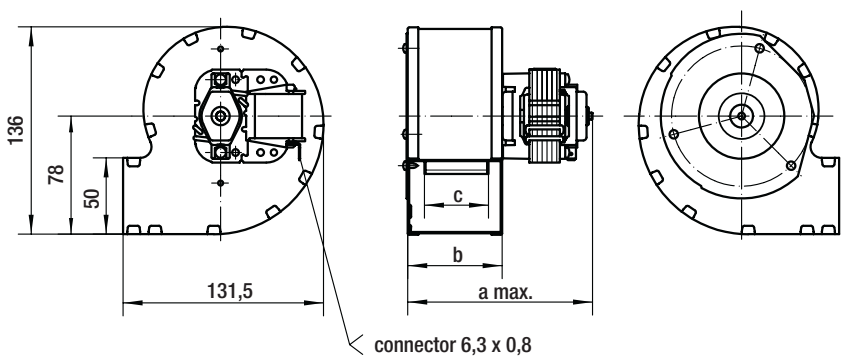
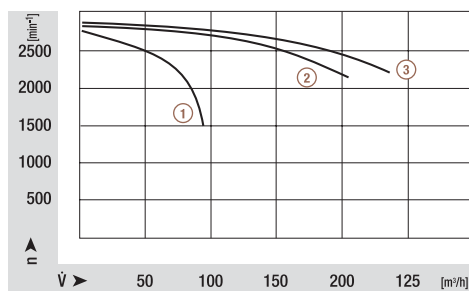
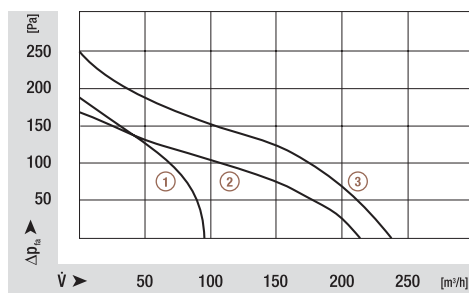


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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm		
motor right*	motor left										V	Hz	m³/h
<b>RLD85/4200-3020L</b>	<b>RLD85/0042-3020L</b>	①	230	50	95	185	30	250	1500	1,1	123	62	42
<b>RLD76/8600Z-3030L</b>	<b>RLD76/0086Z-3030L</b>	②	230	50	210	165	58	530	2150	1,5	185	108	86
RLD85/8600Z-3038L	RLD85/0086Z-3038L	③	230	50	235	250	82	720	2250	1,9	193	108	86

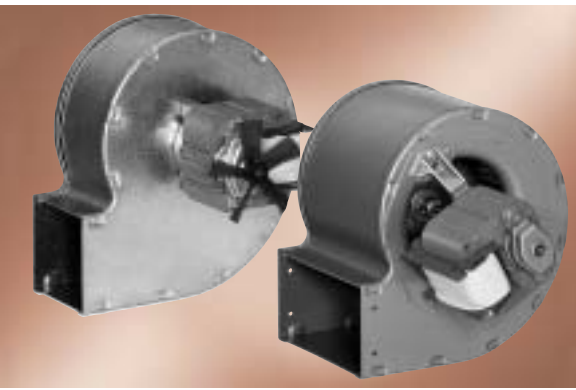
\*) Corresponding to dimensional drawing; Technical data valid at free air flow with inlet ring; bold print = standard type; subject to alterations

## Characteristic curves



# Radial blowers with AC internal-rotor motor

RLA 97 (108)



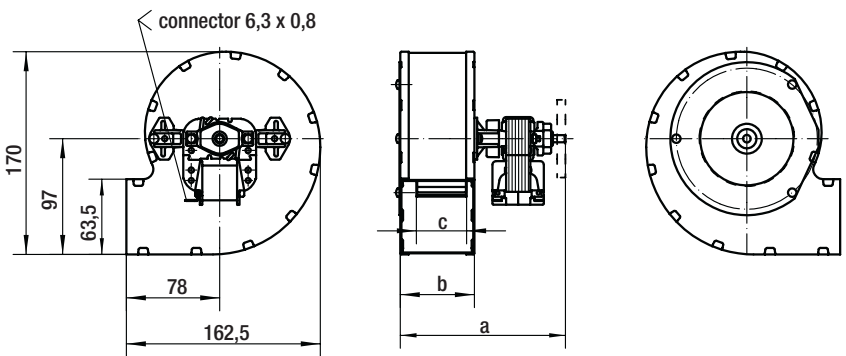
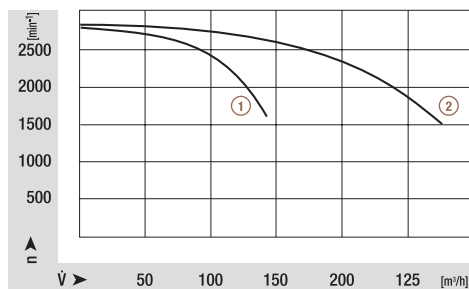
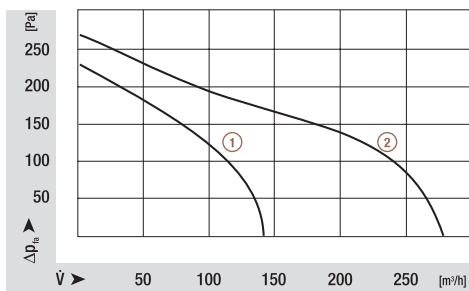
- mounting position: shaft horizontal
- insulation class B
- permissible ambient temperature 0 – 60 °C
- housing: FAL sheet steel
- impeller: forward curved, FAL sheet steel (aluminium)

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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm		
motor right*	motor left		V	Hz	m³/h	Pa	W	mA	min <sup>-1</sup>	kg	a	b	c
RLA97/4200-3030L	RLA97/0042-3030L	①	230	50	140	225	54	480	1600	1,5	146	62	42
RLA97/8600Z-3045L		②	230	50	280	260	95	780	1550	2,3	204	112	86

\*) Corresponding to dimensional drawing; Technical data valid at free air flow with inlet ring; bold print = standard type; subject to alterations

## Characteristic curves



# Radial blowers AC with double housing

RLF 67, RLD 85, RLA 97



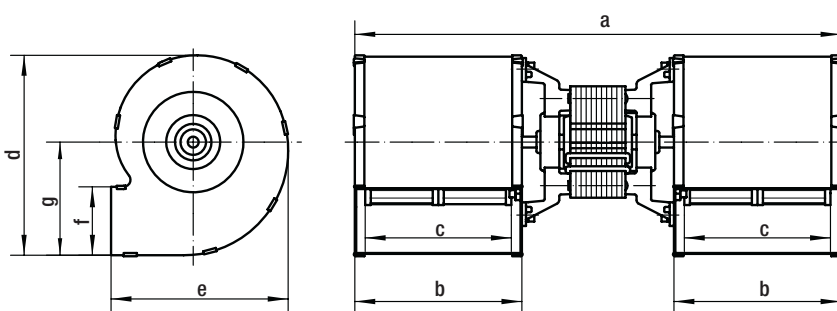
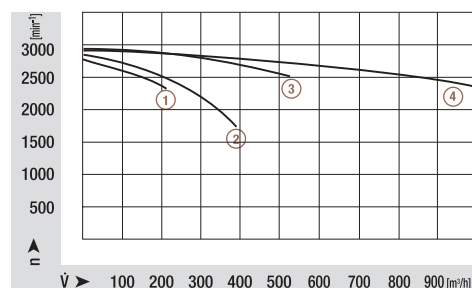
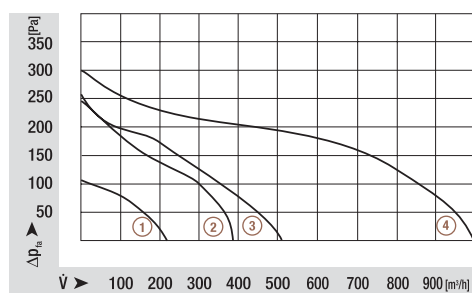
- mounting position: RLF, RLD shaft horizontal  
RLA all positions available
- insulation class B
- permissible ambient temperature 0 – 60 °C
- housing: FAL sheet steel
- impeller: forward curved, aluminium

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Nominal data	characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm						
										type	V	Hz	m <sup>3</sup> /h	Pa	W	mA
<b>RLF67/7676Z-3030L</b>	①	230	50	230	106	38	330	2400	1,6	267	92	76	110	97	37,5	62
<b>RLD85/8686Z-3045L</b>	②	230	50	380	240	95	910	1800	2,4	316	108	86	136	132	50	78
<b>RLD85/8686Z-4020/2</b>	③	230	50	512	254	120	503	2550	2,2	329	108	106	136	132	50	78
<b>RLA97/120120Z-4340/2</b>	④	230	50	1000	310	200	950	2300	3,9	445	146	120	170	163	63,5	97

Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

## Characteristic curves



# Radial blowers with AC internal-rotor motor

## RLS 170



- mounting position: shaft horizontal
- insulation class H
- permissible ambient temperature 90 °C
- housing: plastic PA6 GF
- impeller: backward curved, plastic PA6 GF

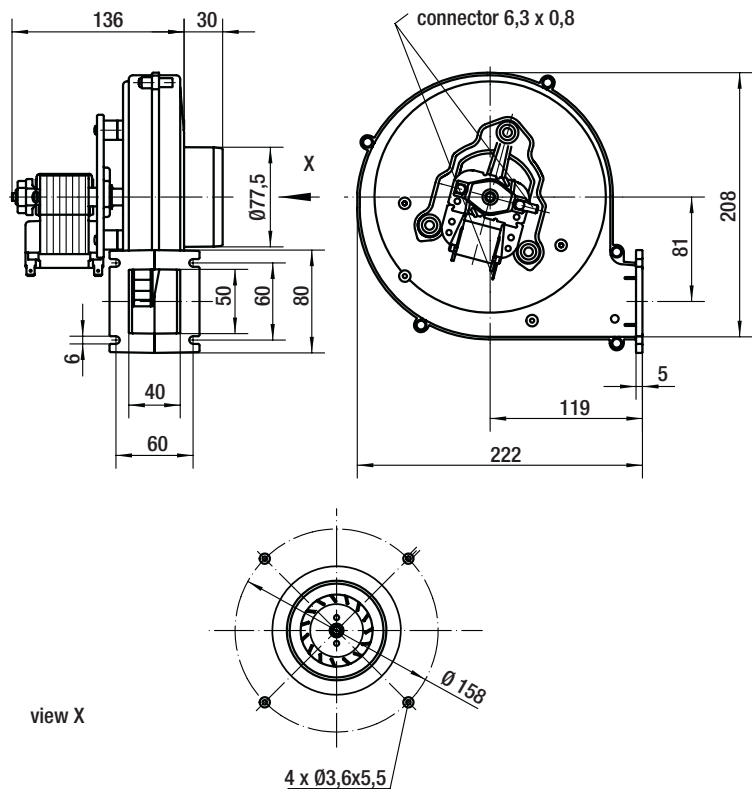
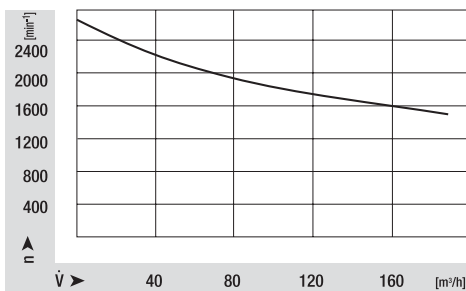
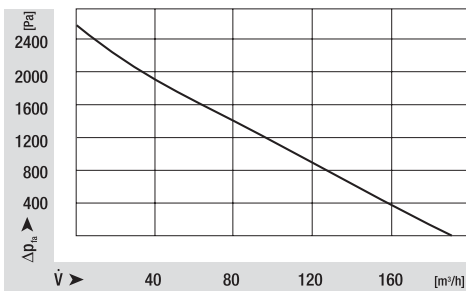
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### Nominal data

type	rated voltage V	frequency Hz	air flow m <sup>3</sup> /h	max. pressure increase Pa	power input W	rated current mA	speed min <sup>-1</sup>	mass kg
RLS170/0013-3030LH	230	50	95	460	46	350	1900	1,3

Technical data valid at free air flow and rated voltage; subject to alterations

### Characteristic curves

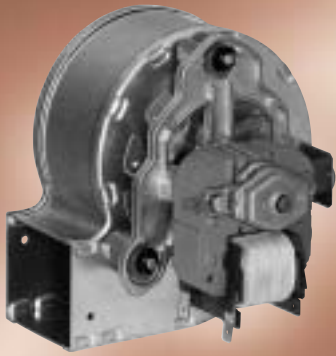




# Radial blowers high temperature version

RLD 85...LH

- insulation class H
- max. ambient air stream temperature 180 °C (250 °C with FAL impeller)
- housing: FAL sheet steel
- impeller: forward curved, aluminium (FAL sheet steel)
- motor mounting decoupled by silicon elements
- mounting position must be specified for corresponding support elements

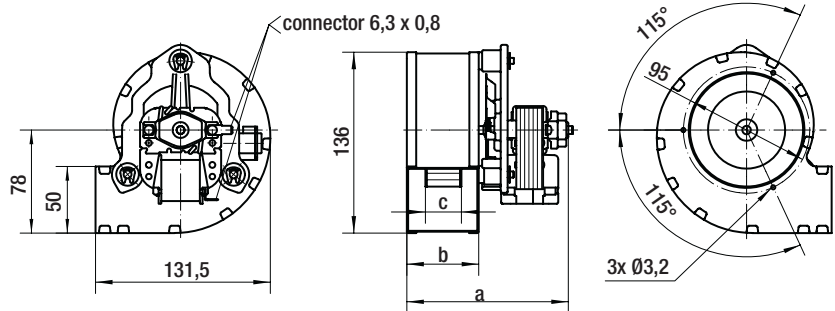
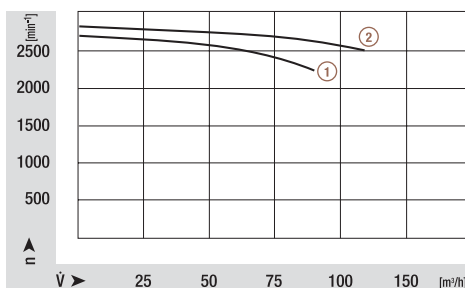
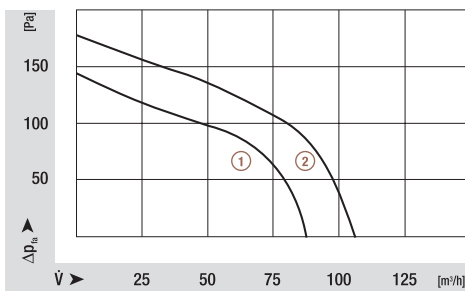


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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm		
motor right*	motor left		V	Hz	m³/h	Pa	W	mA	min <sup>-1</sup>	kg	a	b	c
RLD85/2700-3020LH	RLD85/0027-3020LH	①	230	50	86	150	28	245	2300	1,1	113	45	27
<b>RLD85/3400-3025LH</b>	<b>RLD85/0034-3025LH</b>	②	230	50	108	180	39	350	2550	1,3	129	54	34

\*) Corresponding to dimensional drawing; Technical data valid at free air flow without inlet ring; bold print = standard type; subject to alterations

## Characteristic curves



# Radial blowers high temperature version

RLA 97 (108)...LH



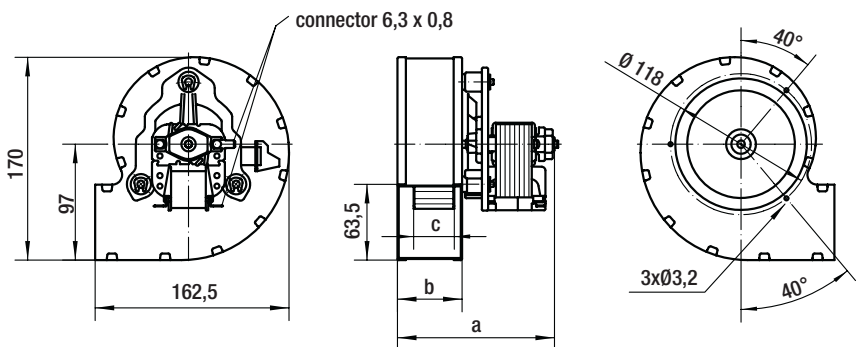
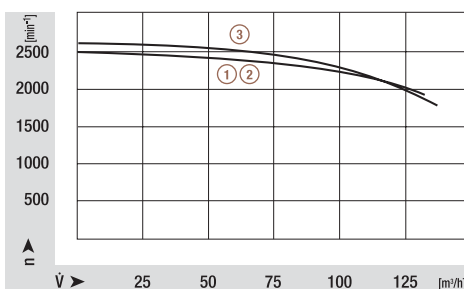
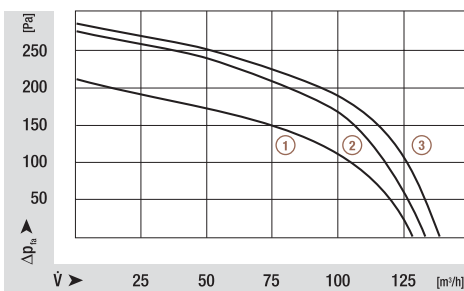
- insulation class H
- max. ambient air stream temperature 250 °C
- housing: FAL sheet steel
- impeller: forward curved, FAL sheet steel
- motor mounting decoupled by silicon elements
- mounting position must be specified for corresponding support elements

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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm		
motor right*	motor left		V	Hz	m³/h	Pa	W	mA	min <sup>-1</sup>	kg	a	b	c
<b>RLA97/4200-3030LH</b>	RLA97/0042-3030LH	①	230	50	130	220	41	390	2000	1,6	146	62	42
RLA108/3400-3030LH	RLA108/0034-3030LH	②	230	50	135	280	58	490	1925	1,6	144	54	34
<b>RLA108/4200-3030LH</b>	RLA108/0042-3030LH	③	230	50	140	290	64	520	1870	1,6	152	62	42

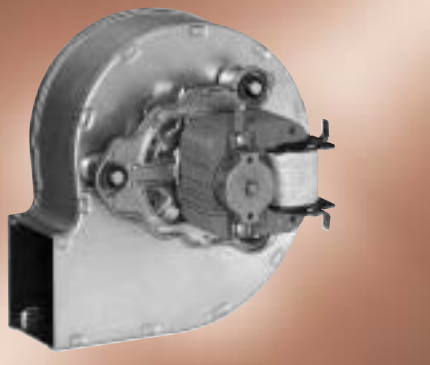
\*) Corresponding to dimensional drawing; Technical data valid at free air flow without inlet ring; bold print = standard type; subject to alterations

## Characteristic curves



# Radial blowers high temperature version

RLE 108 (120)...LH



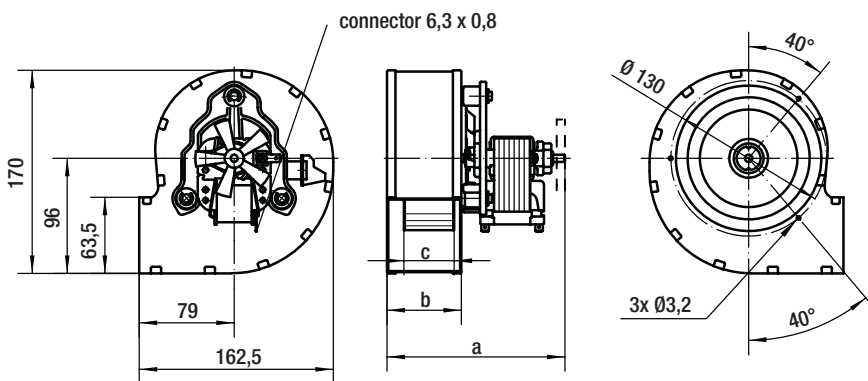
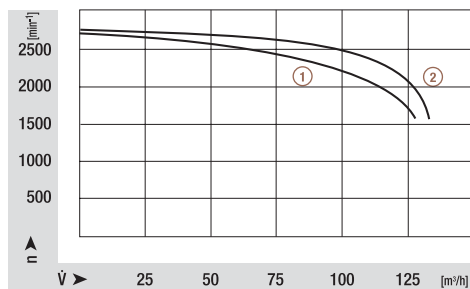
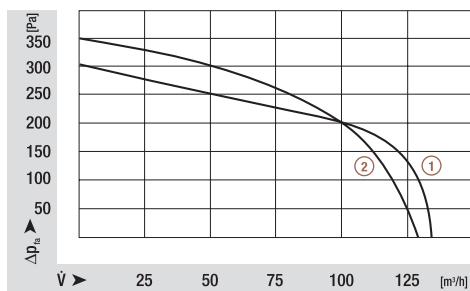
- insulation class H
- max. ambient air stream temperature 250 °C
- housing: FAL sheet steel
- impeller: forward curved, FAL sheet steel
- motor mounting decoupled by silicon elements
- mounting position must be specified for corresponding support elements

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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm		
motor right*	motor left		V	Hz	m³/h	Pa	W	mA	min <sup>-1</sup>	kg	a	b	c
RLE108/3400-3030LH		①	230	50	135	300	53	440	1500	1,6	134	54	34
RLE120/3400-3030LH		②	230	50	130	350	62	520	1550	1,6	134	54	34

\*) Corresponding to dimensional drawing; Technical data valid at free air flow with inlet ring; bold print = standard type; subject to alterations

## Characteristic curves



# Radial blowers high temperature version

RLB 130...LH



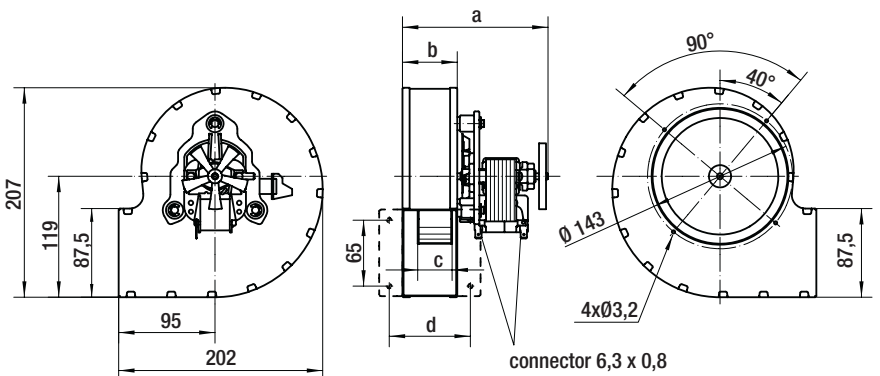
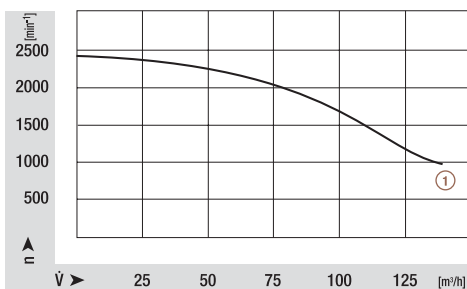
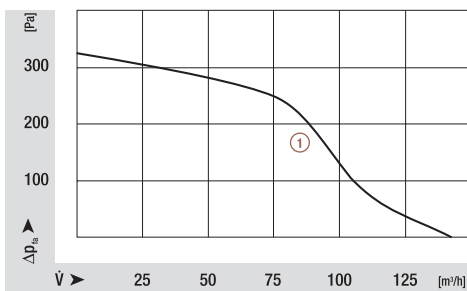
- insulation class H
- max. ambient air stream temperature 180 °C
- housing: FAL sheet steel
- impeller: forward curved, aluminium
- motor mounting decoupled by silicon elements
- mounting position must be specified for corresponding support elements

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Nominal data	characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm			
										type	V	Hz	m <sup>3</sup> /h
<b>RLB130/3400-3038LH</b>	①	230	50	140	325	70	600	950	2,0	145	54	34	-

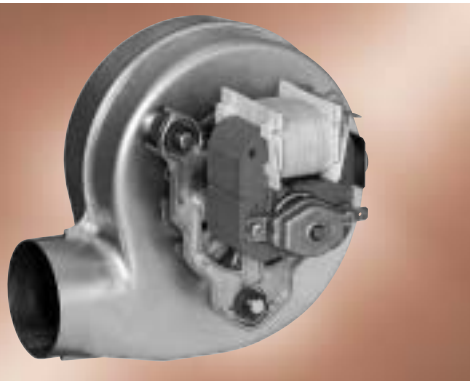
Technical data valid at free air flow with inlet ring; bold print = standard type; subject to alterations

## Characteristic curves



# Radial blowers high temperature version

RLG 97 (108)...LH



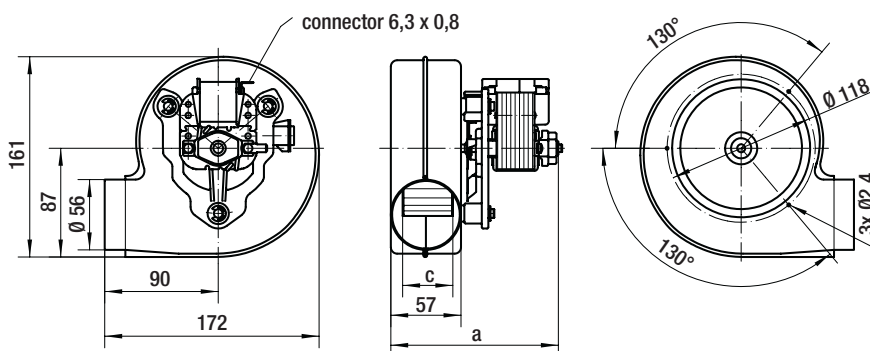
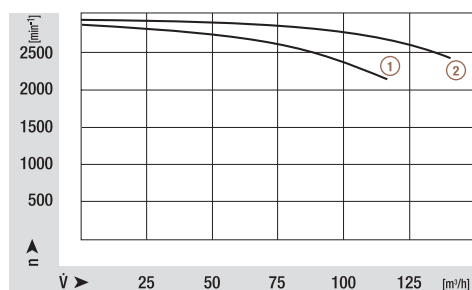
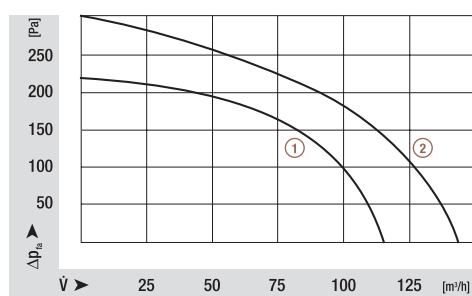
- insulation class H
- max. ambient air stream temperature 250 °C
- housing: FAL sheet steel
- impeller: forward curved, FAL sheet steel
- motor mounting decoupled by silicon elements
- mounting position must be specified for corresponding support elements

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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm	
motor right*	motor left		V	Hz	m³/h	Pa	W	mA	min <sup>-1</sup>	kg	a	c
RLG97/4200-3025LH	RLG97/0042-3025LH	①	230	50	115	220	42	360	2100	1,5	132	42
<b>RLG108/4200-3030LH</b>	<b>RLG108/0042-3030LH</b>	②	230	50	145	300	60	520	2400	1,6	138	42

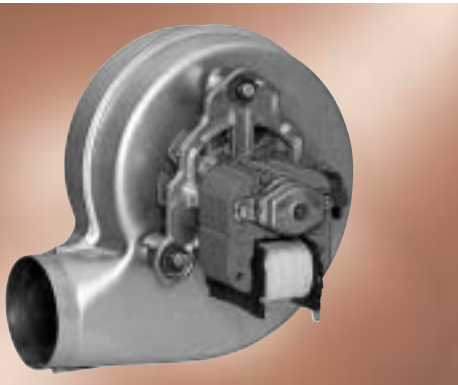
\*) Corresponding to dimensional drawing; Technical data valid at free air flow without inlet ring; bold print = standard type; subject to alterations

## Characteristic curves



# Radial blowers high temperature version

RLH 108 (120)...LH



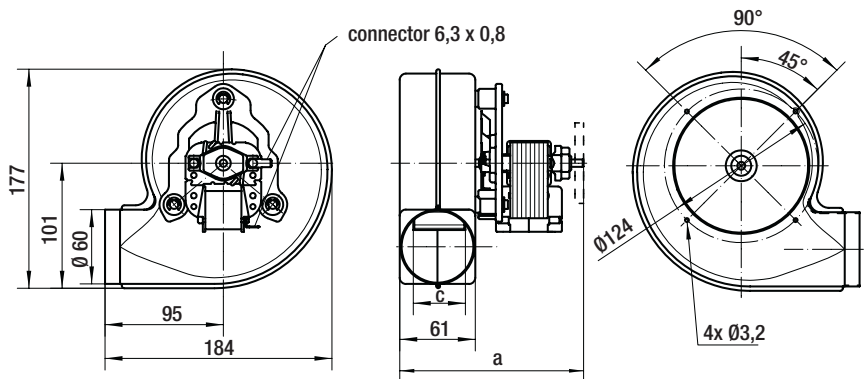
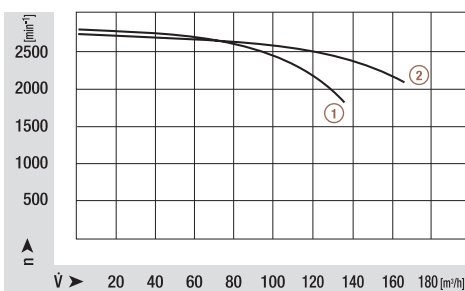
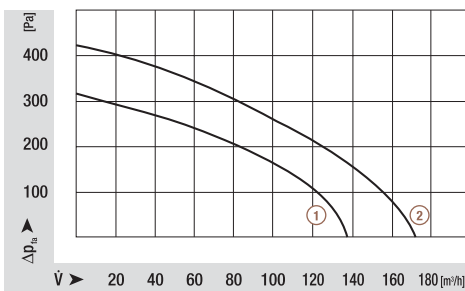
- insulation class H
- max. ambient air stream temperature 250 °C
- housing: FAL sheet steel
- impeller: forward curved, FAL sheet steel
- motor mounting decoupled by silicon elements
- mounting position must be specified for corresponding support elements

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Nominal data		characteristic curve	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm	
motor right*	motor left		V	Hz	m <sup>3</sup> /h	Pa	W	mA	min <sup>-1</sup>	kg	a	c
RLH108/4200-3030LH	RLH108/0042-3030LH	①	230	50	135	315	58	480	1850	1,7	143	42
RLH120/3800-3038LH	RLH120/0038-3038LH	②	230	50	170	420	92	870	2100	2,0	155	38

\*) Corresponding to dimensional drawing; Technical data valid at free air flow with inlet ring; bold print = standard type; subject to alterations

## Characteristic curves

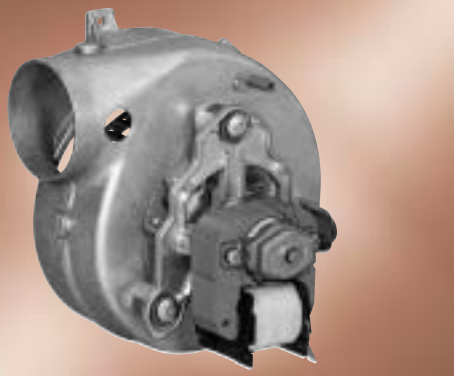


# Radial blowers high temperature version

RLK 108...LH

- housing: die-cast aluminium
- insulation class H
- max. ambient air stream temperature 250 °C
- impeller: forward curved, FAL sheet steel
- motor mounting decoupled by silicon elements
- mounting position must be specified for corresponding support elements

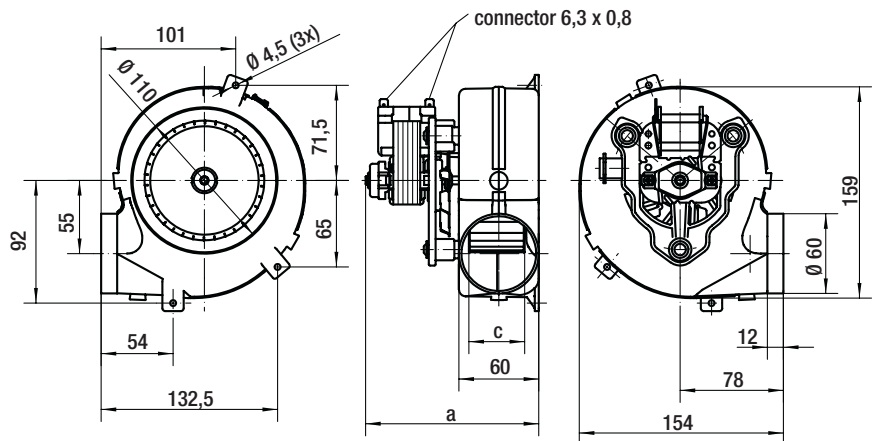
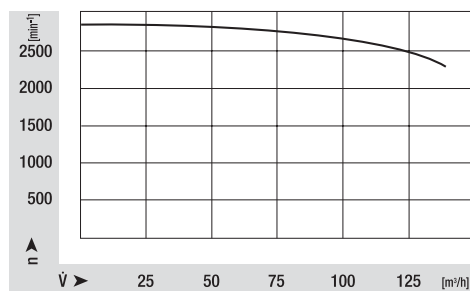
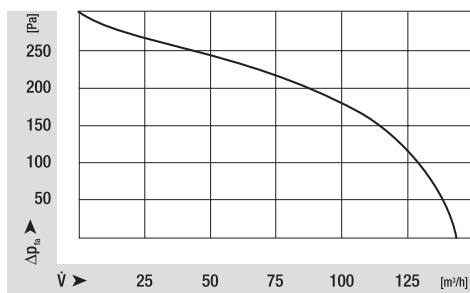
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Nominal data	rated voltage	frequency	air flow	max. pressure increase	power input	rated current	speed	mass	Dimensions mm	
	V	Hz	m <sup>3</sup> /h	Pa	W	mA	min <sup>-1</sup>	kg	a	c
RLK108/0042-3030LH	230	50	142	305	65	550	2350	1,4	142	42

Technical data valid at free air flow and rated voltage; bold print = standard type; subject to alterations

## Characteristic curves



# Impulse transmitter

SG 2



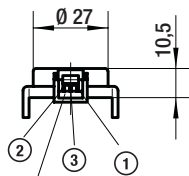
The signal transmitter SG2 is an impulse transmitter suitable to be connected to EM30 and KM motors. 12 square impulses per rotation of the motor shaft are formed by means of a 24-pole, plastic-bonded ferrite magnet ring, in connection with a Hall-IC.

A secondary electronic system can be applied to use this signal as speed recognition, speed control.

In a simple case, a supply voltage of 4.5 - 24 Volts as well as a pull-up resistor of e.g. 2.7 k $\Omega$  and 0.25W is necessary to obtain a digital signal of equal amplitude at the output.

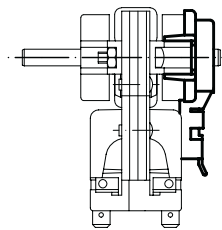
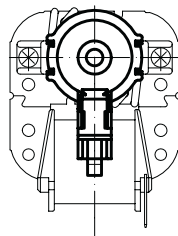
Features of the signal transmitter are high operating reliability, small Dimensions, no limitation to build-in position and no operating noise.

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- ①  $\Delta$  V cc = 4,5...24V (supply)
- ②  $\Delta$  V out (square wave signal, open collector, max.25 mA)
- ③  $\Delta$  GND

suitable for Molex Mini Spox





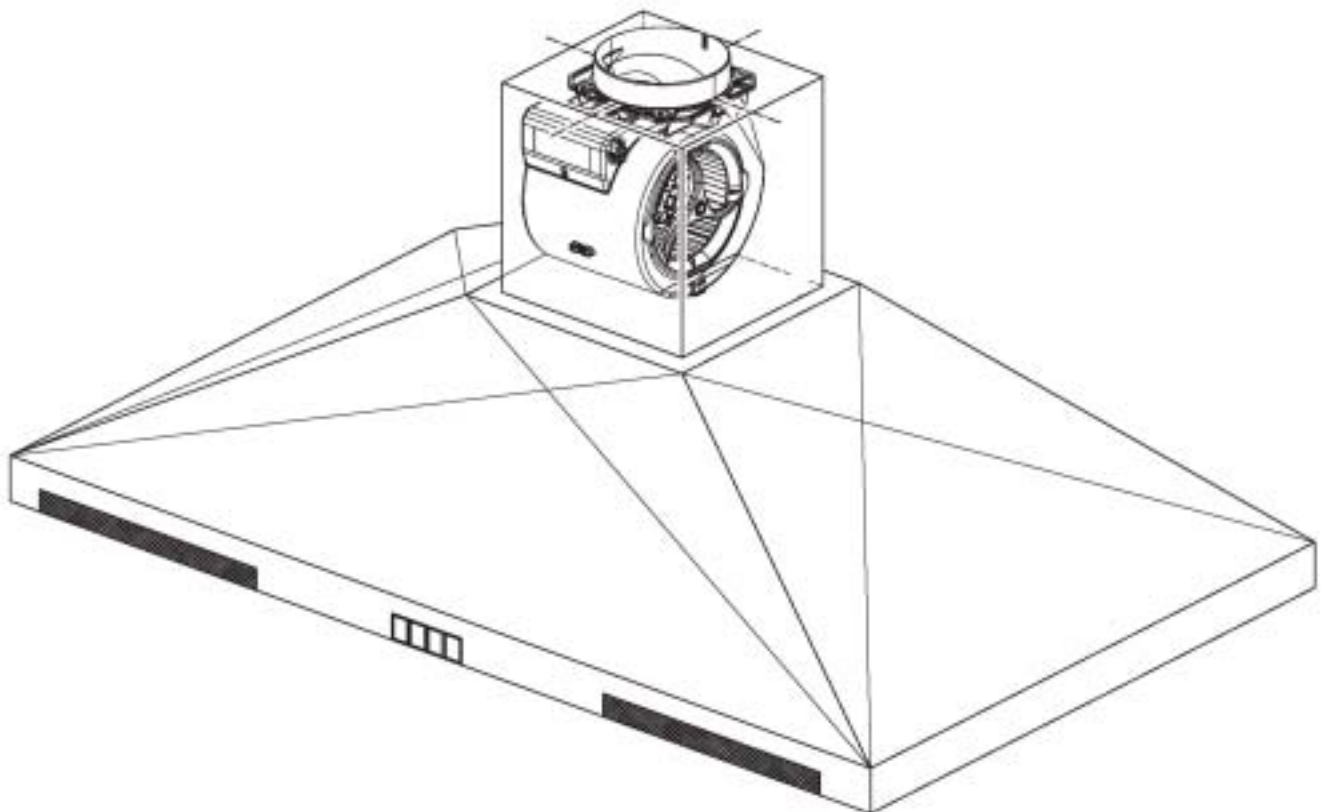
## Radial blowers dual inlet, for extractor hoods with AC external-rotor motor

Radial blowers, dual inlet, with external-rotor motor made by ebm-papst Mulfingen are available in special range hood design. The blowers listed on the following pages are mainly used in so called wall and island chimneys as well as in built-in hoods fitted with a blower module.

The blower range is extremely low in noise, even with high air performance. Another great advantage lies in the fact that this blower range is very easy to install. The dual inlet blower can be mounted in the customer's appliance in no time at all. Exhaust air pipes and bushing nozzles can be fitted without any problems.

The capacitor is part of the integrated terminal box for blower sizes  $\varnothing 140$  to  $\varnothing 160$  mm. The blower is also completely wired up and ready to be line-operated via a plug. The standard design comes in 4 speed steps, thus covering a wide range of possible applications.

ebm-papst Mulfingen also offer an extensive range of products, i. e. adapted fans and blowers, for other designs and types, e.g. flat screen hoods, intermediate or substructure hood. Please contact us for more information.



# Radial blowers dual inlet

D2E 140

with AC external-rotor motor



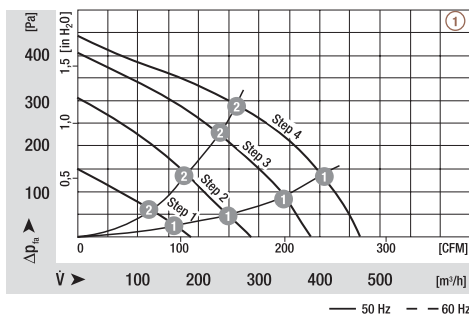
- **Material:** Housing: PP plastic, black  
Impeller: PP plastic, white  
Rotor: Partially cast in aluminium  
Terminal box: PP plastic, black
  - **Direction of rotation:** Clockwise, seen on rotor
  - **Type of protection:** IP 44
  - **Insulation class:** "F"
  - **Mounting position:** Any
  - **Condensate discharges:** None
  - **Mode of operation:** Continuous operation (S1)
  - **Design:** 4-step blower with integrated terminal box, standard external-rotor motor anti-vibration mounted on one side
- ebm-papst • Muldingen**

Nominal data		characteristic curve	voltage	frequency	air flow	speed	power input	rated current	capacitor	noise level	back pressure min.	perm. ambient temp.
type	motor		VAC	Hz	m <sup>3</sup> /h	min <sup>-1</sup>	W	A	µF/VDB	dB(A)	Pa	°C
D2E 140	M2E 068-CF	①	1~ 230	50	470	1150	130	0,58	2,0/400	58	0	-25 to +50
			1~ 230	60	430	1050	130	0,58	2,0/400	56	0	-25 to +40

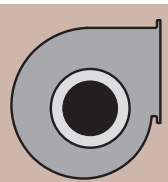
subject to alterations

	n [min <sup>-1</sup> ]	P <sub>1</sub> [W]	I [A]	L <sub>pA</sub> [dBA]
① ① Step 1	690	56	0,26	36
① ② Step 1	1015	55	0,25	38
① ① Step 2	1000	73	0,33	46
① ② Step 2	1540	68	0,31	49
① ① Step 3	1385	93	0,41	52
① ② Step 3	2020	80	0,36	56
① ① Step 4	1675	118	0,51	56
① ② Step 4	2235	100	0,43	59

## Characteristic curves

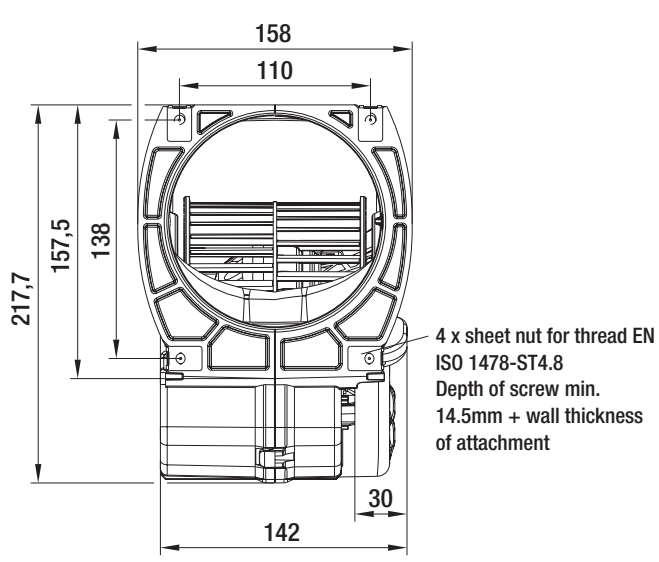
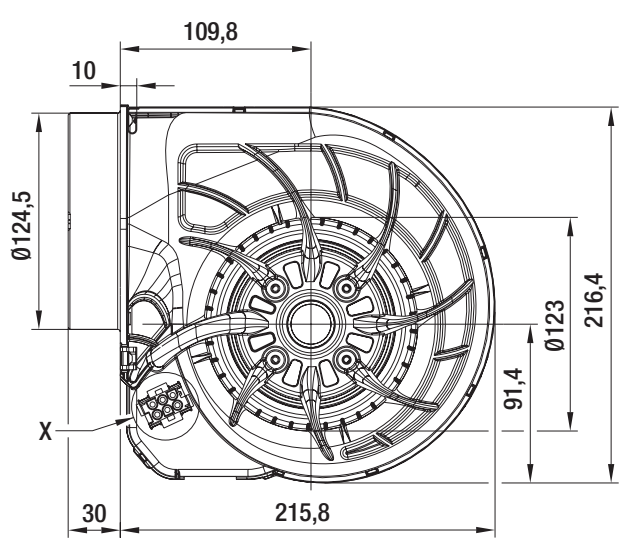


- **Bearings:** Maintenance-free ball bearings
- **Motor protection:** Top wired internally
- **Connection leads:** Via plug
- **Protection class:** I
- **Capacitor:** FPU (P2) integrated in terminal box completely wired up and ready for plug-in
- **Product conforming to standards:** EN 60335-2-31, CE
- **Approvals:** VDE



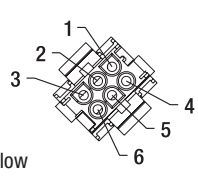
Mass of centrifugal blower

Centrifugal blower with flange	kg
D2E 140-HR97 -07	2,3

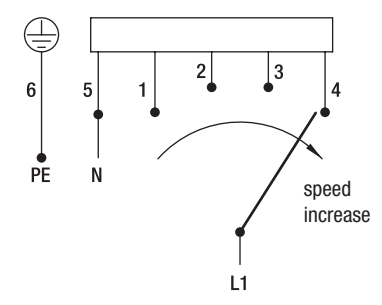


**Detail X**  
 Coded plug system AMP Universal-Mate-N-Lok  
 connector shell: AMP 926 682-3  
 6 x pin connector: AMP 926 886-1

- 1 = step 1 (min.) white
- 2 = step 2 red
- 3 = step 3 grey
- 4 = step 4 (max.) black
- 5 = N blue
- 6 = Ground green/yellow



**Connection diagram**  
 Switch has to break contact when turned.



# Radial blowers dual inlet

D2E 146

with AC external-rotor motor



- **Material:** Housing: PP plastic, black  
Impeller: PP plastic, red-brown  
Rotor: Partially cast in aluminium  
Terminal box: PP plastic, black
  - **Direction of rotation:** Clockwise, seen on rotor
  - **Type of protection:** IP 44
  - **Insulation class:** "F"
  - **Mounting position:** Any
  - **Condensate discharges:** None
  - **Mode of operation:** Continuous operation (S1)
  - **Design:** 4-step blower with integrated terminal box,  
standard external-rotor motor anti-vibration mounted via support plate
- ebm-papst • Muldingen**

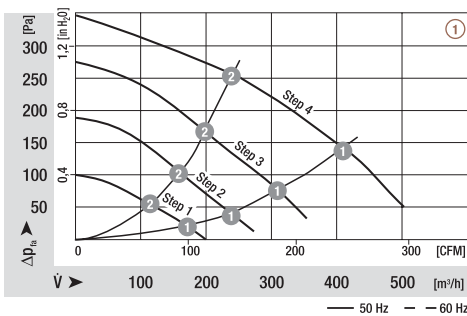
Nominal data		characteristic curve	voltage	frequency	air flow	speed	power input	rated current	capacitor	noise level	back pressure min.	perm. ambient temp.
type	motor	VAC	Hz	m3/h	min-1	W	A	µF/VDB	dB(A)	Pa	°C	
D2E 146	M2E 068-CA	① 1~ 230	50	520	1350	120	0,53	3,0/400	51	50	-25 to +55	
		1~ 230	60	375	1400	125	0,55	3,0/400	53	100	-25 to +40	
D2E 146	M2E 068-CF	② 1~ 230	50	665	1250	160	0,70	4,0/400	53	0	-25 to +50	
		1~ 230	60	390	1950	170	0,75	4,0/400	58	200	-25 to +40	

subject to alterations

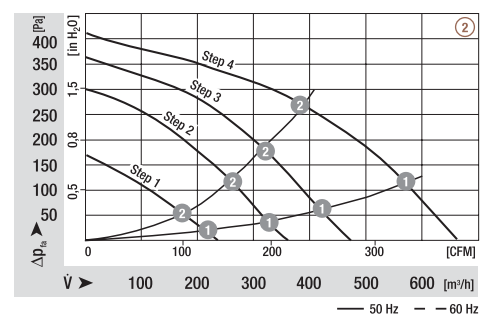
	n	P <sub>1</sub>	I	L <sub>pA</sub>
	[min-1]	[W]	[A]	[dBA]
① ① Step 1	660	48	0,27	31
① ② Step 1	960	46	0,26	38
① ① Step 2	925	58	0,31	40
① ② Step 2	1355	55	0,30	47
① ① Step 3	1210	72	0,36	48
① ② Step 3	1740	66	0,35	53
① ① Step 4	1635	113	0,49	55
① ② Step 4	2115	104	0,45	58

	n	P <sub>1</sub>	I
	[min-1]	[W]	[A]
② ① Step 1	660	71	0,37
② ② Step 1	960	68	0,36
② ① Step 2	950	85	0,43
② ② Step 2	1440	80	0,42
② ① Step 3	1230	101	0,50
② ② Step 3	1800	92	0,47
② ① Step 4	1675	151	0,66
② ② Step 4	2185	136	0,60

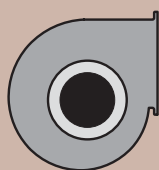
## Characteristic curves



## Characteristic curves

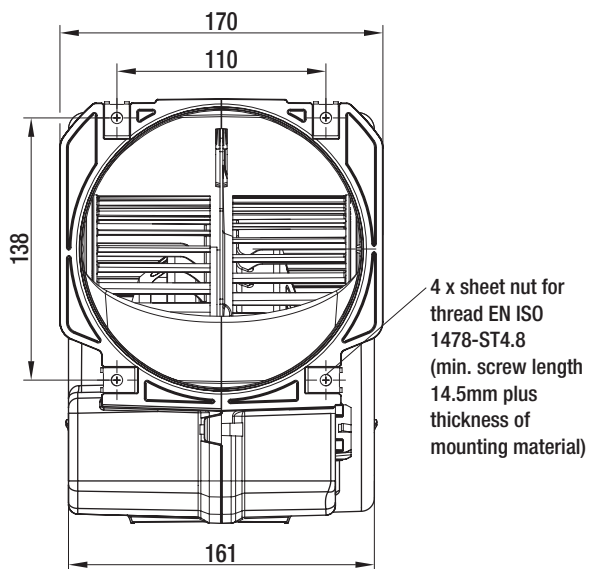
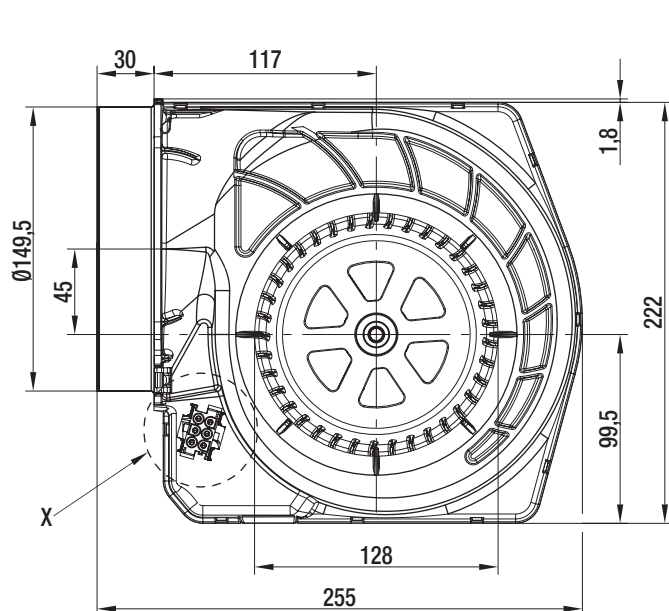


- **Bearings:** Maintenance-free ball bearings
- **Motor protection:** Top wired internally
- **Connection leads:** Via plug
- **Protection class:** I
- **Capacitor:** FPU (P2) integrated in terminal box completely wired up and ready for plug-in
- **Product conforming to standards:** EN 60335-2-31, CE
- **Approvals:** VDE



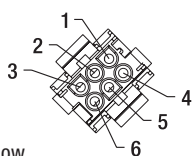
Mass of centrifugal blower

Centrifugal blower with flange	kg
D2E 146-KA45 -01	2,5
D2E 146-KB27 -01	2,7

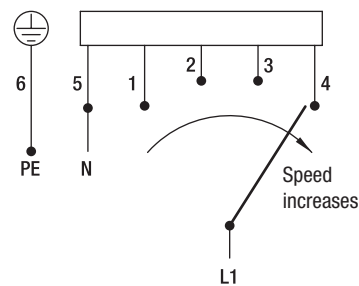


**Detail X**  
 Coded plug system AMP Universal-Mate-N-Lok  
 connector shell: AMP 926 682-3  
 6 x pin connector: AMP 926 886-1

- 1 = step 1 (min.) white
- 2 = step 2 red
- 3 = step 3 grey
- 4 = step 4 (max.) black
- 5 = N blue
- 6 = Ground green/yellow



**Connection diagram**  
 Switch has to break contact when turned.



# Radial blowers dual inlet

D2E 146

with AC external-rotor motor



- **Material:** Housing: PP plastic, black  
Impeller: PP plastic, white  
Rotor: Partially cast in aluminium  
Terminal box: PP plastic, black
- **Direction of rotation:** Counter-clockwise, seen on plug
- **Type of protection:** IP 20
- **Insulation class:** "F"
- **Mounting position:** Any
- **Condensate discharges:** None
- **Mode of operation:** Continuous operation (S1)
- **Design:** 4-step blower with integrated terminal box, EW motor

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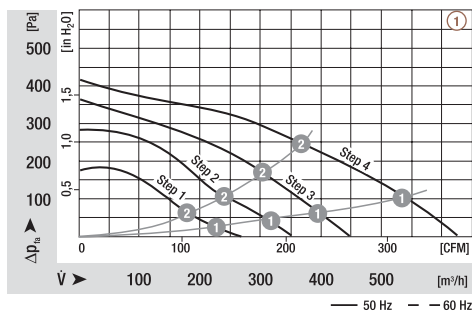
Nominal data		characteristic curve	voltage	frequency	voltage	speed	power input	rated current	capacitor	noise level	back pressure min.	perm. ambient temp.
type	motor		VAC	Hz	m <sup>3</sup> /h	min <sup>-1</sup>	W	A	µF/VDB	dB(A)	Pa	°C
D2E 146	M2E 068-CF	①	1~ 230	50	630	1100	150	0,66	4,0/400	51	0	-25 to +50
			1~ 230	60	415	1600	160	0,71	4,0/400	55	150	-25 to +45
D2E 146	M2E 068-DF	②	1~ 230	50	755	1350	195	0,86	5,0/400	57	0	-25 to +55
			1~ 230	60	580	1750	215	0,94	5,0/400	54	150	-25 to +40

subject to alterations

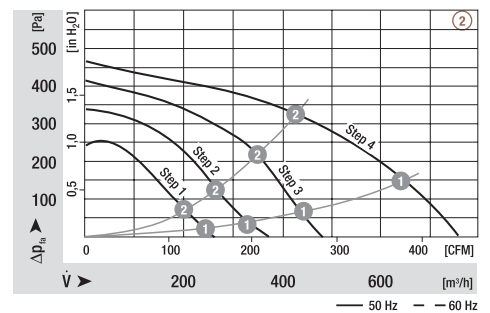
	n	P <sub>1</sub>	I	Lp <sub>A</sub>	
	[min <sup>-1</sup> ]	[W]	[A]	[dBA]	
① ①	Step 1	680	69	0,38	31
① ②	Step 1	990	67	0,37	35
① ①	Step 2	890	81	0,42	37
① ②	Step 2	1315	77	0,42	43
① ①	Step 3	1110	98	0,49	47
① ②	Step 3	1635	92	0,47	49
① ①	Step 4	1490	143	0,62	51
① ②	Step 4	2005	133	0,59	55

	n	P <sub>1</sub>	I	Lp <sub>A</sub>	
	[min <sup>-1</sup> ]	[W]	[A]	[dBA]	
② ①	Step 1	710	94	0,47	30
② ②	Step 1	1055	91	0,46	38
② ①	Step 2	910	106	0,52	38
② ②	Step 2	1415	100	0,50	45
② ①	Step 3	1210	125	0,60	45
② ②	Step 3	1820	112	0,57	52
② ①	Step 4	1790	185	0,81	56
② ②	Step 4	2290	164	0,72	59

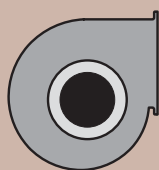
## Characteristic curves



## Characteristic curves

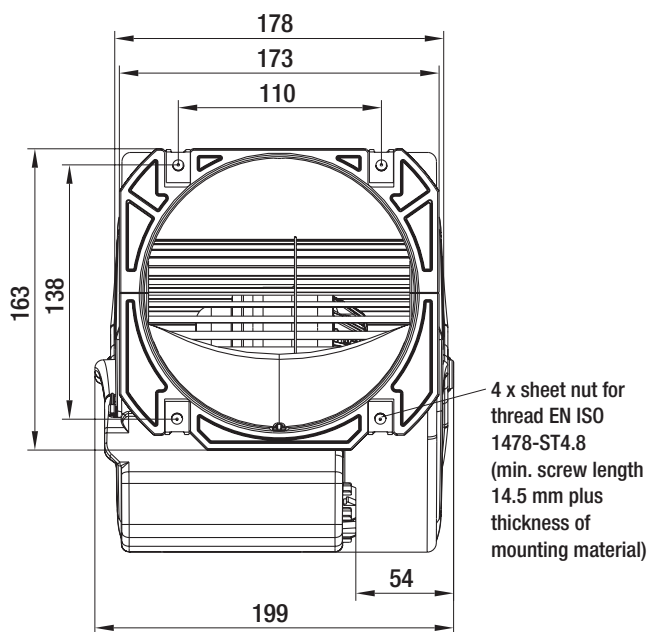
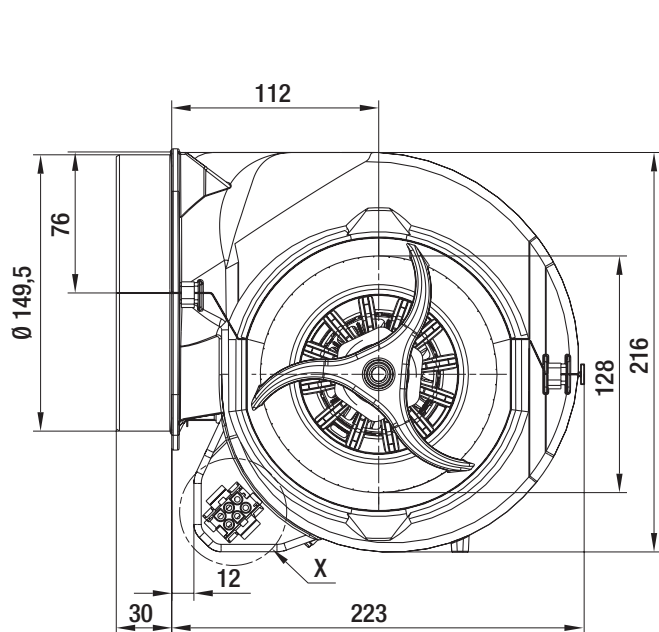


- **Bearings:** Maintenance-free ball bearings
- **Motor protection:** Top wired internally
- **Connection leads:** Via plug
- **Protection class:** I
- **Capacitor:** FPU (P2) integrated in terminal box completely wired up and ready for plug-in
- **Product conforming to standards:** EN 60335-2-31, CE
- **Approvals:** VDE, GOST; D2E 146-HR93 -03 CCC too



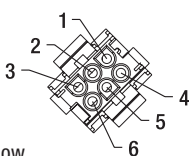
Mass of centrifugal blower

Centrifugal blower with flange	kg
D2E 146-HR93 -03	3,0
D2E 146-HS97 -03	3,5

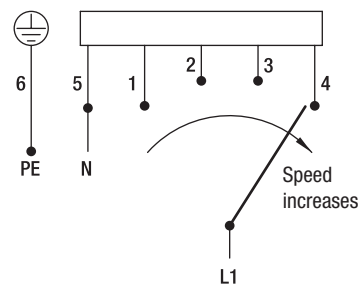


**Detail X**  
 Coded plug system AMP Universal-Mate-N-Lok  
 connector shell: AMP 926 682-3  
 6 x pin connector: AMP 926 886-1

- 1 = step 1 (min.) white
- 2 = step 2 red
- 3 = step 3 grey
- 4 = step 4 (max.) black
- 5 = N blue
- 6 = Ground green/yellow



**Connection diagram**  
 Switch has to break contact when turned.



# Radial blowers dual inlet

D2E 146

with AC external-rotor motor



- **Material:** Housing: PP plastic, black  
Impeller: Galvanised sheet steel  
Rotor: Partially cast in aluminium  
Terminal box: PP plastic, black
- **Direction of rotation:** Counter-clockwise, seen on plug
- **Type of protection:** IP 20
- **Insulation class:** "F"
- **Mounting position:** Any
- **Condensate discharges:** None
- **Mode of operation:** Continuous operation (S1)
- **Design:** 4-step blower with integrated terminal box, EW motor

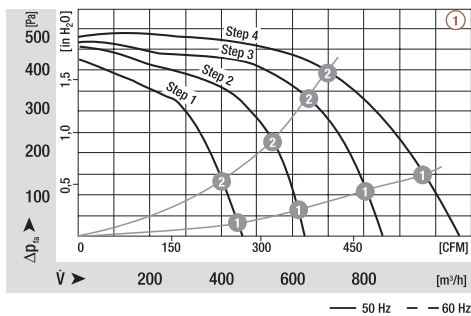
ebm-papst • Mulfingen

Nominal data		characteristic curve	voltage	frequency	voltage	speed	power input	rated current	capacitor	noise level	back pressure min.	perm. ambient temp.
type	motor		VAC	Hz	m <sup>3</sup> /h	min <sup>-1</sup>	W	A	µF/VDB	dB(A)	Pa	°C
D2E 146	M2E 068-EC	①	1~ 230	50	1060	1850	355	1,55	8,0/450	66	0	-25 to 55
			1~ 230	60	875	2100	400	1,75	8,0/450	63	200	-25 to 50

subject to alterations

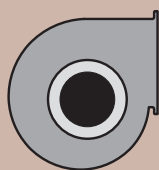
	n [min <sup>-1</sup> ]	P <sub>1</sub> [W]	I [A]	Lp <sub>A</sub> [dBA]
① ① Step 1	1000	192	0,88	45
① ② Step 1	1415	180	0,84	49
① ① Step 2	1375	225	1,03	54
① ② Step 2	1885	197	0,94	57
① ① Step 3	1770	268	1,20	61
① ② Step 3	2230	222	1,04	62
① ① Step 4	2075	328	1,42	66
① ② Step 4	2430	269	1,17	61

## Characteristic curves





- **Bearings:** Maintenance-free ball bearings
- **Motor protection:** Top wired internally
- **Connection leads:** Via plug
- **Protection class:** I
- **Capacitor:** FPU (P2) integrated in terminal box completely wired up and ready for plug-in
- **Product conforming to standards:** EN 60335-2-31, CE
- **Approvals:** VDE



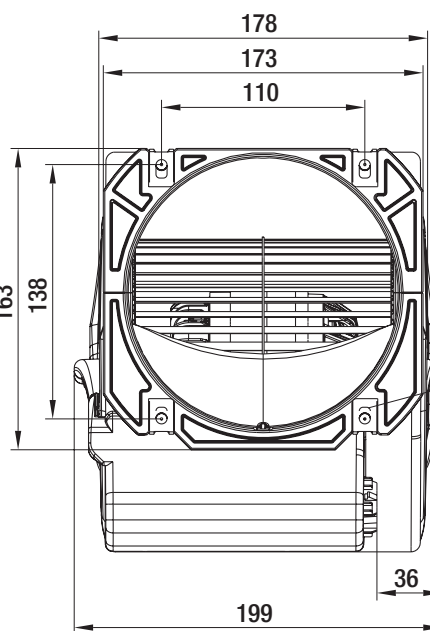
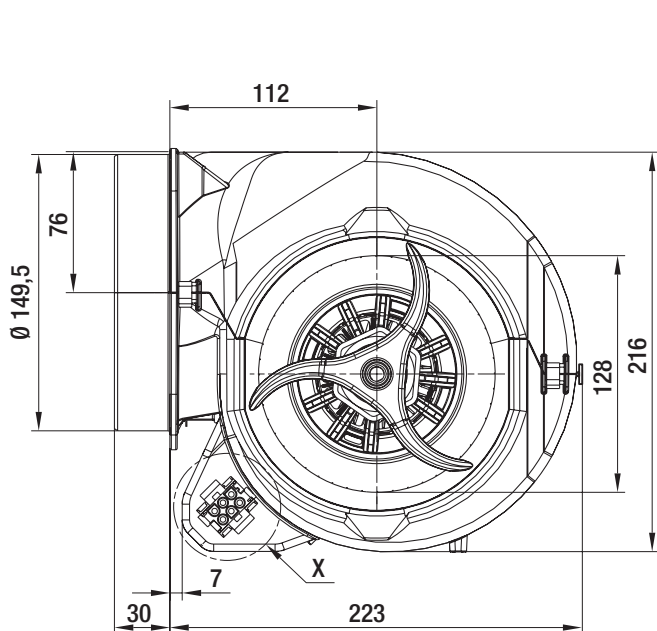
Mass of centrifugal blower

Centrifugal blower with flange

kg

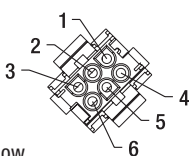
D2E 146-HT67 -02

3,6

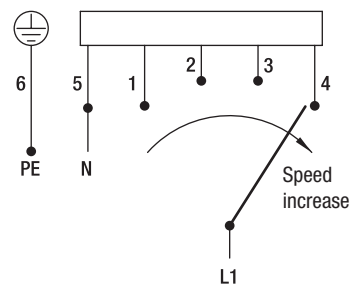


**View X**  
 coded plug system AMP Universal-Mate-N-Lok  
 connector shell AMP 926 682-3  
 6 x plug pin AMP 926 886-1

- 1 = Step 1 (min.) white
- 2 = Step 2 red
- 3 = Step 3 grey
- 4 = Step 4 (max.) black
- 5 = N blue
- 6 = Ground wire green/yellow



**Connection diagram**  
 When changing speeds,  
 the switch must break  
 the circuit.



# Radial blowers dual inlet

D2E 160

with AC external-rotor motor



- **Material:** Housing: PP plastic, black  
Impeller: Galvanised sheet steel  
Rotor: Partially cast in aluminium  
Terminal box: PP plastic, black
  - **Direction of rotation:** Clockwise, seen on rotor
  - **Type of protection:** IP 44
  - **Insulation class:** "F"
  - **Mounting position:** Any
  - **Condensate discharges:** None
  - **Mode of operation:** Continuous operation (S1)
  - **Design:** 4-step blower with integrated terminal box, standard external-rotor motor anti-vibration mounted on on side
- ebm-papst • Mulfingen**

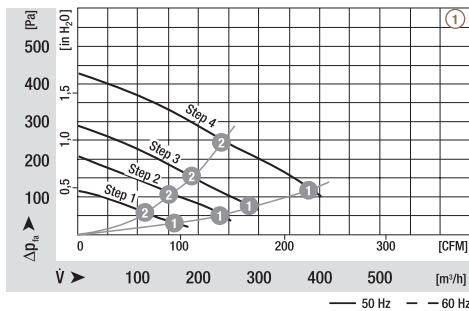
Nominal data		characteristic curve	voltage	frequency	voltage	speed	power input	rated current	capacitor	noise level	back pressure min.	perm. ambient temp.
type	motor		VAC	Hz	m <sup>3</sup> /h	min <sup>-1</sup>	W	A	µF/VDB	dB(A)	Pa	°C
D2E 160	M2E 068-BF	①	1~ 230	50	400	1170	110	0,49	2,5/400	53	100	-25 to 45
D2E 160	M2E 068-CF	②	1~ 230	50	550	1400	180	0,80	4,0/400	59	150	-25 to 40

subject to alterations

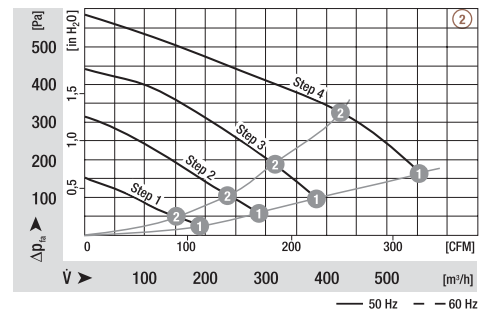
	n [min <sup>-1</sup> ]	P <sub>1</sub> [W]	I [A]	Lp <sub>A</sub> [dBA]
① ① Step 1	555	50	0,26	30
① ② Step 1	835	49	0,25	36
① ① Step 2	765	64	0,31	38
① ② Step 2	1135	61	0,30	44
① ① Step 3	910	74	0,35	43
① ② Step 3	1345	71	0,34	48
① ① Step 4	1210	108	0,47	51
① ② Step 4	1735	102	0,44	55

	n [min <sup>-1</sup> ]	P <sub>1</sub> [W]	I [A]	Lp <sub>A</sub> [dBA]
② ① Step 1	500	76	0,38	28
② ② Step 1	740	75	0,37	34
② ① Step 2	770	96	0,46	40
② ② Step 2	1115	93	0,45	44
② ① Step 3	1010	120	0,56	48
② ② Step 3	1450	113	0,53	52
② ① Step 4	1430	176	0,76	57
② ② Step 4	1920	162	0,70	60

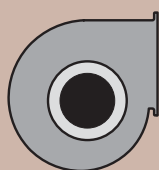
Characteristic curves



Characteristic curves

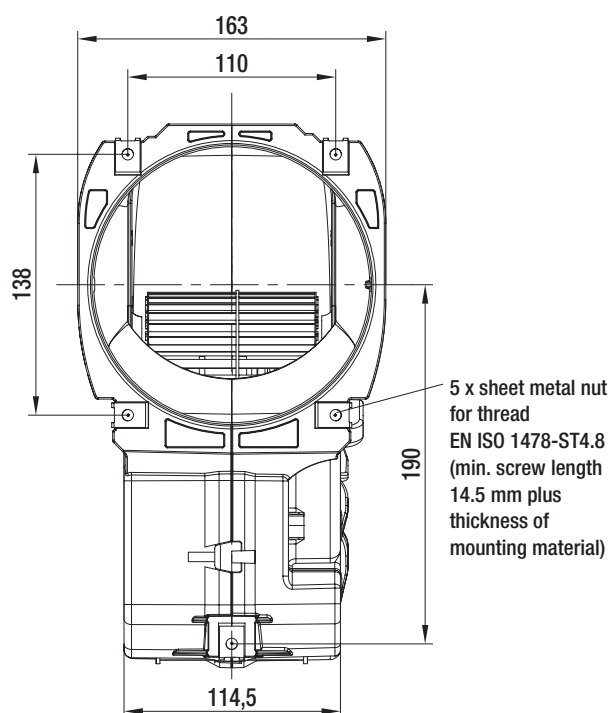
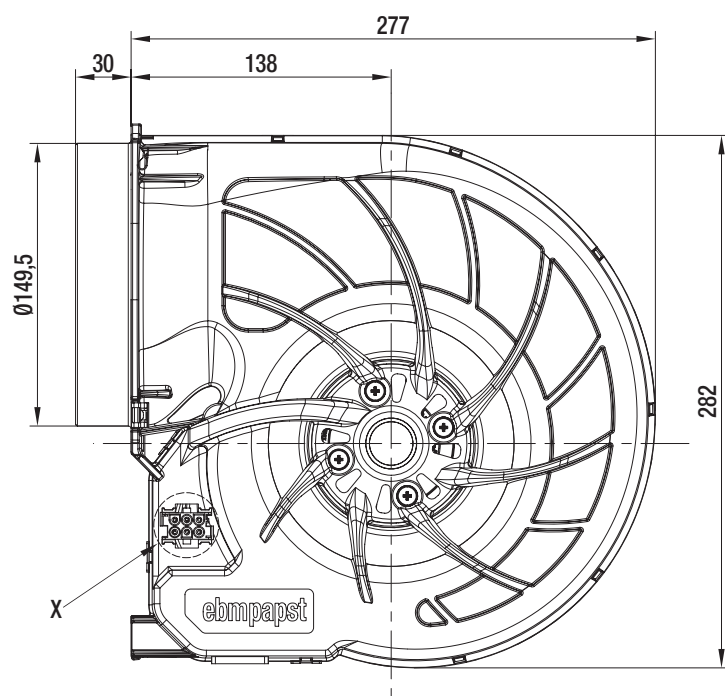


- **Bearings:** Maintenance-free ball bearings
- **Motor protection:** Top wired internally
- **Connection leads:** Via plug
- **Protection class:** I
- **Capacitor:** FPU (P2) integrated in terminal box completely wired up and ready for plug-in
- **Product conforming to standards:** EN 60335-2-31, CE
- **Approvals:** CCC, GOST



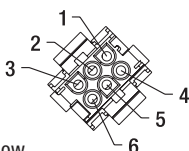
Mass of centrifugal blower

Centrifugal blower with flange	kg
D2E 160-FI01 -01	2,5
D2E 160-FK11 -02	3,0

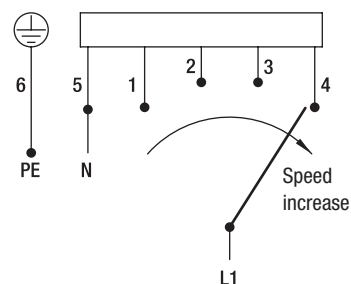


View X  
 coded plug system AMP Universal-Mate-N-Lok  
 connector shell AMP 926 682-3  
 6 x plug pin AMP 926 886-1

- 1 = Step 1 (min.) white
- 2 = Step 2 red
- 3 = Step 3 grey
- 4 = Step 4 (max.) black
- 5 = N blue
- 6 = Ground wire green/yellow



Connection diagram  
 When changing speeds, the switch must break the circuit.



# Radial blowers dual inlet

## D2E 160 with AC external-rotor motor



- **Material:** Housing: PP plastic, black  
Impeller: Galvanised sheet steel  
Rotor: Partially cast in aluminium  
Terminal box: PP plastic, black
- **Direction of rotation:** Counter-clockwise, seen on plug
- **Type of protection:** IP 20
- **Insulation class:** "F"
- **Mounting position:** Any
- **Condensate discharges:** None
- **Mode of operation:** Continuous operation (S1)
- **Design:** 4-step blower with integrated terminal box, EW motor

ebm-papst • Muldingen

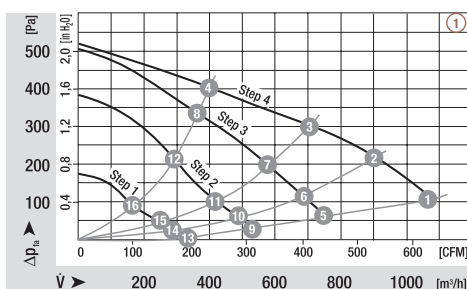
Nominal data		characteristic curve	voltage	frequency	air flow	speed/rpm	power input	current draw	capacitor	sound pressure level	min. back pressure	perm. amb. temp.
type	motor	VAC	Hz	m <sup>3</sup> /h	min <sup>-1</sup>	W	A	µF/VDB	dB(A)	Pa	°C	
D2E 160	M2E068-EC	①	1~230	50	1070	1400	340	1,49	10,0/400	58	100	-25..+45
D2E 160	M2E074-HA	②	1~230	50	1495	1800	500	2,19	12,0/400	67	100	-25 to 40

subject to alterations

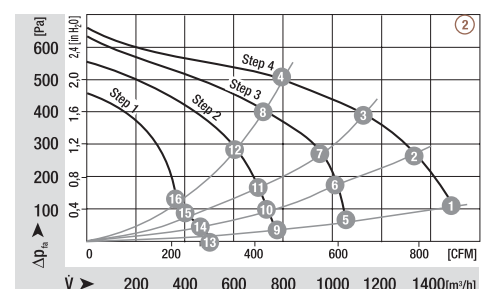
	n [min <sup>-1</sup> ]	P <sub>1</sub> [W]	I [A]	Lp <sub>A</sub> [dB(A)]
① ①	1400	340	1,49	58
① ②	1650	337	1,47	58
① ③	1985	329	1,45	59
① ④	2280	312	1,39	---
① ⑤	1035	211	1,12	47
① ⑥	1260	208	1,12	48
① ⑦	1610	199	1,11	53
① ⑧	2115	179	1,09	---
① ⑨	730	160	0,92	37
① ⑩	900	158	0,92	38
① ⑪	1170	154	0,91	44
① ⑫	1665	143	0,90	---
① ⑬	455	129	0,78	23
① ⑭	565	128	0,78	24
① ⑮	730	126	0,77	30
① ⑯	1055	122	0,77	---iri

	n [min <sup>-1</sup> ]	P <sub>1</sub> [W]	I [A]	Lp <sub>A</sub> [dB(A)]
② ①	1800	500	2,19	67
② ②	2045	461	2,03	66
② ③	2320	405	1,82	65
② ④	2570	334	1,58	65
② ⑤	1205	403	1,80	56
② ⑥	1510	380	1,72	56
② ⑦	1895	339	1,58	59
② ⑧	2330	270	1,36	63
② ⑨	925	330	1,50	47
② ⑩	1085	323	1,47	47
② ⑪	1395	309	1,43	49
② ⑫	1950	262	1,28	58
② ⑬	680	281	1,29	35
② ⑭	805	276	1,27	36
② ⑮	960	272	1,24	37
② ⑯	1185	265	1,22	42

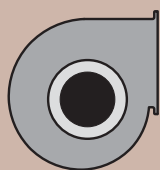
Characteristic curves



Characteristic curves



- **Bearings:** Maintenance-free ball bearings
- **Motor protection:** TOP wired internally
- **Connection leads:** Via plug
- **Protection class:** I
- **Capacitor:** FPU (P2) integrated in terminal box completely wired up and ready for plug-in
- **Product conforming to standards:** EN 60335-2-31, CE
- **Approvals:** VDE, UL is applied for



mass

Centrifugal blower with flange

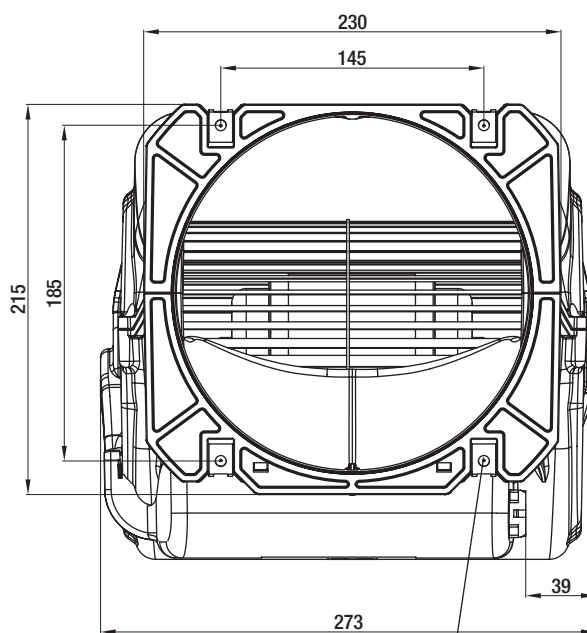
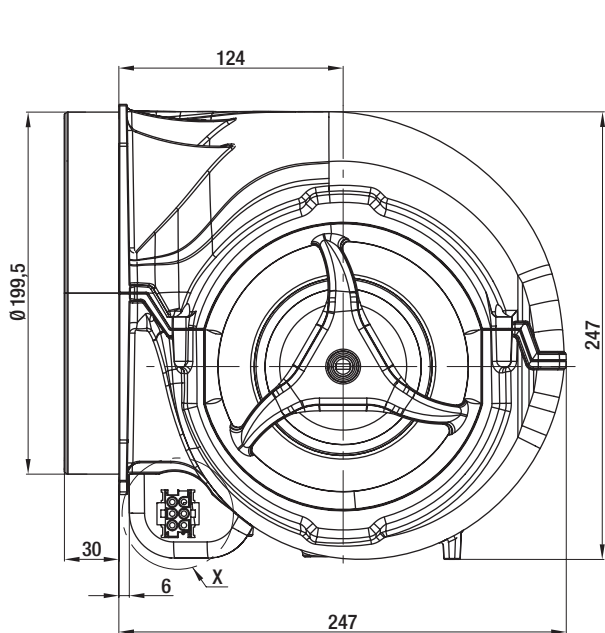
kg

D2E 160-GM93 -01

4,0

D2E 160-GL07 -01

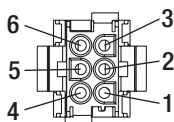
5,5



**View X**

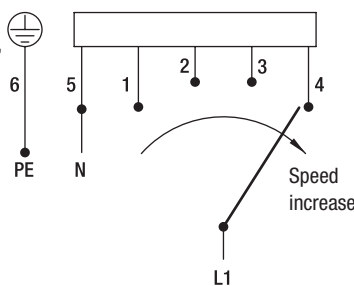
coded plug system AMP Universal-Mate-N-Lok connector shell AMP 926 682-3  
6 x plug pin AMP 926 886-1

- 1 = Step 1 (min.) white
- 2 = Step 2 red
- 3 = Step 3 grey
- 4 = Step 4 (max.) black
- 5 = N blue
- 6 = Ground wire green/yellow

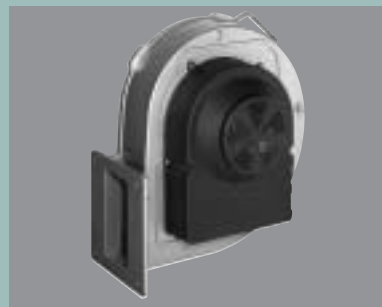


**Connection diagram**

When changing speeds, the switch must break the circuit.

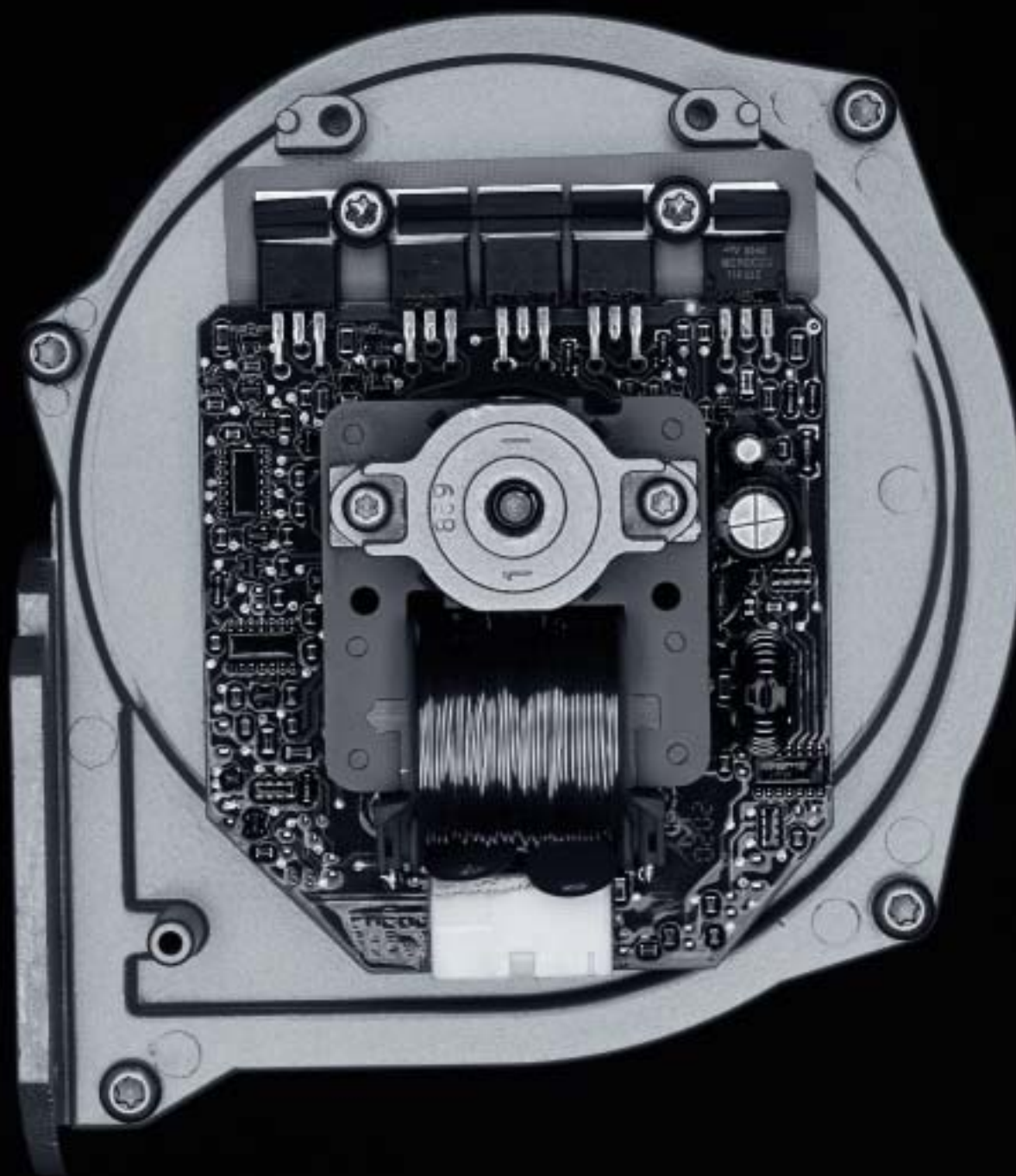


4 x sheet metal nut for thread EN ISO 1478-ST4.8 (min. screw length 14.5 mm plus thickness of mounting material)



# Radial blowers with EC motor

Description	62
with internal-rotor motor, HRG, NRG..., RG..., RLS..., RLB...	64
with external-rotor motor, G1G..., G3G...	76
Interfaces, additional electronics	85, 75



Controllable blowers with steep pressure/air flow characteristics curves and high maximum pressure are required to provide optimal fuel/air mixture and volume for modern gas or oil-fired heating boilers that operate in modulating mode, and also for gas technology in every operating status and external condition.

ebm-papst has played a decisive part in the development of EC blowers suited to this purpose and can, today, offer the most extensive range of blowers for this field of application. The special features of these blowers can, however, also be used in a wide range of other applications.

#### **Housing:**

NRG, RG and G1G/G3G: Die-cast aluminium

RLB120: Galvanised sheet steel

HRG 134, RLS170: Plastic PA6 GF

The air tightness required for gas pre-mixing is achieved by sealing the two casing shells and the passage hole of the drive shaft. When using blowers for such applications, special criteria, testing and approvals have to be asserted with the customer. Safety tests (gas tightness etc.) for the complete system have to be carried out by the customer and are his responsibility.

#### **Blower impellers:**

HRG, NRG, RG, G1G126/144:

Material: Plastic, anti-static, resistant to pentane, surface resistance  $<10^9$ , dynamically fine-balanced.

RLB120: galvanised sheet steel

RLS170: plastic PA6 GF

G1G170, G3G200, G3G250: sheet aluminium

#### **Drive unit:**

Brushless DC-motors with integrated electronics.

Series RG, RLB, RLS: internal-rotor design

Insulation class F (EN60335-1)

Series G1G/G3G: external-rotor design

Insulation class F (EN60335-1)

The motor is anti-vibration mounted to minimise structure-borne noise.

#### **Protection type:**

IP20 with cover

depending on mounting position

#### **Protection class:**

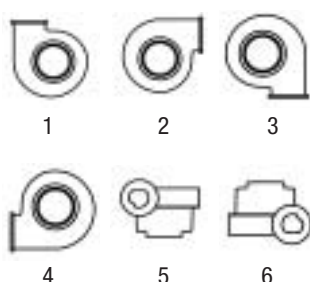
The motors comply with the requirements for protection class III. At rated voltages of over 42 V, therefore, a potential separation is provided for between the voltage supply to the motor and the interface to the control module and, commensurate with the requirements on greater insulation, creepage distances and clearances of 8mm are also provided for. Protection class III then only applies to the signal plug.

The blower complies with protection class I.

#### **Bearings:**

Maintenance-free ball bearings covered on both sides. Calculated service life expectation  $L_{10}$  40,000 hours of operation at an ambient temperature of 40°C, horizontal mounting position and typical operating conditions.



**Mounting positions:**

Mounting positions 1 – 4 are possible. If the motor is installed on anti-vibration mounts, the motor mass is given additional support by an elastic element. Details of the mounting position must therefore be provided.

Consultation is indispensable for installation positions 5 and 6.

**Pressure relief:**

Apertures for pressure relief on request.

**Commutation electronics:**

Motor electronics integrated in the blower unit, with start-up current limit and reverse battery protection using plug coding, locked-rotor protection and overload protection optional.

See separate drawings for details of interface requirements.

Adaption to the boiler control is required in specific cases.

**Speed recognition:**

Hall IC signal output (2 pulses per revolution).

G1G170, G3G200, G3G250:

3 Impulse je Umdrehung

G3G250-MW: 5 Impulse je Umdrehung

The derivative feedback is galvanically decoupled with motors on mains voltage operation.

**Closed-/Open-loop speed control:**

The blower speed can be adjusted over a wide range using a PWM (pulse width modulation) signal. The PWM signal is a rectangular signal, preferably with constant frequency and variable pulse width. It is activated by an open collector drive and a pull-up resistor.

Blowers G1G170, G3G200, G3G250 are also available with 0-10V control input.

An additional electronic system is available as an option, to convert an analog voltage signal of 0 – 10 V into the required PWM signal. In addition, there is another electronic system which allows to activate two speeds, preset with potentiometers, via a control input. (see page 75)

**Interference suppression/EMC:**

EMC according to EN 55011

# Radial blowers with EC internal-rotor motor

HRG 134 - 230 VAC



## Material:

- housing: plastic
- impeller: anti-static plastic
- motor protection cap: plastic

## Interface:

- interfaces see page 85, no. 2
- special interfaces upon request

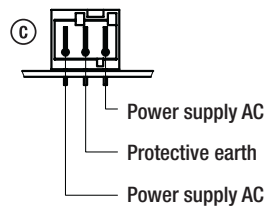
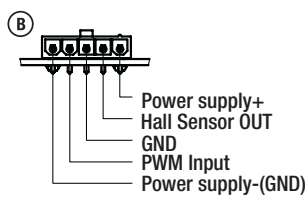
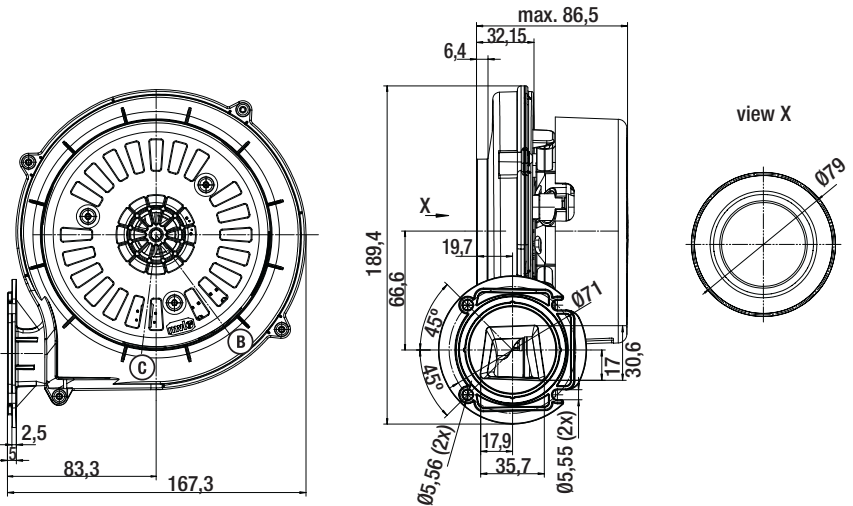
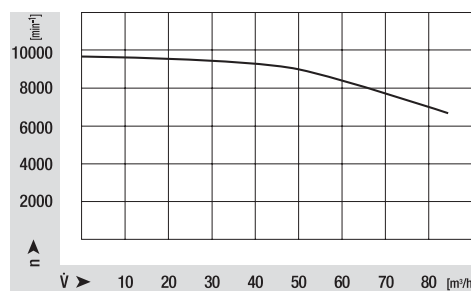
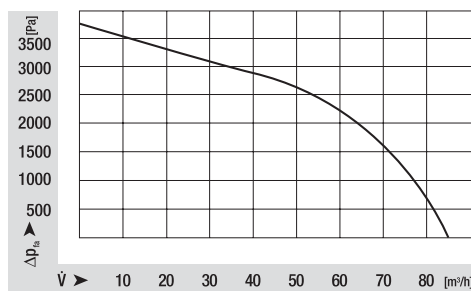
ebm-papst • Landshut

## Nominal data

type	rated voltage	frequency	max. air flow	max. pressure increase	max. power input	max. speed	electrical connection	mass
	V	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>		kg
<b>HRG134</b>	230 AC	50/60	80	3800	110	10000	ⓑ ⓐ	0,8

bold print = standard type; subject to alterations

## Characteristic curves



connector Mini-Fit, Jr. Nr. 39-30-3056  
suitable for connector housing Molex Mini-Fit, Jr  
part no 39-01-4050 and 39-01-4051

connector housing Nr. 3642 03 K01, Fa. Lumberg  
suitable for adapting connector: Nr. 3611 03 K01,  
Fa. Lumberg

# Radial blowers with EC internal-rotor motor

NRG 118 - 24 VDC

## Material:

- housing: aluminium
- impeller: anti-static plastic
- motor protection cap: plastic

## Interface:

- interfaces see page 85, no. 1
- standard interface 24 VDC
- special interfaces upon request

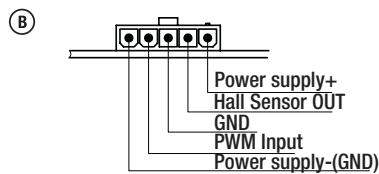
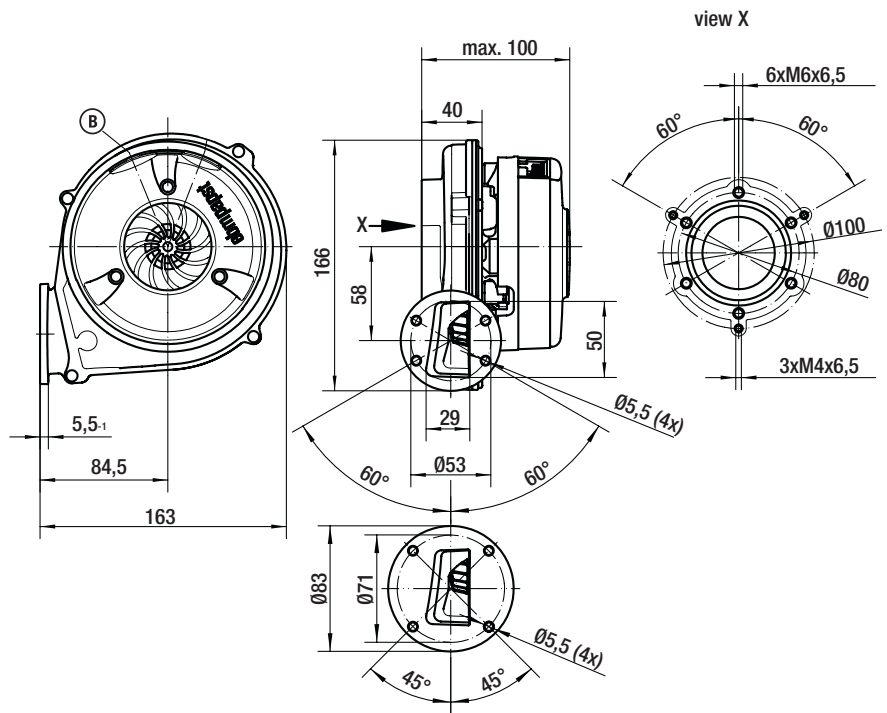
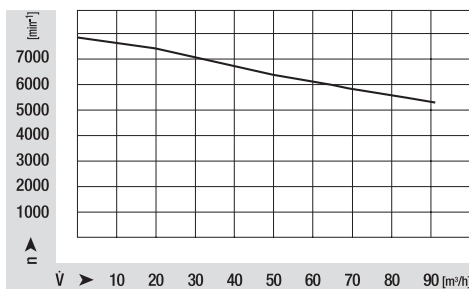
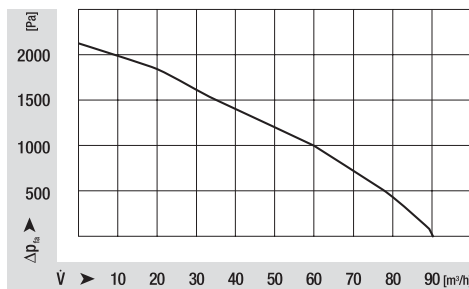
ebm-papst • Landshut



Nominal data	characteristic curve	rated voltage	frequency	max. air flow	max. pressure increase	max. power input	max. speed	electrical connection	mass
type		V	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>		kg
<b>NRG118</b>		24 DC	-	90	2150	53	7800	ⓑ	0,9

bold print = standard type; subject to alterations

## Characteristic curves



suitable for connector housing Molex Mini-Fit, Jr  
part no. 39-01-4050 and 39-01-4051



# Radial blowers with EC internal-rotor motor

NRG 137 - 230 VAC



**Material:**

- housing: aluminium
- impeller: anti-static plastic
- motor protection cap: plastic

**Interface:**

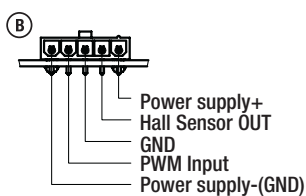
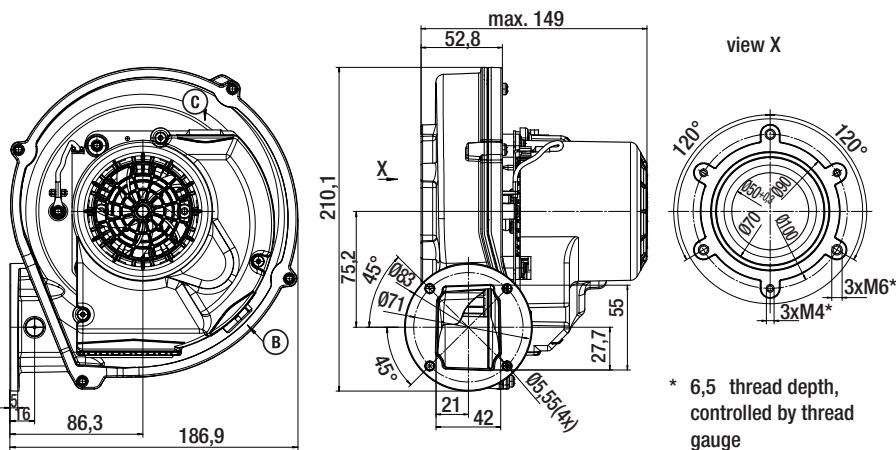
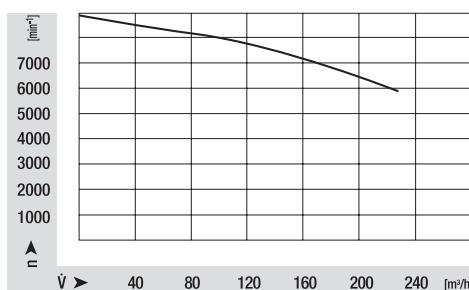
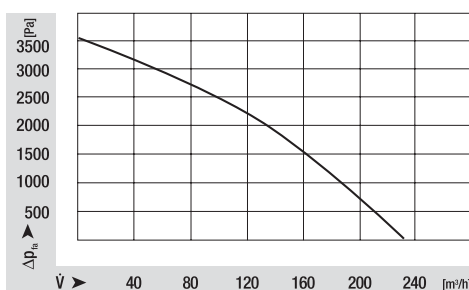
- interfaces see page 85, no. 2
- special interfaces upon request

ebm-papst • Landshut

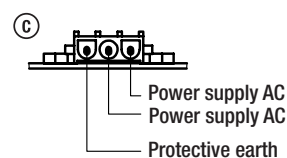
Nominal data	characteristic curve	rated voltage	frequency	max. air flow	max. pressure increase	max. power input	max. speed	electrical connection	mass
type		V	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>		kg
<b>NRG137</b>		230 AC	59/60Hz	230	3500	190	9000	ⓑ ⓐ	1,9

bold print = standard type; subject to alterations

**Characteristic curves**



suitable for connector housing Molex Mini-Fit, Jr part no. 39-01-4050 and 39-01-4051



connector housing AMP Universal MATE-N-LOK 1-350943, 3-pole header suitable for AMP Universal MATE-N-LOK connector housing 350766-4 and 3x female terminal: 926882-1 (or 926893-1)

# Radial blowers with EC internal-rotor motor

## NRG 137 with integrated venturi - 230 VAC



### Material:

- housing: aluminium
- venturi element: plastic
- impeller: anti-static plastic
- motor protection cap: plastic

### Interface:

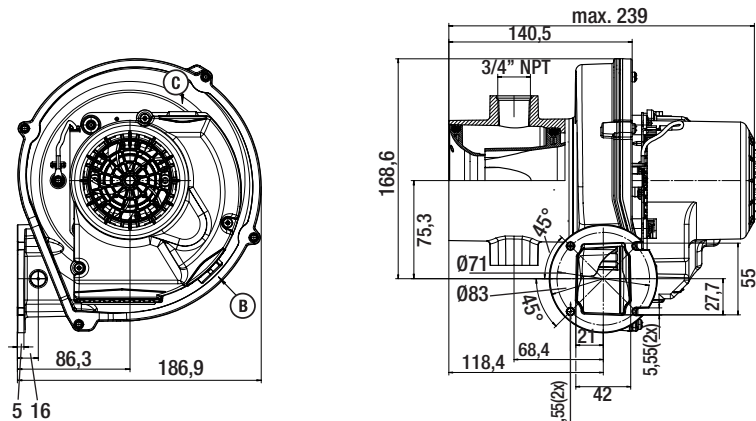
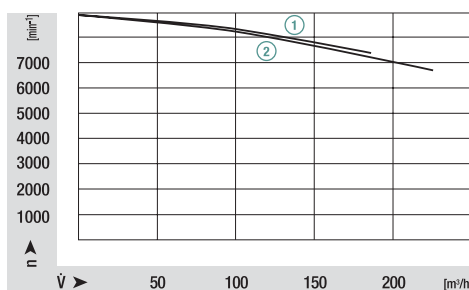
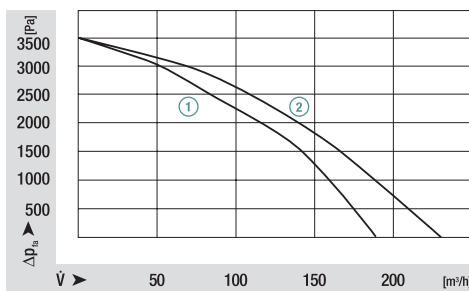
- interfaces see page 85, no. 2
- special interfaces upon request

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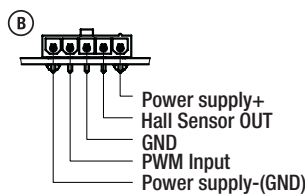
Nominal data	characteristic curve	rated voltage	frequency	max. air flow	max. pressure increase	max. power input	max. speed	electrical connection	mass	Heat performance up to (turn down ratio of 1:6 possible with min. $\Delta P$ Venturi 50 pa)
type		V	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>		kg	kw
<b>NRG137 - Venturi 1</b>	①	230 AC	50/60	180	3500	230	9000	Ⓑ Ⓒ	2,4	110
<b>NRG137 - Venturi 2</b>	②	230 AC	50/60	230	3500	245	9000	Ⓑ Ⓒ	2,4	150

bold print = standard type; subject to alterations

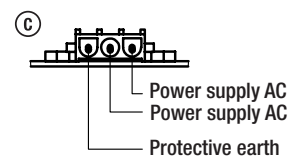
### Characteristic curves



view X



connector Mini-Fit, Jr. Nr. 39-30-3056 (Molex) suitable for connector housing Mini-Fit, Jr (Molex) part no 39-01-4050 and 39-01-4051



connector housing AMP Universal MATE-N-LOK 1-350943, 3-pole header suitable for AMP Universal MATE-N-LOK connector housing 350766-4 and 3x female terminal: 926882-1 (or 926893-1)

# Radial blowers with EC internal-rotor motor

## RG 130



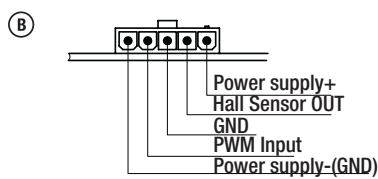
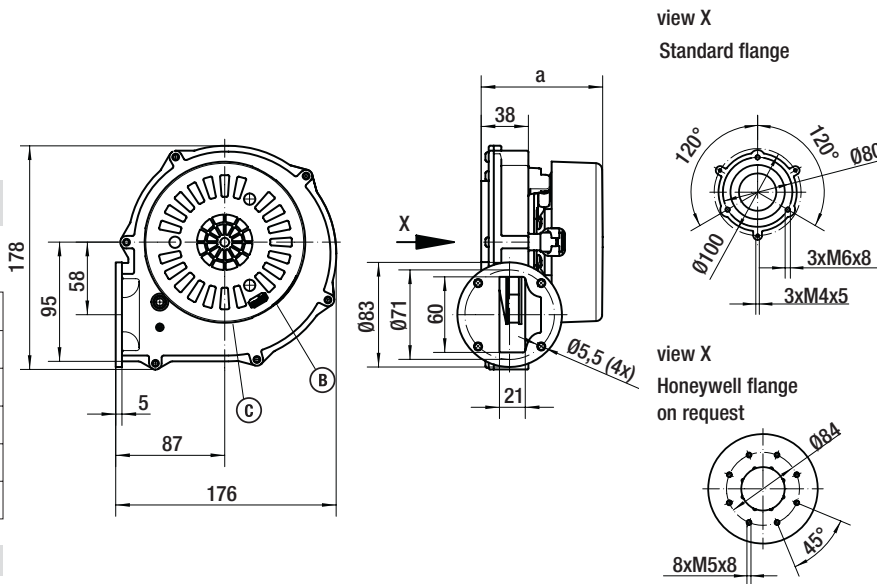
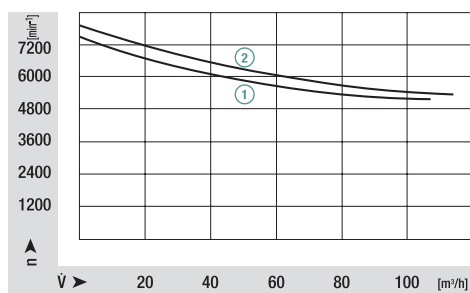
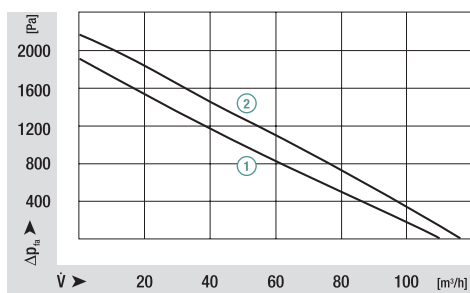
- die-cast aluminium housing
- brushless EC motor
- ball bearings
- motor anti-vibration mounted
- mounting position must be specified for corresponding support elements
- interfaces see page 85, no. 1/2

ebm-papst • Landshut

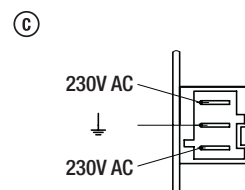
Nominal data	characteristic curve	rated voltage	frequency	max. air flow	max. pressure increase	max. power input	max. speed	electrical connection	mass	Dimensions mm
type		V	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>		kg	a
<b>RG130/0800-3612</b>	①	24 DC	-	110	1900	40	7200	Ⓑ	1,4	98
<b>RG130/0800-3612</b>	②	230 AC	50	115	2200	54	8000	Ⓑ ③	1,4	98

bold print = standard type; subject to alterations

### Characteristic curves



suitable for connector Molex Mini-Fit, Jr



suitable for connector RAST-5

# Radial blowers with EC internal-rotor motor

## RG 128



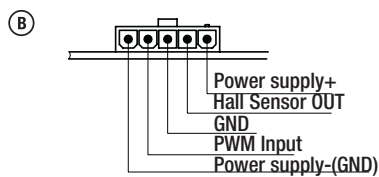
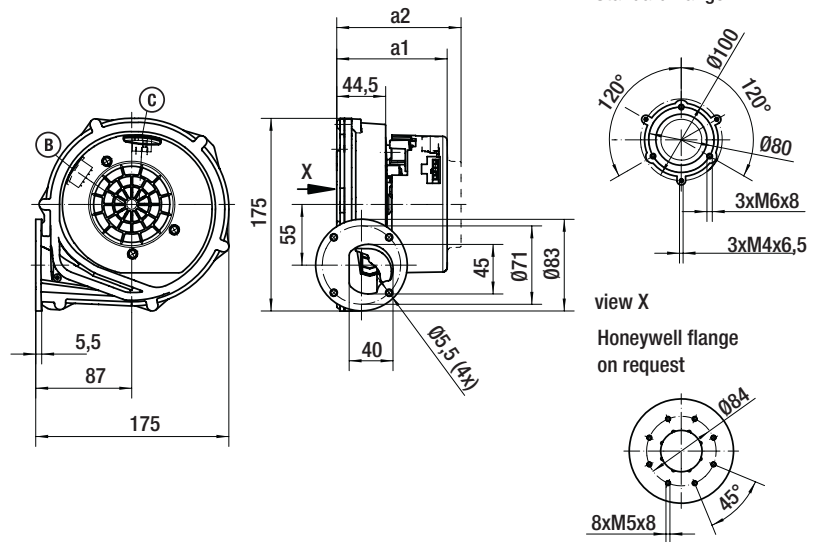
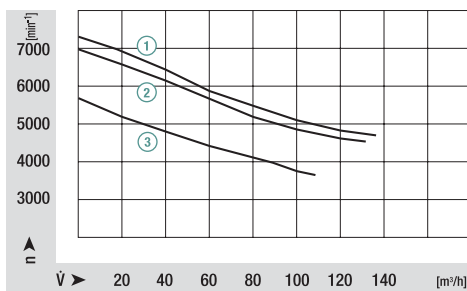
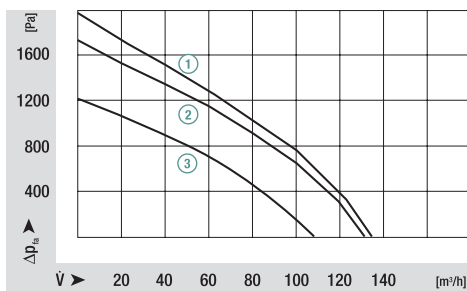
- die-cast aluminium housing
- brushless EC motor
- ball bearings
- motor anti-vibration mounted
- mounting position must be specified for corresponding support elements
- interfaces see page 85, no. 1/2

ebm-papst • Landshut

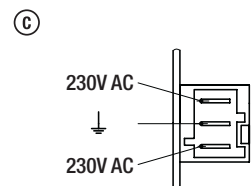
Nominal data	characteristic curve	rated voltage	frequency	max. air flow	max. pressure increase	max. power input	smax. speed	electrical connection	mass	Dimensions mm	
										type	V
<b>RG128/1300-3612</b>	①	230 AC	50/60	134	2000	67	7400	Ⓑ Ⓒ	1,4	-	116
<b>RG128/1300-3612</b>	②	24 DC	-	132	1700	61	6900	Ⓑ	1,4	-	116
<b>RG128/1300-3612*)</b>	③	24 DC	-	109	1200	32	5650	Ⓑ	1,4	105	-

\* without cooling blade; bold print = standard type; subject to alterations

### Characteristic curves



suitable for connector Molex Mini-Fit, Jr



suitable for connector RAST-5



# Radial blowers with EC internal-rotor motor

## RG 148



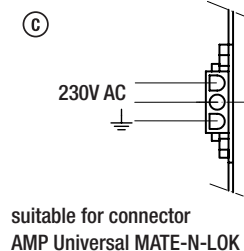
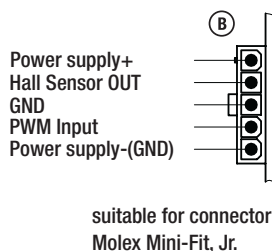
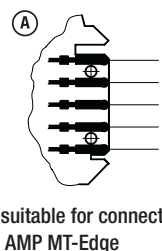
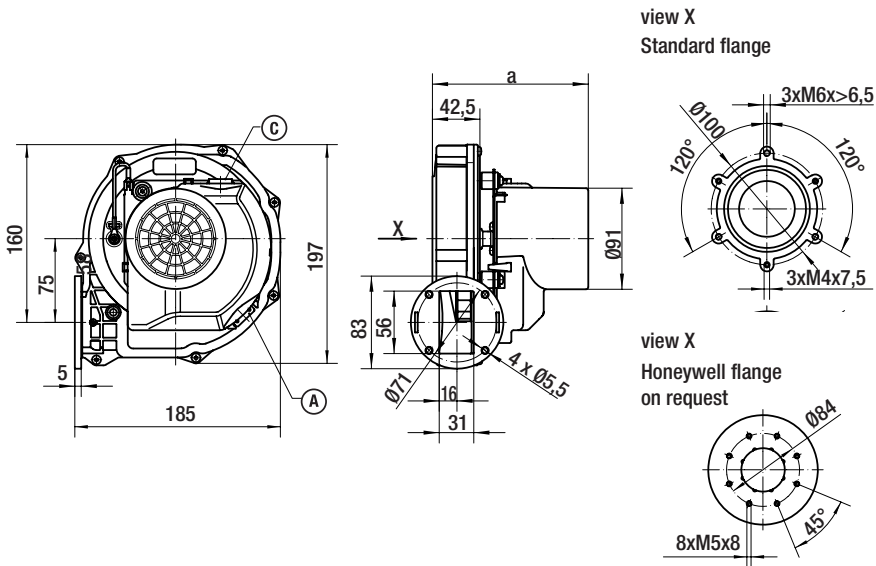
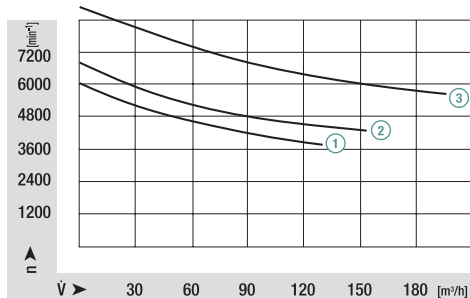
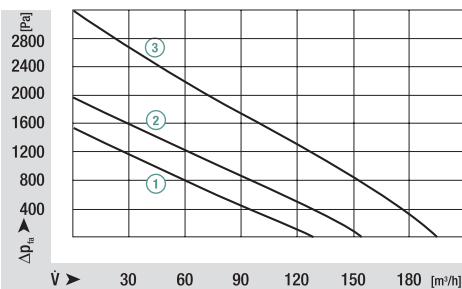
- die-cast aluminium housing
- brushless EC motor
- ball bearings
- motor anti-vibration mounted
- mounting position must be specified for corresponding support elements
- interfaces see page 85, no. 1/2

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Nominal data	characteristic curve	rated voltage	frequency	max. air flow	max. pressure increase	max. power input	max. speed	electrical connection	mass	Dimensions mm
type		V	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>		kg	a1
<b>RG148/1200-3612</b>	①	24 DC	-	130	1600	50	6000	Ⓐ	1,6	108
<b>RG148/1200-3612</b>	②	230 AC	50	150	2000	80	6600	Ⓐ Ⓒ	1,6	121
<b>RG148/1200-3633</b>	③	230 AC	50	190	3200	135	8500	Ⓐ Ⓒ	1,9	145

bold print = standard type; subject to alterations

### Characteristic curves



# Radial blowers with EC internal-rotor motor

## RG 175



- die-cast aluminium housing
- brushless EC motor
- ball bearings
- motor anti-vibration mounted
- mounting position must be specified for corresponding support elements
- interfaces see page 85, no. 2

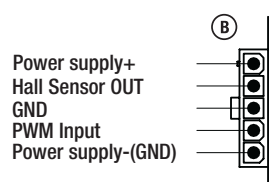
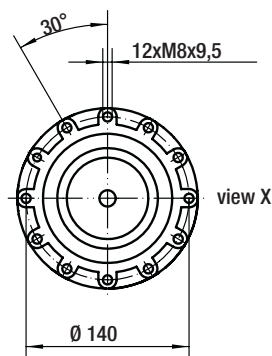
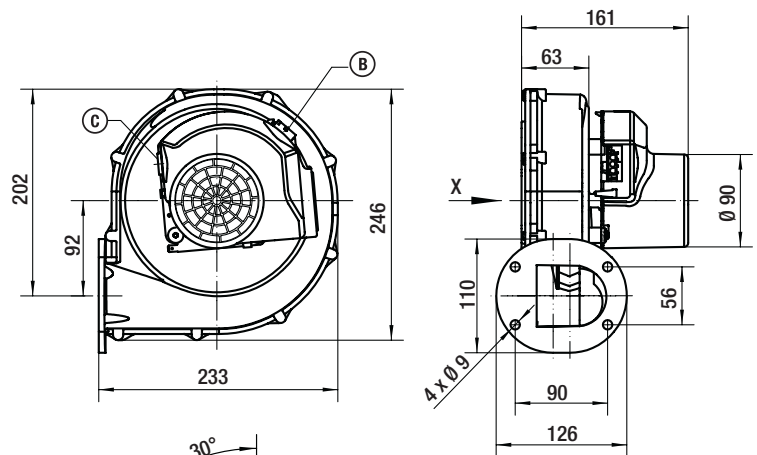
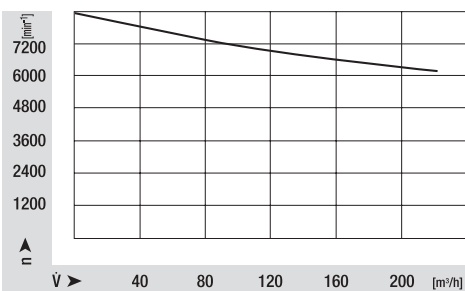
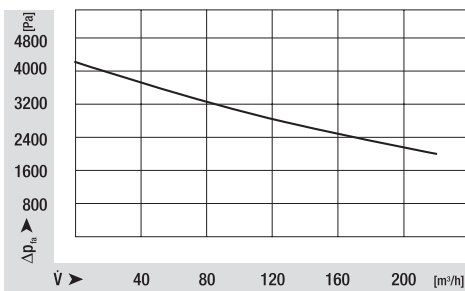
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### Nominal data

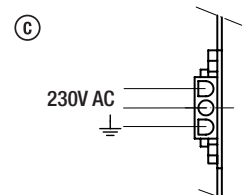
type	rated voltage V	frequency Hz	max. air flow m <sup>3</sup> /h	back pressure min. Pa	max. pressure increase Pa	max. power input W	max. speed min <sup>-1</sup>	electrical connection B C	mass kg
RG175/2000-3633	230 AC	50	216	2000	4200	240	8400	B C	3,3

subject to alterations

### Characteristic curves



suitable for connector  
Molex Mini-Fit, Jr.



suitable for connector  
AMP Universal MATE-N-LOK

# Radial blowers with EC internal-rotor motor

## RLS 170

- plastic housing
- brushless EC motor
- ball bearings
- motor anti-vibration mounted
- mounting position must be specified for corresponding support elements
- interfaces see page 85, no. 2



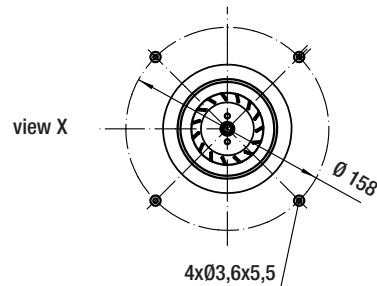
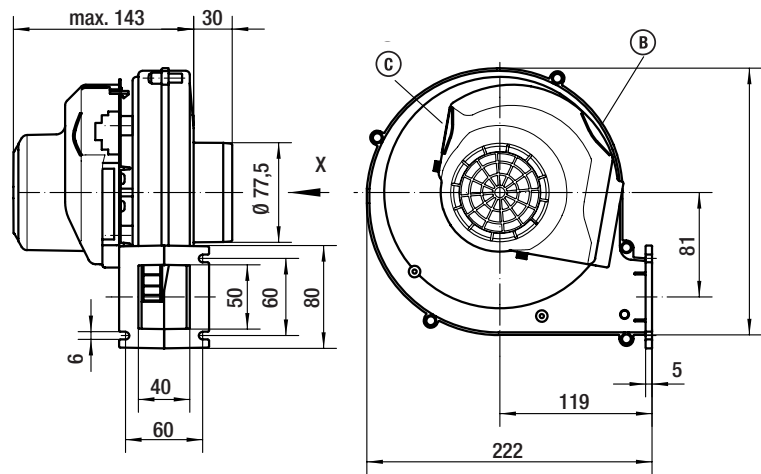
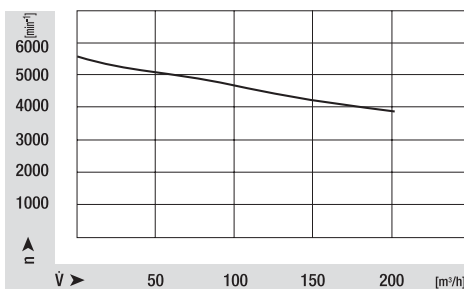
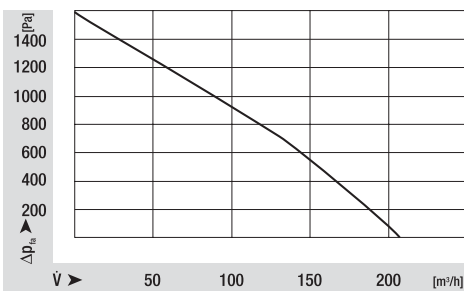
ebm-papst • Landshut

### Nominal data

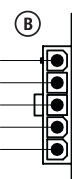
type	rated voltage	frequency	max. air flow	max. pressure increase	max. power input	max. speed	electrical connection	mass
	V	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>		kg
RLS170/0013-3633	230 AC	50	200	1600	105	5500	Ⓐ Ⓒ	1,6

subject to alterations

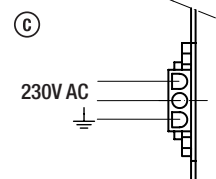
### Characteristic curves



Power supply+  
Hall Sensor OUT  
GND  
PWM Input  
Power supply-(GND)



suitable for connector  
Molex Mini-Fit, Jr.



suitable for connector  
AMP Universal MATE-N-LOK

# Radial blowers with EC internal-rotor motor

## RLB 120



- galvanized sheet steel housing
- brushless EC motor
- ball bearings
- motor anti-vibration mounted
- mounting position must be specified for corresponding support elements
- interfaces see page 85, no. 2

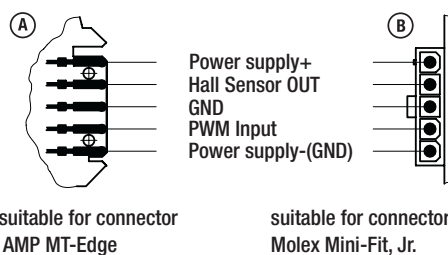
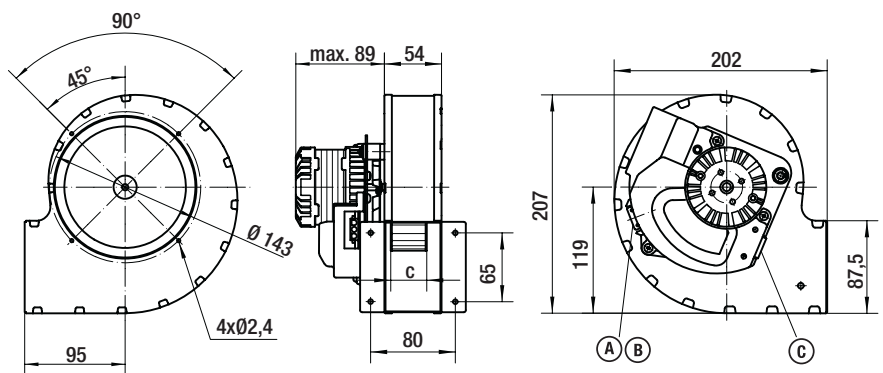
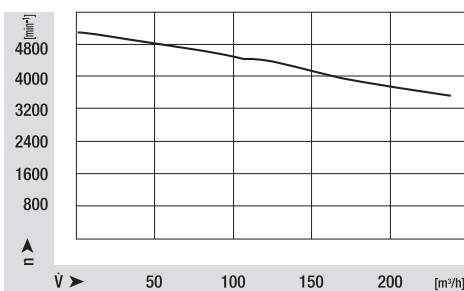
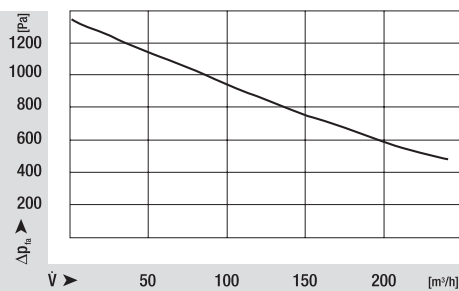
ebm-papst • Landshut

Nominal data	rated voltage	frequency	max. air flow	back pressure min.	max. pressure increase	max. power input	max. speed	electrical connection	mass	Dimensions mm
type	V	Hz	m <sup>3</sup> /h	Pa	Pa	W	min <sup>-1</sup>		kg	c
RLB120/0034-3633	230 AC	50	240	500	1350	120	5400	Ⓐ Ⓒ	2,1	34

subject to alterations

### Characteristic curves

Nominal operation (230 V, 100% PWM) permissible only as of minimal back pressure of 500Pa.



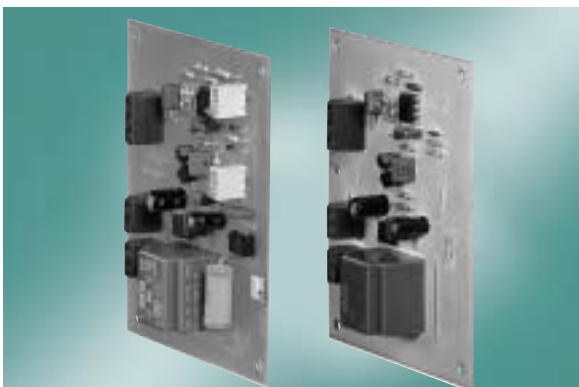
# Additional electronics for EC motor BG20..., BG36..

only for blowers listed on pages 64 to 74

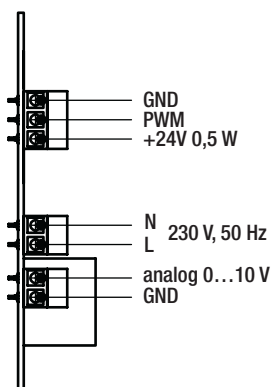
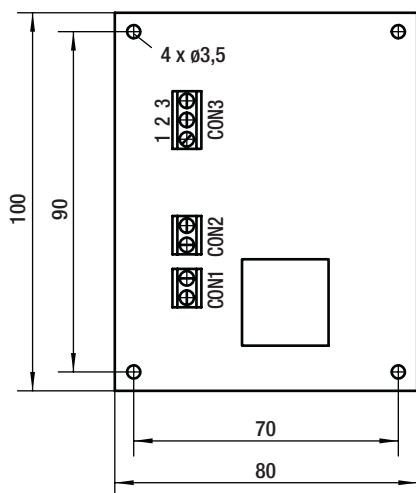
Speed variation for EC motors BG20 and BG36 is usually realized via digital PWM-signal. Two additional electronics are available:

1. To convert an analog voltage signal of 0-10 V into the required PWM signal
2. To activate two speeds, preset with potentiometers, via control input

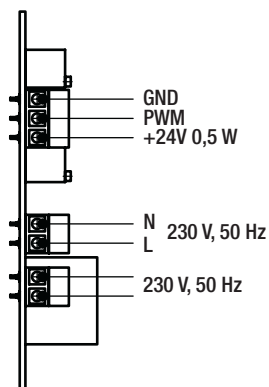
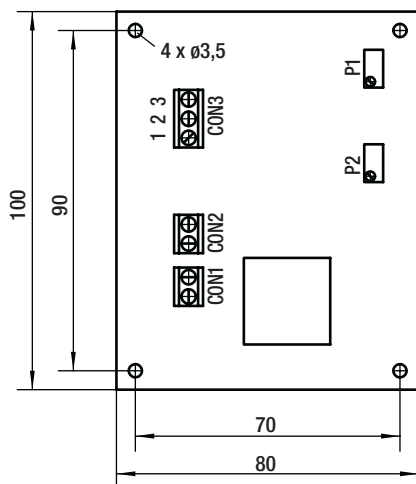
ebm-papst • Landshut



## Additional electronics with analog input 0-10 VDC



## Additional electronics for 2-speed operation



# Radial blowers with EC external-rotor motor

G1G126 – 24 VDC



## material

- housing: aluminium
- impeller: plastic PA 6
- cover: plastic PP30TV

## interface

- see page 86, interface no. 3

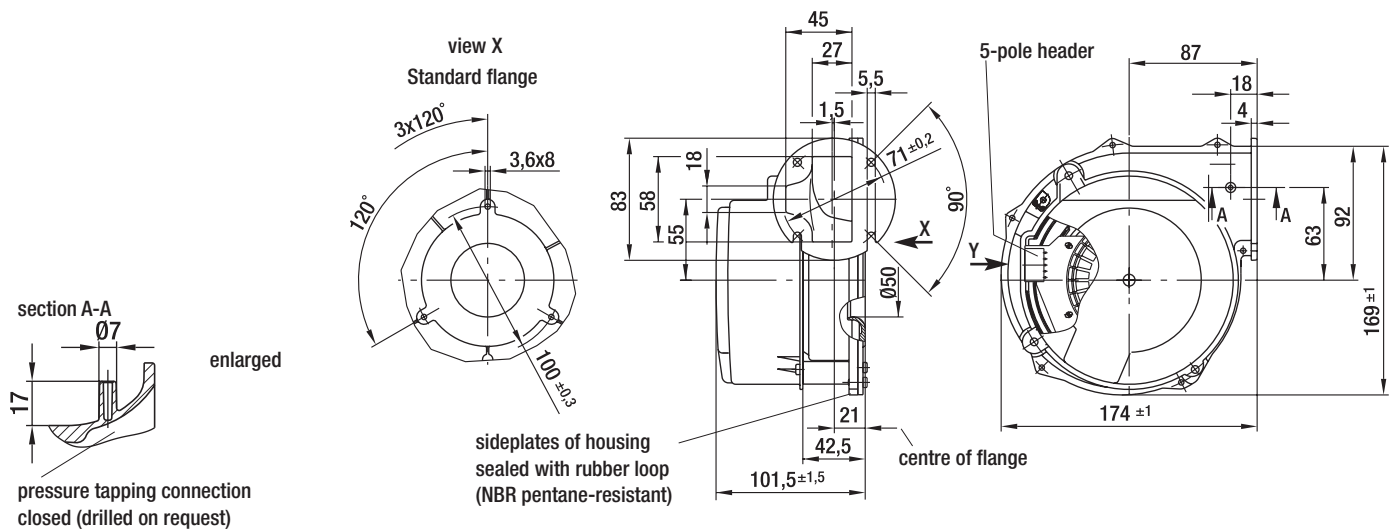
## premix

- If gas needs to be premixed in the blower, then a special blower will have to be used. For further details, please contact us.

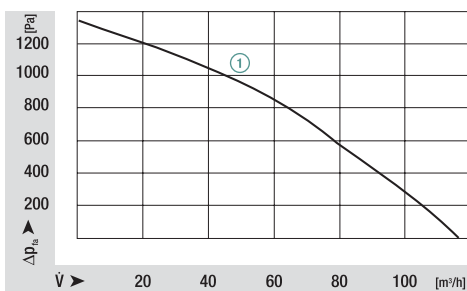
ebm-papst • Mulfingen

Nominal data	characteristic curve	voltage	voltage range	air volume	power input	speed	current draw	perm. temp. of medium	perm. amb. motor temp.	mass
type		VDC	VDC	m <sup>3</sup> /h	W	min <sup>-1</sup>	A	°C	°C	kg
G1G 126 -AC13 -50 (Standard flange)	①	24	16-28	115	50	4450	2,35	80	70	1,4
G1G 126 -AC13 -51 (Honeywell flange)	①	24	16-28	110	50	4450	2,35	80	70	1,4

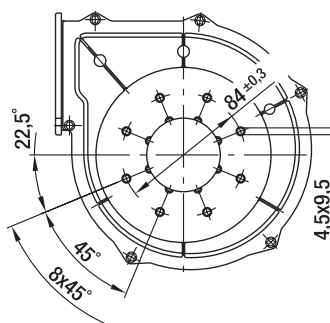
subject to alterations



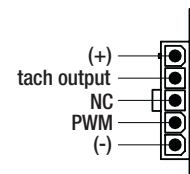
## Characteristic curves



view X  
Honeywell flange



view Y



## control

5-pole header  
mating connector  
(not part of delivery):  
Molex no. 39-01-4050  
female terminal:  
Molex no. 39-00-0059

# Radial blowers with EC external-rotor motor

G1G126 – 115/230 VAC

## material

- housing: aluminium
- impeller: plastic PA 6
- cover: plastic PP30TV

## interface

- see page 86, interface no. 4

## premix

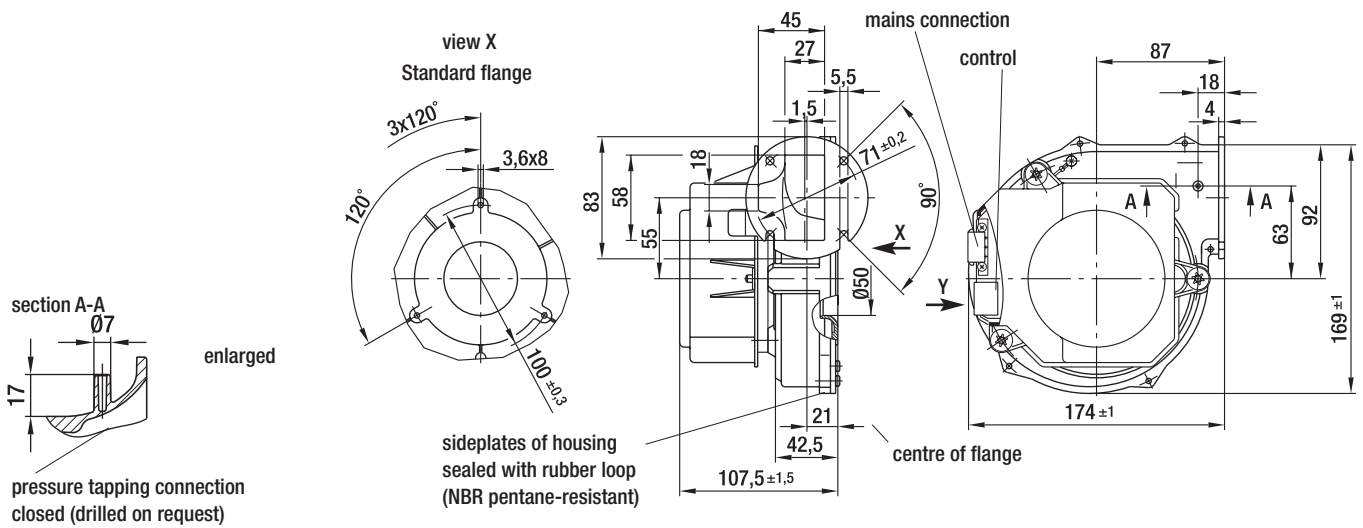
- If gas needs to be premixed in the blower, then a special blower will have to be used. For further details, please contact us.

ebm-papst • Muldingen

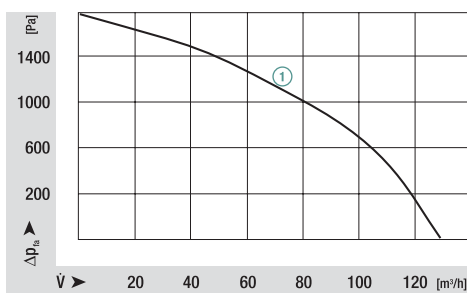


Nominal data	characteristic curve	voltage	frequency	air volume	power input	speed	current draw	perm. temp. of medium	perm. amb. motor temp.	mass
type	VAC	Hz	m <sup>3</sup> /h	W	min <sup>-1</sup>	A	°C	°C	kg	
G1G 126 -AA45 -71 (Standard flange)	①	115	50/60	130	75	5100	1,10	80	70	1,4
G1G 126 -AA49 -71 (Standard flange)	①	230	50/60	125	75	5000	0,55	80	70	1,4
G1G 126 -AA45 -74 (Honeywell flange)	①	115	50/60	120	78	5050	1,10	80	70	1,4
G1G 126 -AA49 -74 (Honeywell flange)	①	230	50/60	120	75	5000	0,61	80	70	1,4

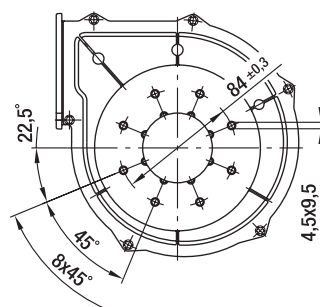
subject to alterations



## Characteristic curves



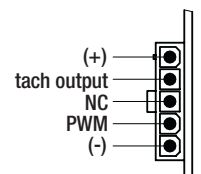
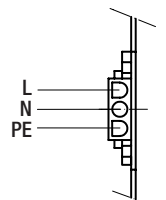
view X  
Honeywell Flange



view Y

**mains connection**  
3-pole header  
**mating connector**  
(not part of delivery):  
tyco no. 350 766-1  
female terminal:  
tyco no. 926 884-1

**control**  
5-pole header  
**mating connector**  
(not part of delivery):  
Molex no. 39-01-4050  
female terminal:  
Molex no. 39-00-0059



# Radial blowers with EC external-rotor motor

G1G144 – 24 VDC



## material

- housing: aluminium
- impeller: plastic PA 6
- cover: plastic PP30TV

## interface

- see page 86, interface no. 3

## premix

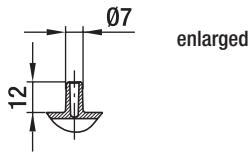
- If gas needs to be premixed in the blower, then a special blower will have to be used. For further details, please contact us.

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Nominal data	voltage	voltage range	air volume	power input	speed	current draw	perm. temp. of medium <sup>(1)</sup>	perm. amb. motor temp.	mass	dimensions mm
type	VDC	VDC	m <sup>3</sup> /h	W	min <sup>-1</sup>	A	°C	°C	kg	a
G1G 144 -AE13 -50	24	16-28	175	51	4300	2,50	80	70	1,5	111,5±1,5
G1G 144 -AE13 -70 <sup>(2)</sup>	24	16-28	175	51	4300	2,50	80	70	1,5	118,5±1,5

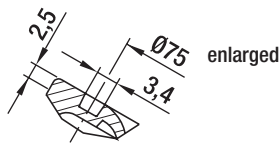
<sup>(1)</sup>with shortterm operation < 10 h, permanent temperature 50 °C; <sup>(2)</sup>de-couplet design; subject to alterations

### section A-A

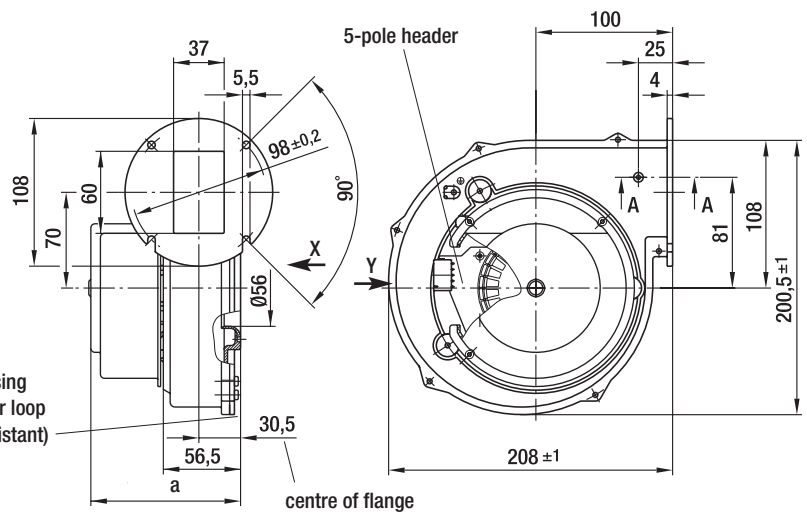


pressure tapping connection closed (drilled on request)

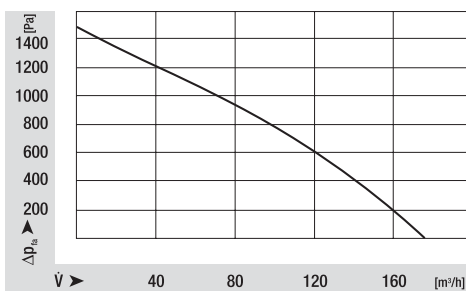
### section B-B



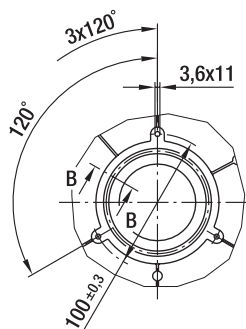
sideplates of housing sealed with rubber loop (NBR pentane-resistant)



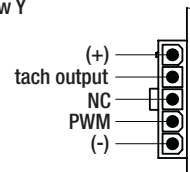
## Characteristic curves



### view X



### view Y



### control

5-pole header  
mating connector  
(not part of delivery):  
Molex no. 39-01-4050  
female terminal:  
Molex no. 39-00-0059



# Radial blowers with EC external-rotor motor

G1G144 – 115/230 VAC



### material

- housing: aluminium
- impeller: plastic PA 6
- cover: plastic PP30TV

### interface

- see page 86, interface no. 4

### premix

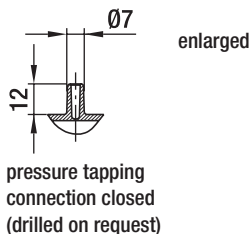
- If gas needs to be premixed in the blower, then a special blower will have to be used. For further details, please contact us.

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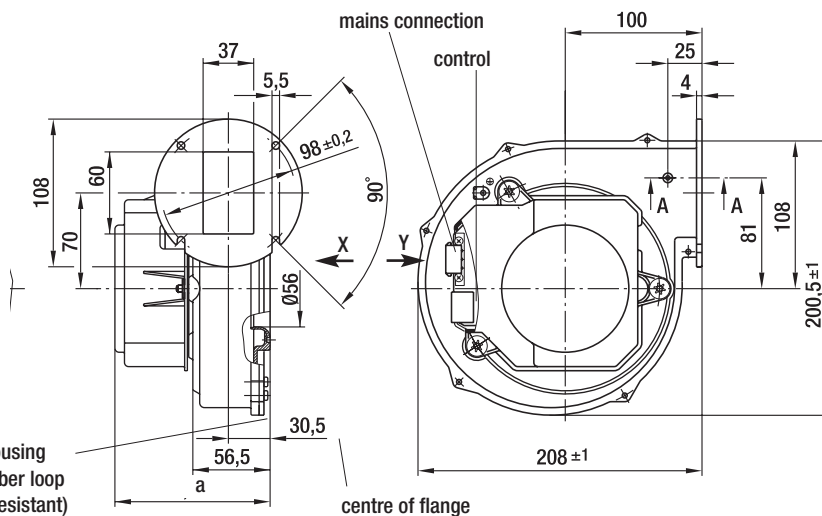
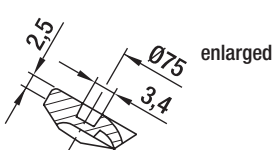
Nominal data	characteristic curve	voltage	frequency	air volume	back pressure min.	power input	speed	current draw	perm. temp. of medium <sup>(1)</sup>	perm. amb. motor temp.	mass	dimensions mm
												a
type	VAC	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>	A	°C	°C	kg	a	
G1G 144 -AF45 -01	①	115	50/60	205	0	83	4900	1,00	80	70	1,6	113,5±1,5
G1G 144 -AF49 -01	①	230	50/60	193	0	75	4800	0,50	80	70	1,6	113,5±1,5
G1G 144 -AF49 -70 <sup>(2)</sup>	①	230	50/60	193	0	75	4800	0,50	80	70	1,6	122,5±1,5
G1G 144 -AF25 -01	②	230	50/60	170	600	94	5400	0,67	80	70	1,6	113,5±1,5

<sup>(1)</sup>with shortterm < 10 h, permanent temperature 50 °C; <sup>(2)</sup>de-couplet design; subject to alterations

### section A-A



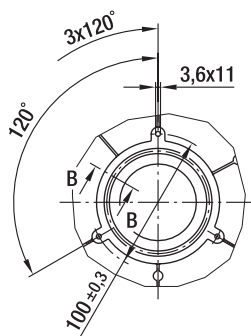
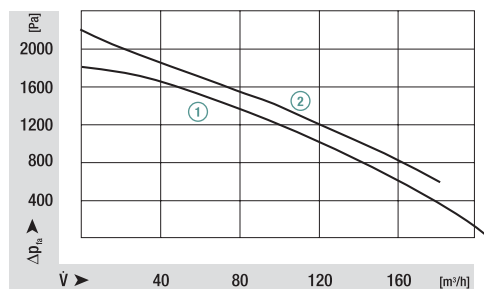
### section B-B



view X

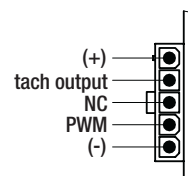
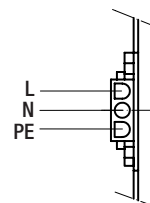
view Y

### Characteristic curves



**mains connection**  
3-pole header  
mating connector (not part of delivery): tyco no. 350 766-1  
female terminal: tyco no. 926 884-1

**control**  
5-pole header  
mating connector (not part of delivery): Molex no. 39-01-4050  
female terminal: Molex no. 39-00-0059



# Radial blowers with EC external-rotor motor

G1G170 – 115/230 VAC



## material

- housing: aluminium
- impeller: sheet aluminium
- cover: plastic PPTD20

## interface

- see page 87, interface no. 5

## premix

- If gas needs to be premixed in the blower, then a special blower will have to be used. For further details, please contact us.

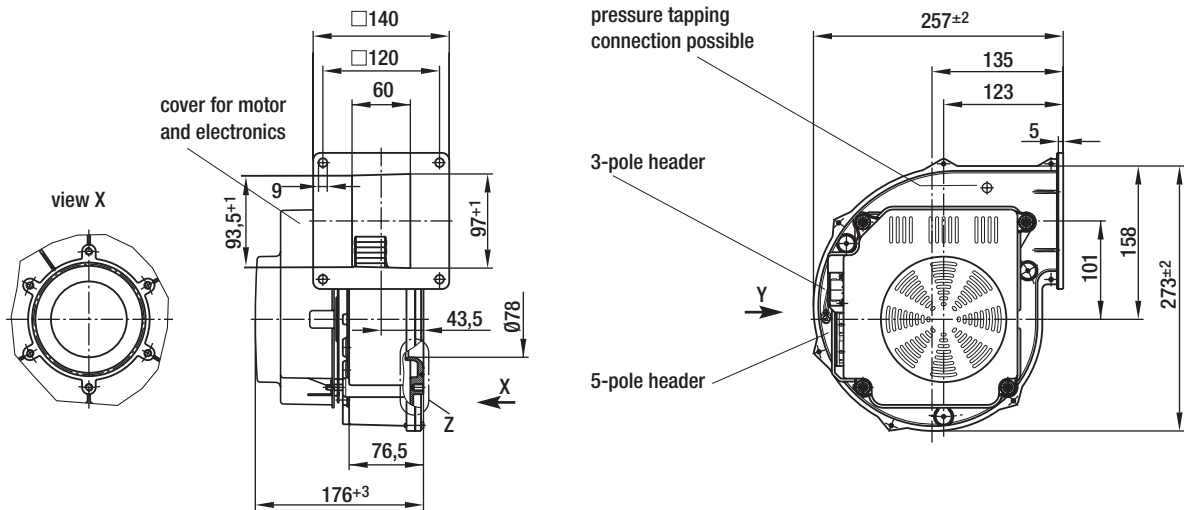
## approvals

- UL and CSA, VDE

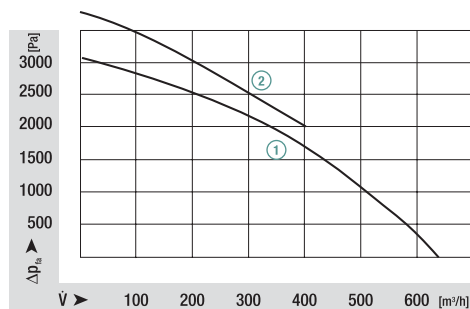
ebm-papst • Muldingen

Nominal data	characteristic curve	voltage	frequency	air volume	back pressure min.	power input	speed	current draw	perm. temp. of medium	perm. amb. motor temp.	mass
G1G 170 -AB05 -20	①	115	50/60	645	0	345	5730	4,0	80	55	4,8
G1G 170 -AB53 -01	①	230	50/60	645	0	360	5830	2,2	80	55	4,8
G1G 170 -AB53 -03 <sup>(1)</sup>	①	230	50/60	645	0	360	5830	2,2	80	55	4,8
G1G 170 -AB31 -51	②	230	50/60	380	2000	410	6530	1,8	80	55	4,8
G1G 170 -AB31 -53 <sup>(1)</sup>	②	230	50/60	380	2000	410	6530	1,8	80	55	4,8

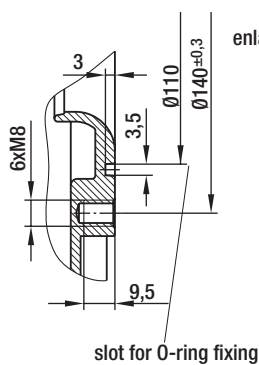
<sup>(1)</sup>L&S interface; subject to alterations



## Characteristic curves

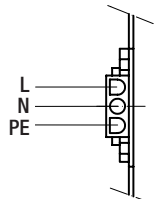


## detail Z

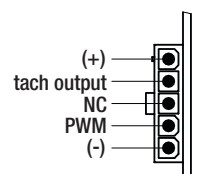


## view Y

**mains connection**  
3-pole header  
**mating connector**  
(not part of delivery):  
tyco no. 350 766-1  
female terminal:  
tyco no. 926 884-1



**control**  
5-pole header  
**mating connector**  
(not part of delivery):  
Molex no. 39-01-4050  
female terminal:  
Molex no. 39-00-0059



# Radial blowers with EC external-rotor motor

G1G170 – 115/230 VAC with linear input (0-10 VDC)



### material

- housing: aluminium
- impeller: sheet aluminium
- cover: plastic PP30TV

### interface

- see page 87, interface no. 6

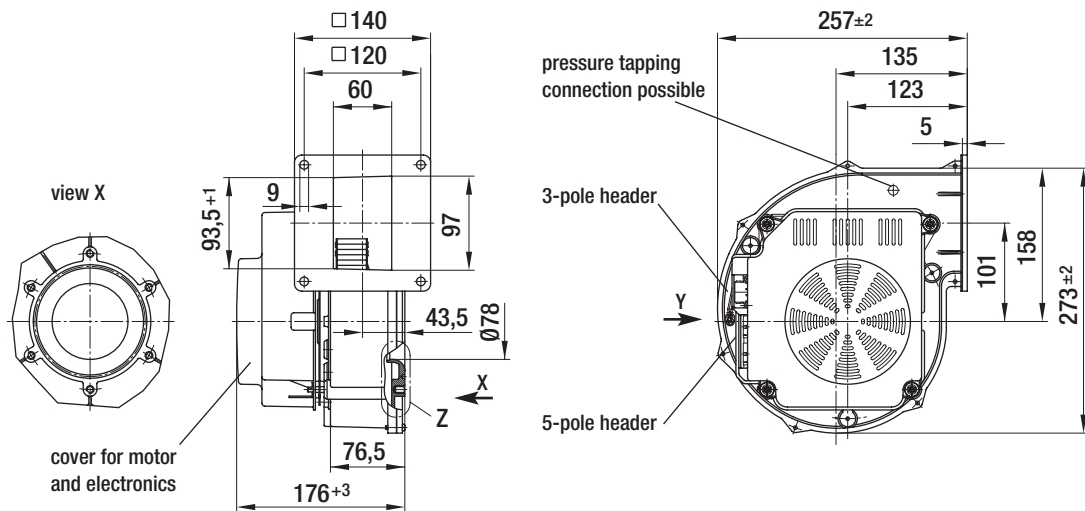
### premix

- If gas needs to be premixed in the blower, then a special blower will have to be used. For further details, please contact us.

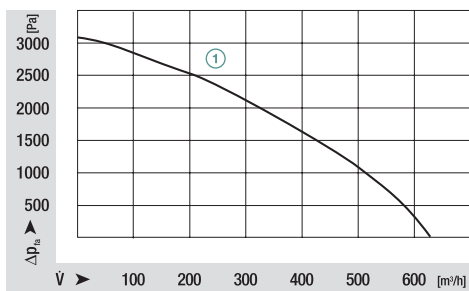
ebm-papst • Muldingen

Nominal data	characteristic curve	voltage	frequency	air volume	back pressure min.	power input	speed	current draw	perm. temp. of medium	perm. amb. motor temp.	mass
type	VAC	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>	A	°C	°C	kg	
G1G 170 -AB05 -81	①	115	50/60	645	0	345	5730	4,0	80	55	4,8
G1G 170 -AB53 -80	①	230	50/60	645	0	360	5830	2,2	80	55	4,8

subject to alterations

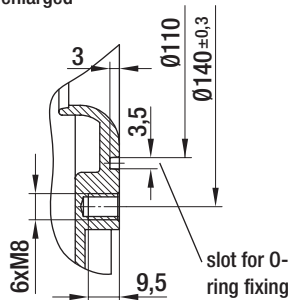


### Kennlinien



### detail Z

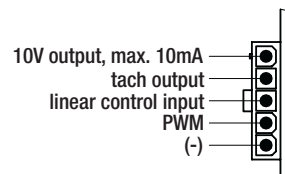
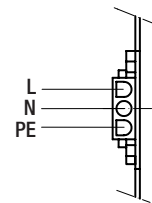
enlarged



### view Y

**mains connection**  
 3-pole header  
 mating connector  
 (not part of delivery):  
 tyco no. 350 766-1  
 female terminal:  
 tyco no. 926 884-1

**control**  
 5-pole header  
 mating connector  
 (not part of delivery):  
 Molex no. 39-01-4050  
 female terminal:  
 Molex no. 39-00-0059



# Radial blowers with EC external-rotor motor

G3G200 – 115/230 VAC



## material

- housing: aluminium
- impeller: sheet aluminium
- cover: plastic PPTD20

## interface

- see page 88, interface no. 7

## premix

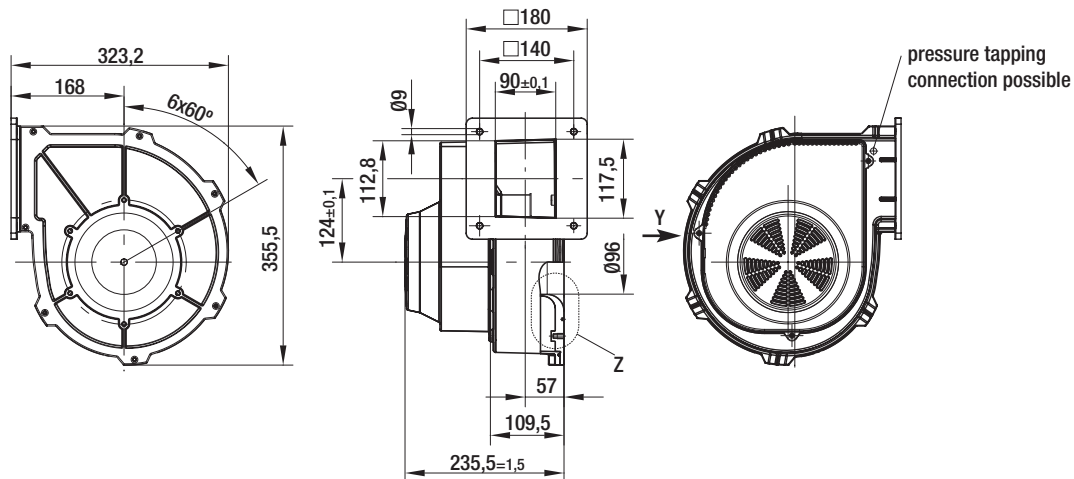
- If gas needs to be premixed in the blower, then a special blower will have to be used. For further details, please contact us.

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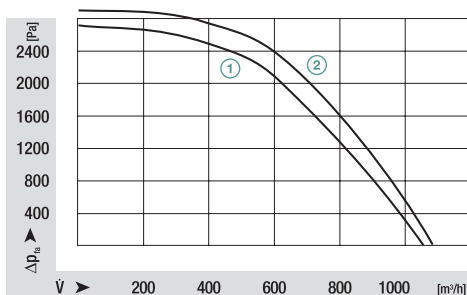
## Nominal data

type	characteristic curve	voltage range		air volume	max. power input*	speed*	max. current draw*	perm. temp. of medium		perm. amb. motor temp.	mass
		VAC	Hz					°C	°C		
G3G 200 - GN26-01 (intake variant A)	①	100-130	50/60	1000	800	5700	10,5	60	60	10,2	
G3G 200 - GN18-01 (intake variant A)	①	208-240	50/60	1000	750	5700	3,6	60	60	10,2	
G3G 200 - GN20-01 (intake variant A)	②	208-240	50/60	1100	890	6100	4,3	60	60	10,2	
G3G 200 - GN26-20 (intake variant B)	①	100-130	50/60	1000	800	5700	10,5	60	60	10,2	
G3G 200 - GN18-20 (intake variant B)	①	208-240	50/60	1000	750	5700	3,6	60	60	10,2	

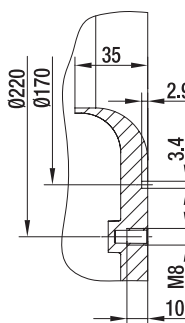
subject to alterations; \*nominal data in duty point at maximum load and 100 respectively 208 VAC



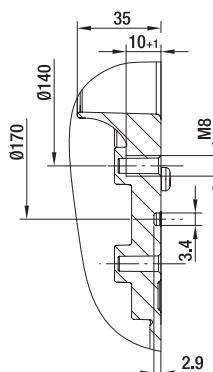
## Characteristic curves



Detail Z (intake variant A)



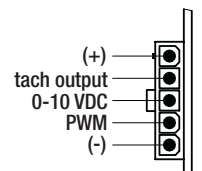
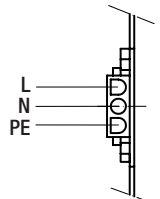
Detail Z (intake variant B)



view Y

**mains connection**  
3-pole header  
**mating connector**  
(not part of delivery):  
tyco no. 350 766-1  
female terminal:  
tyco no. 926 884-1

**control**  
5-pole header  
**mating connector**  
(not part of delivery):  
Molex no. 39-01-4050  
female terminal:  
Molex no. 39-00-0059



# Radial blowers with EC external-rotor motor

G3G250 –115/230 VAC



### material

- housing: aluminium
- impeller: sheet aluminium
- cover: plastic PPTD20

### interface

- see page 88, interface no. 7

### premix

- If gas needs to be premixed in the blower, then a special blower will have to be used. For further details, please contact us.

### approvals

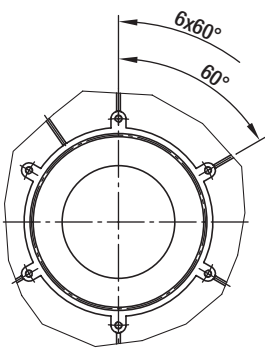
- 115 VAC: UL

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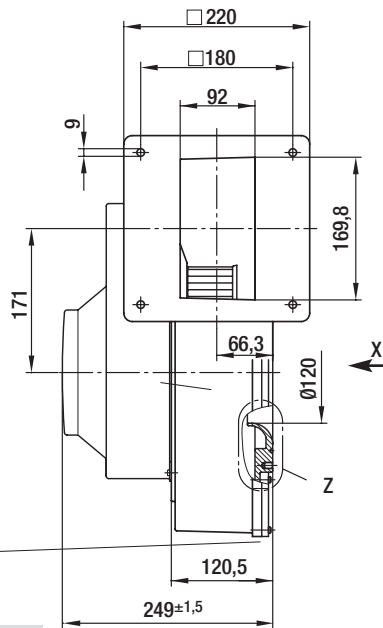
Nominal data	characteristic curve	voltage range	frequency	air volume	max. power input*	speed*	max. current draw*	perm. temp. of medium	perm. amb. motor temp.	mass
type		VDC	Hz	m <sup>3</sup> /h	W	min <sup>-1</sup>	A	°C	°C	kg
G3G 250 -GN39 -01	②	100-130	50/60	1650	1200	4800	13,0	60	60	12,8
G3G 250 -GN44 -01	①	208-240	50/60	1500	860	4500	4,8	60	60	12,8
G3G 250 -GN17 -01	②	208-240	50/60	1650	1150	4800	5,7	60	60	12,8

subject to alterations; \*nominal data in duty point at maximum load and 100 respectively 208 VAC

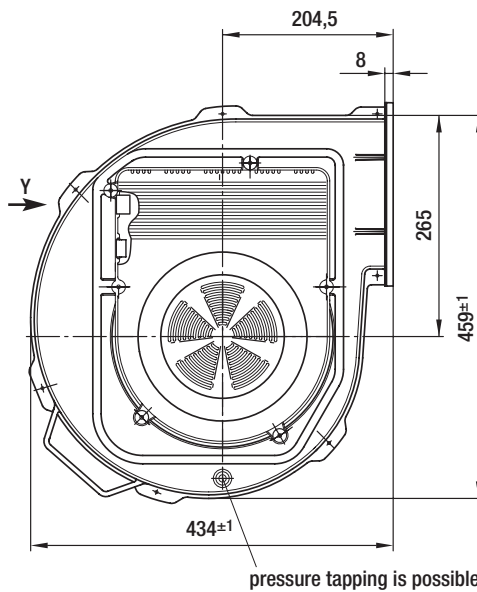
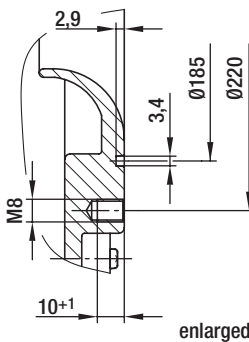
view X



sideplates of housing sealed with rubber loop (NBR pentane-resistant)

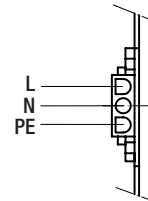


detail Z

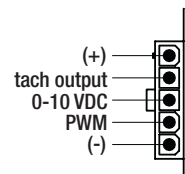


view Y

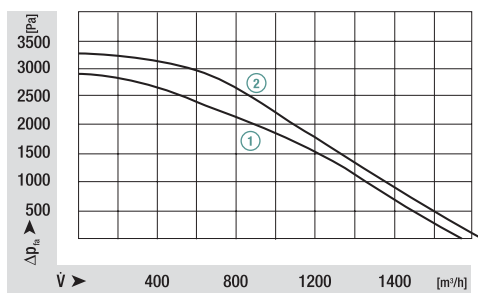
**mains connection**  
3-pole header  
**mating connector**  
(not part of delivery):  
tyco no. 350 766-1  
**female terminal:**  
tyco no. 926 884-1



**control**  
5-pole header  
**mating connector**  
(not part of delivery):  
Molex no. 39-01-4050  
**female terminal:**  
Molex no. 39-00-0059



### Characteristic curves



# Radial blowers with EC external-rotor motor

G3G250 – 400 VAC



## material

- housing: die-cast aluminium
- impeller: sheet aluminium
- rotor: coated in black
- electronics enclosure: die-cast aluminium

## interface

- see page 89, interface no. 8

## premix

- If gas needs to be premixed in the blower, then a special blower will have to be used. For further details, please contact us.

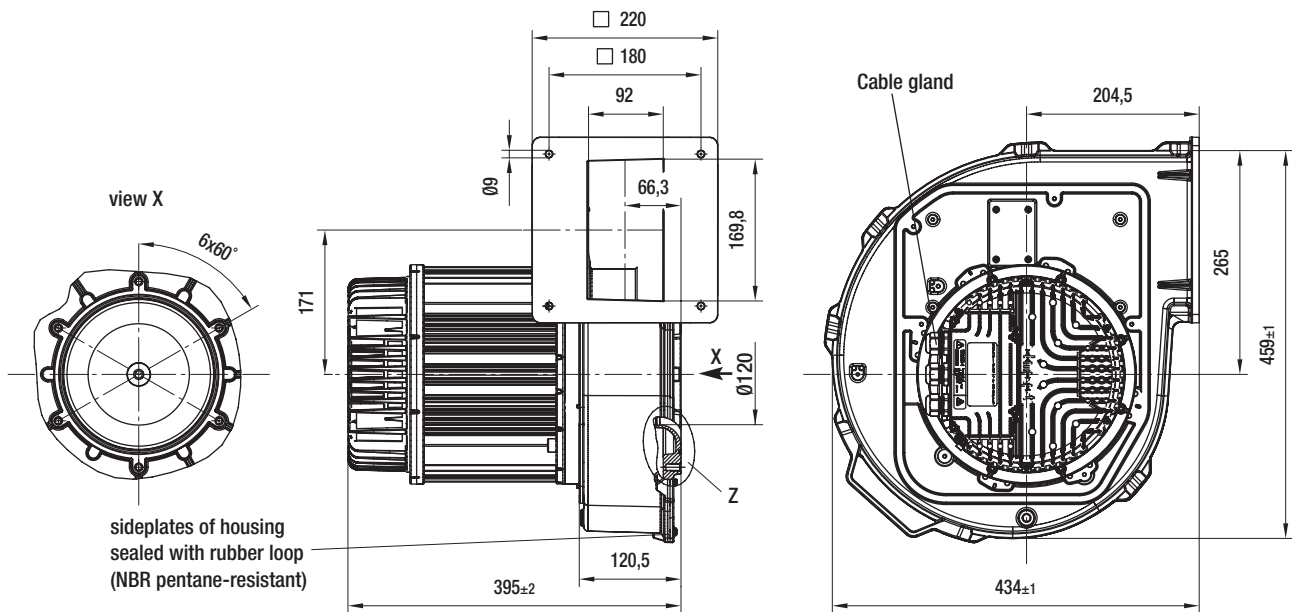
## approvals

- VDE, UL, CSA, GOST are applied for

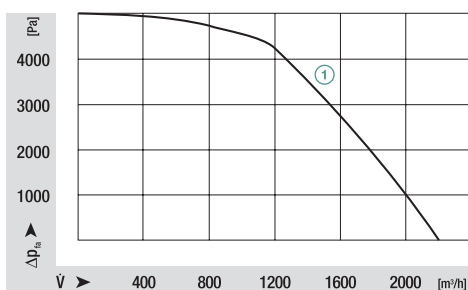
**ebm-papst • Mulfingen**

Nominal data	characteristic curve	voltage range	frequency	air volume	max. power input*	speed*	max. current draw	perm. temp. of medium	perm. amb. motor temp.	mass
type	VAC	Hz	m <sup>3</sup> /h	kW	min <sup>-1</sup>	A	°C	°C	kg	
G3G 250 -MW50 -01	① 3~	380-480	50/60	2200	2,5	6400	4,0	50	50	22,3

subject to alterations; Nominal data established at 400 VAC



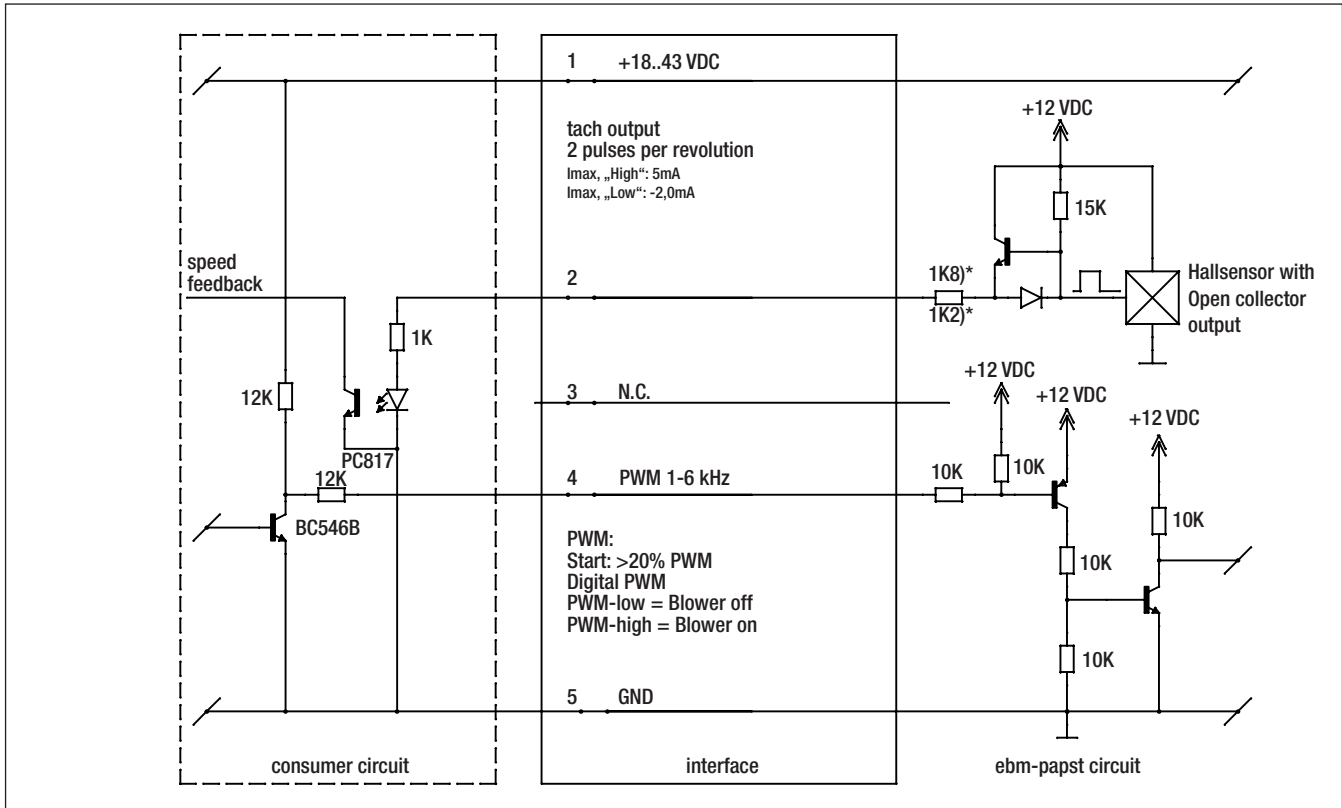
## Characteristic curves



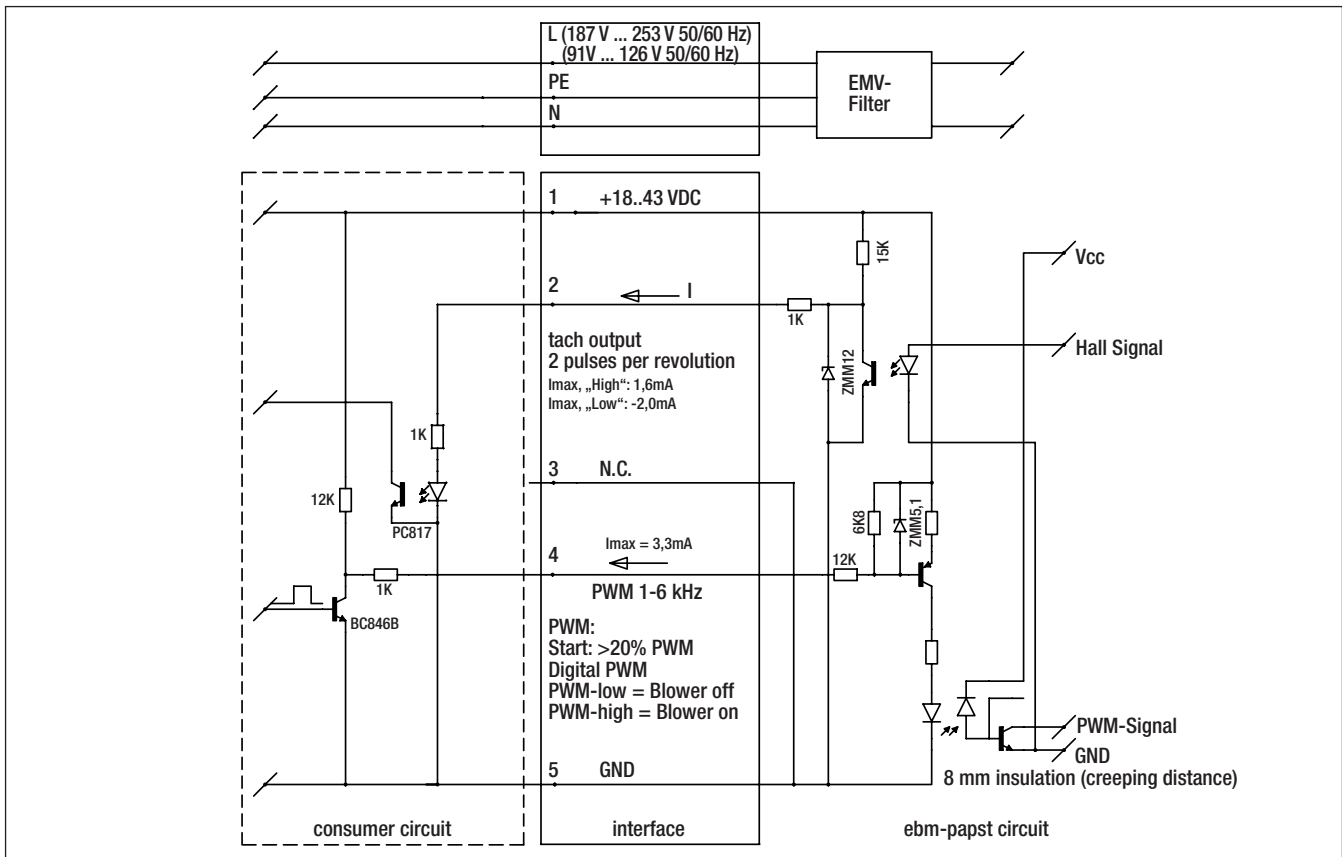
# Interfaces

for blowers with EC internal-rotor motor BG3612/3633

## standard interface 1 24 VDC control



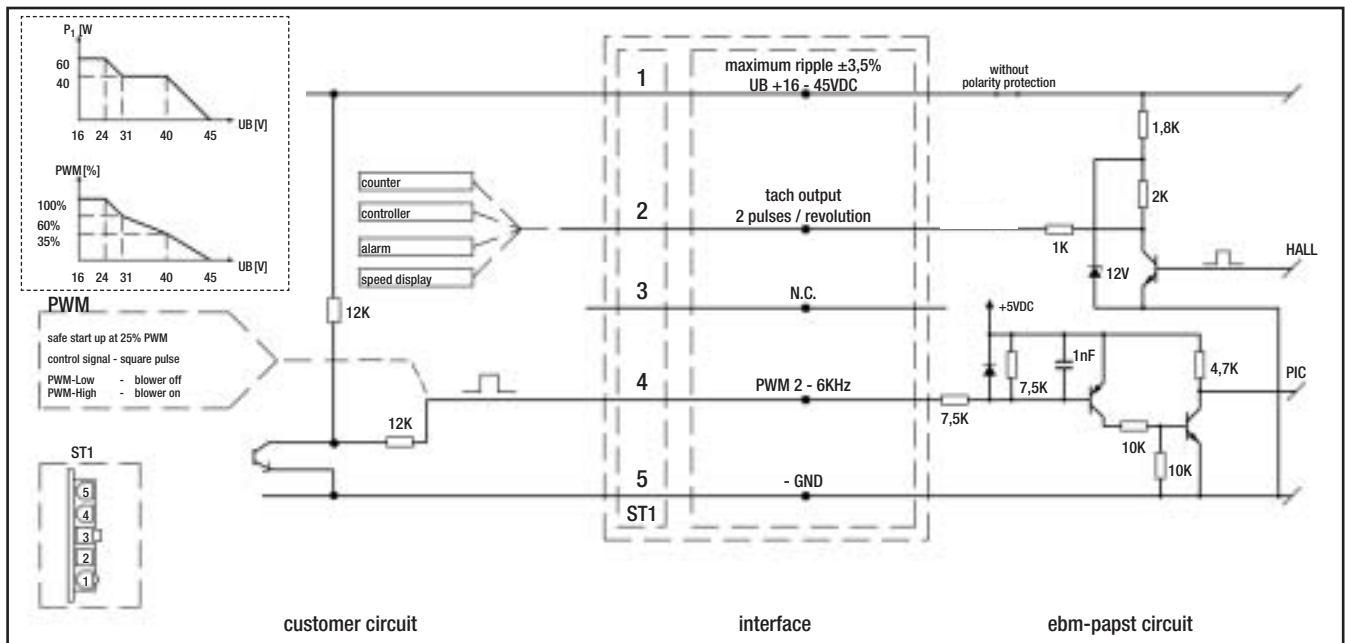
## standard interface 2 230 VAC, 50/60 Hz 120 VAC, 50/60 Hz control



# Interfaces for blowers with EC external-rotor motor

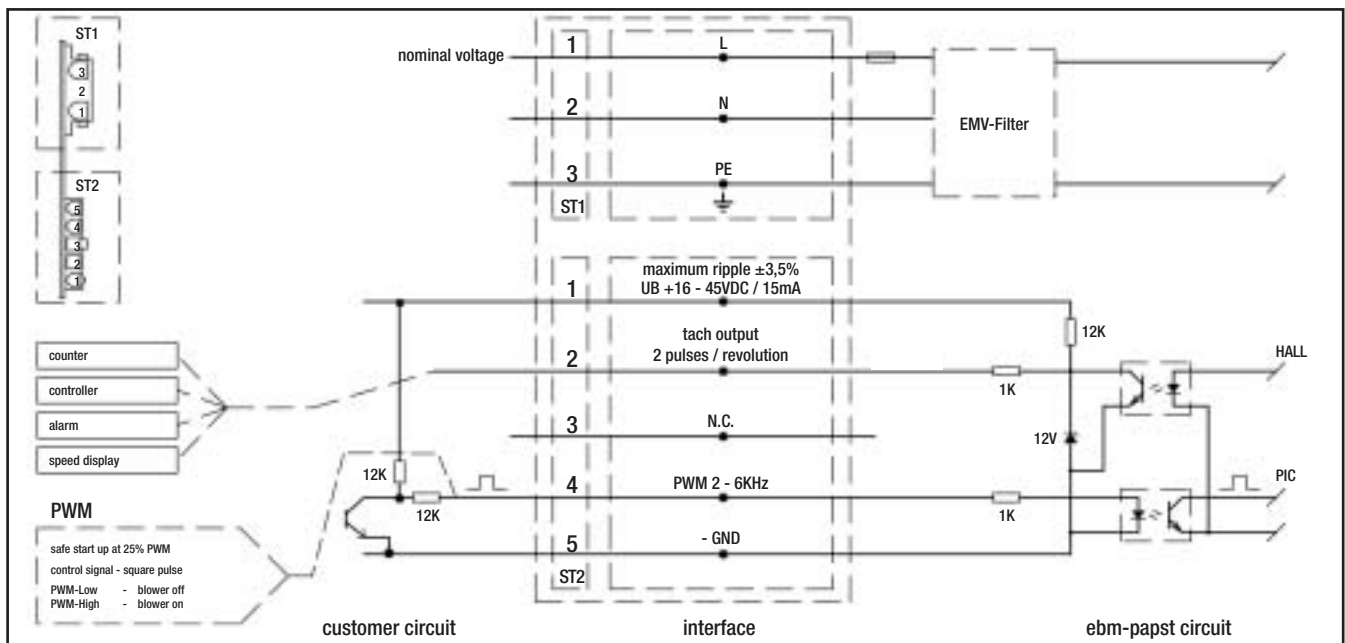
## standard interface 3

24 VDC



## standard interface 4

115/230 VAC

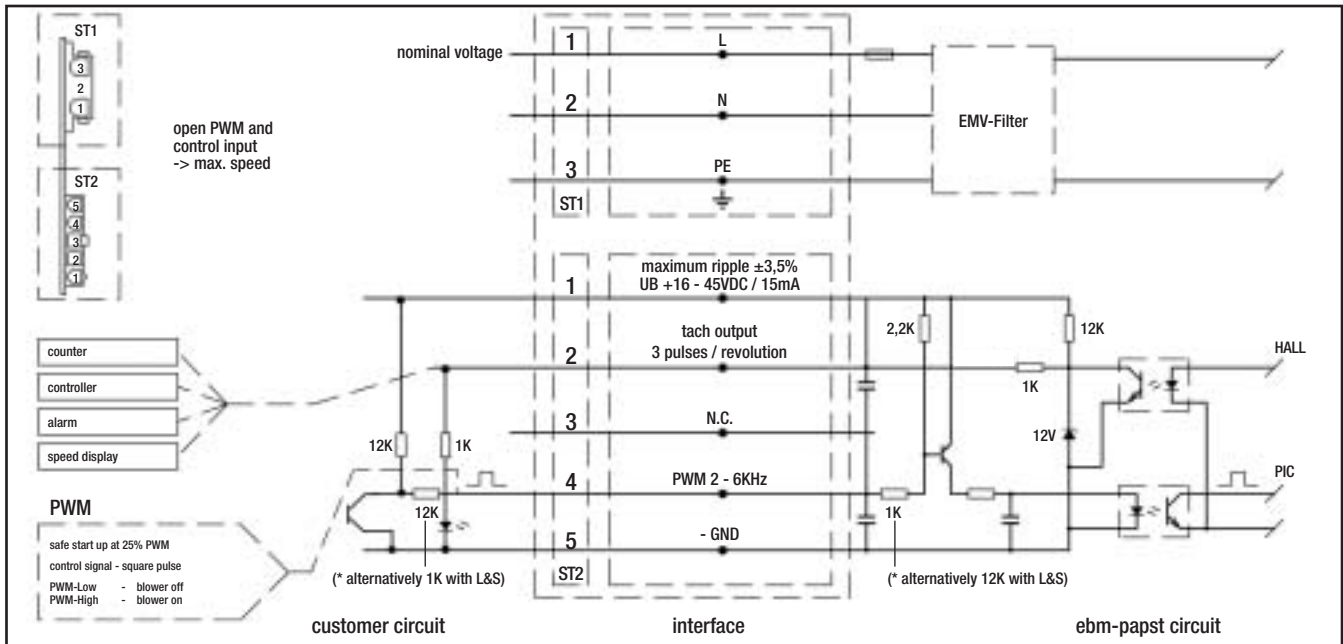




# Interfaces for blowers with EC external-rotor motor

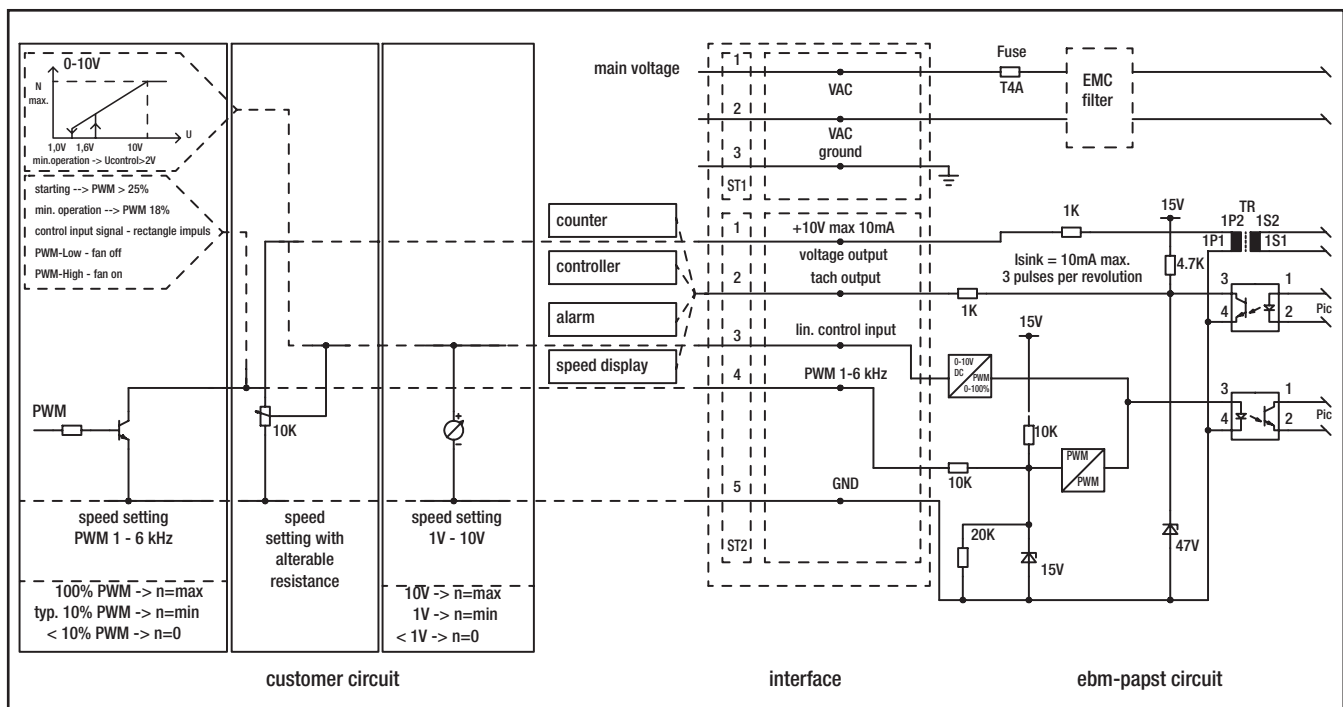
## standard interface 5

115/230 VAC (\* applies alternatively for L&S with different part number)



## standard interface 6

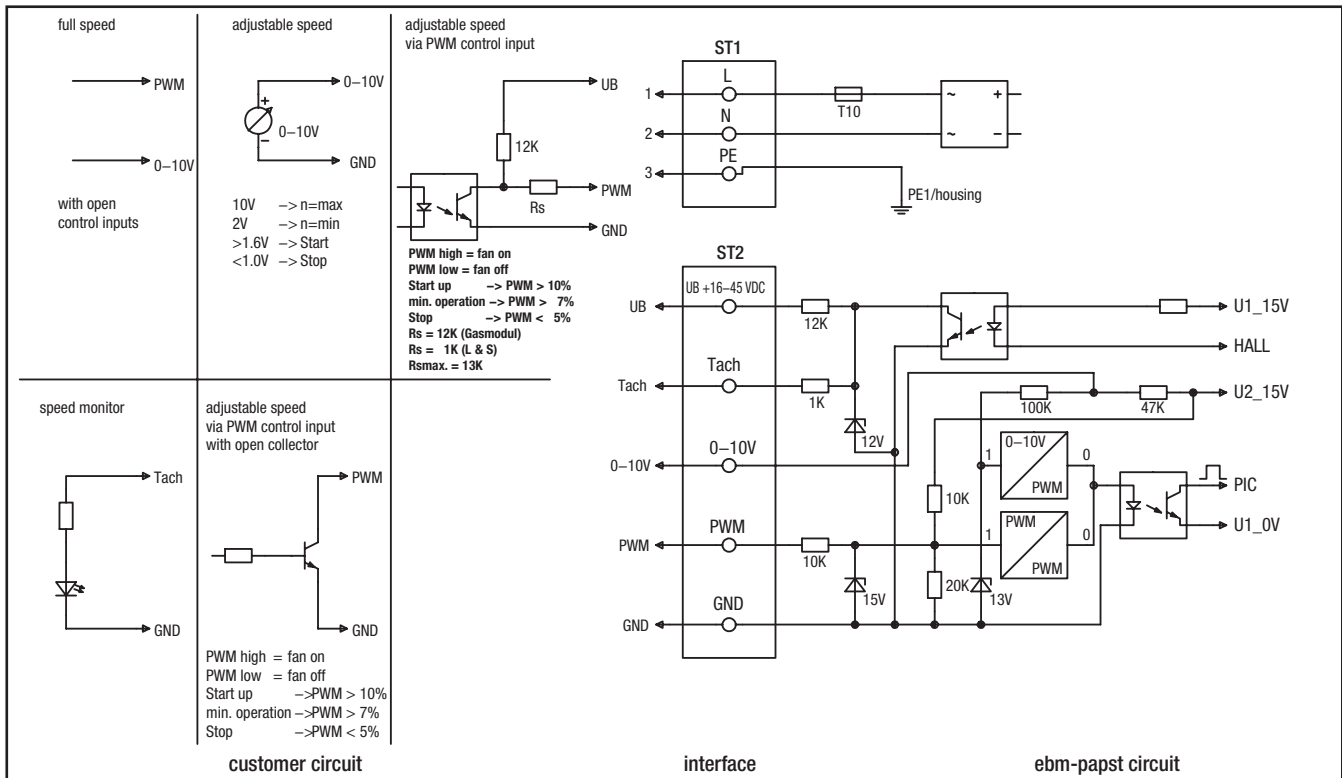
115/230 VAC



# Interfaces for blowers with EC external-rotor motor

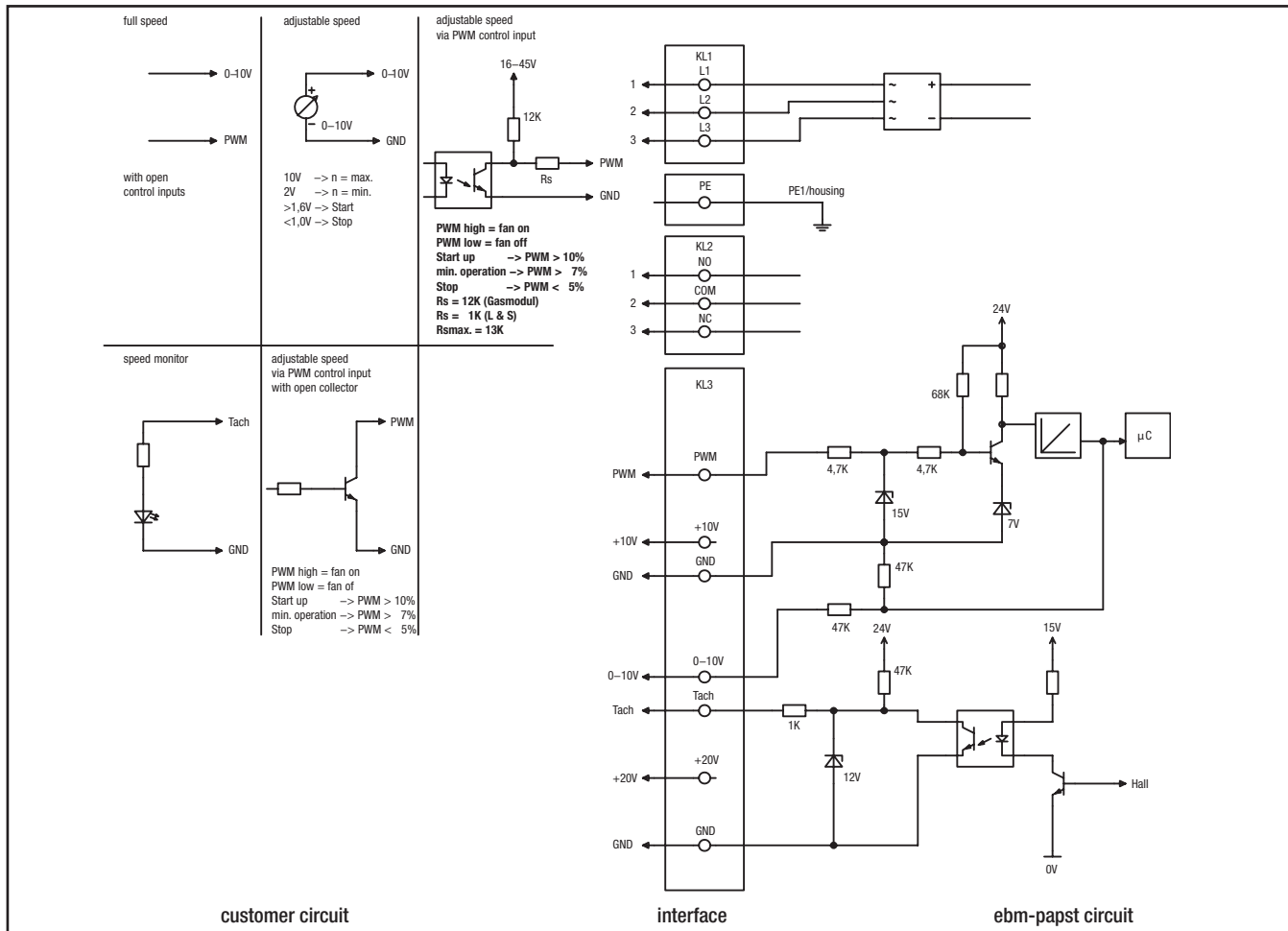
## standard interface 7

115/230 VAC

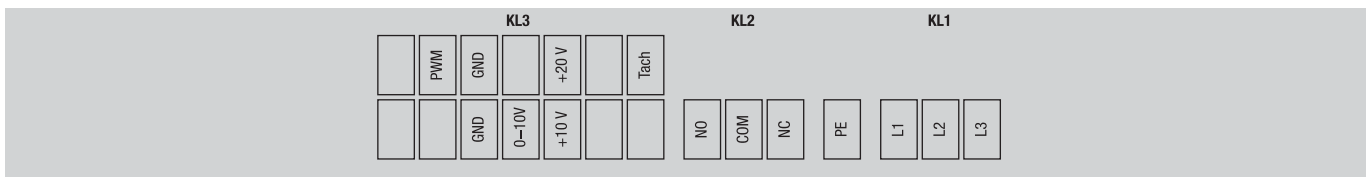


## standard interface 8

400 VAC

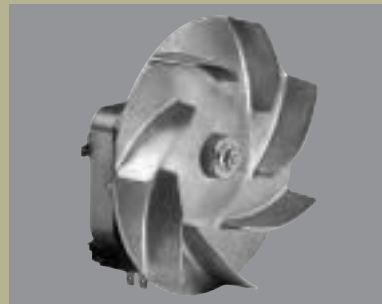


## EC motor (size 112, three-phase mains-powered)



Connector	Connection	Assignment / function
KL1	L1	Mains; L1
	L2	Mains; L2
	L3	Mains; L3
PE	PE	Protective earth
KL2	NO	Alarm relay, make for failure
	COM	Alarm relay, COMMON (2A, 250 VAC, AC1)
	NC	Alarm relay, break for failure

Connector	Connection	Assignment / function
KL3	PWM	PWM set value; specified set value PWM; 16-45 V high level; 1-10 KHz
	GND	GND
	GND	GND
	0-10V	Analogue set value input, 0-10 V (impedance 100 kΩ), only to be used as alternative to terminal PWM
	+20 V	Supply for external sensor, 20 VDC (+/- 20%) max. 50 mA
	+10 V	Supply for external potentiometer, 10 VDC (+/- 10%) max. 10 mA
	Tach	Speed monitor output; 12 VDC (+/- 10%) max. 10 mA; impedance 1 kΩ; 5 pulses/rotation



# Hot air blowers

Description	92
RRL series EM30 motor, impeller diameter 120 to 160 mm	93
R2A series EM42 motor, impeller diameter 152 mm	95
R2K series EM42 motor „unit bearing“, ball bearings, impeller diameter 152 mm	96
RR series EM30 motor, with bayonet-type mounting bracket	96
R2E, R2D series, with external-rotor motor	97



# Hot air blowers

Hot air circulation blowers are designed for the special requirements in circulating hot air, e.g. in ovens, climate cabinets, sterilisation units, meal and dish warmers and similar appliances.

The basic design comprises a shaded pole motor mounted outside the hot area using special mounting plates and a radial impeller made of FAL sheet steel, stainless steel or die-cast aluminium, which operates within the high temperature zone.

Equipment for generating hot air is not supplied by ebm-papst and may, e.g., take the form of a ring heater mounted around the hot air impeller.

Depending on the type or requirements, sintered sleeve bearings with high temperature-resistant lubricant or ball bearings may be used.

The maximum permissible bearing temperature is 120° C.

Versions with sleeve bearings may only be used with a horizontal shaft, but any shaft position is possible if ball bearings are used.

The winding complies with insulation class H (EN60335).

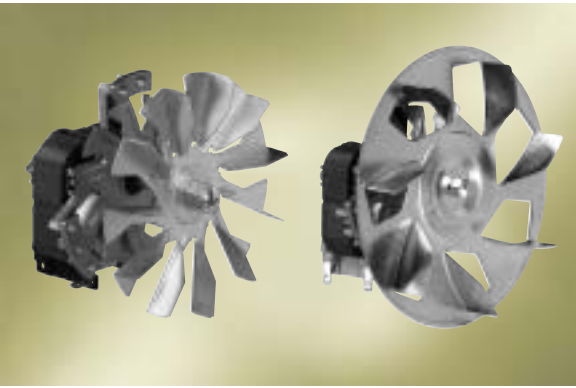
Depending on the measures taken for thermal insulation between motor and impeller and the impeller material, circulation temperatures of up to approx. 250° C, temporarily even up to 500° C (e.g. for pyrolytic self-cleaning processes in ovens) can be managed.

The standard types described below are only a selection taken from the wide range of possibilities. The circulation capacities they can achieve depend to a large extent, on the mounting situations, i.e. the specified values for air flow, pressure and speed are only general benchmark figures in typical mounting conditions.

For serial use, motor rating, mounting, shaft length and impeller can be adjusted to suit specific requirements.

# Hot air blowers

RRL 120, RRL 140



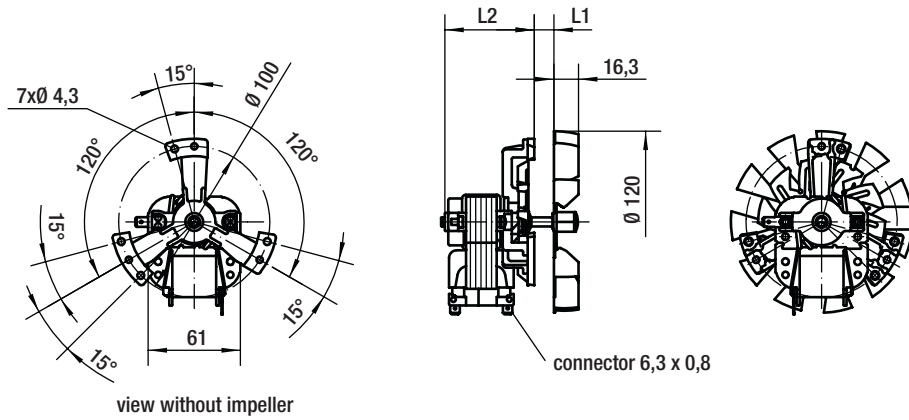
- sintered sleeve bearings with additional lubricant depot for bearing temperature up to max. 120 °C
- mounting position: horizontal shaft
- insulation class H (EN 60335)
- impeller: FAL sheet steel

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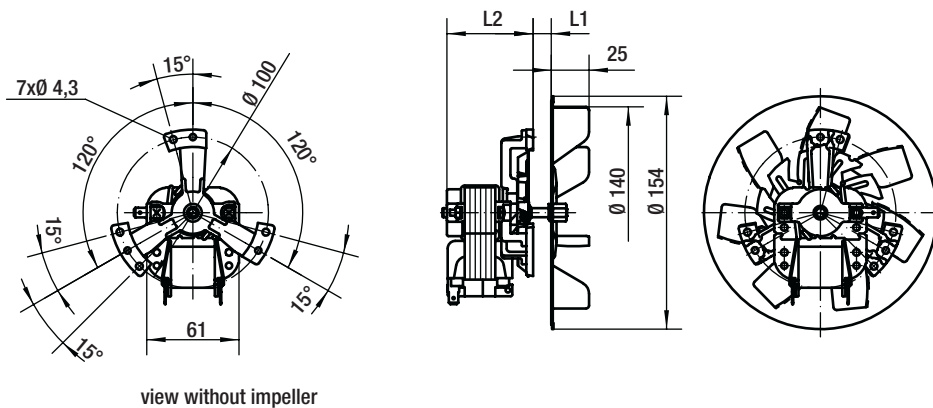
Nominal data	rated voltage	frequency	air flow	max. pressure increase	power input	speed	mass	recommended air intake	Dimensions mm	
	<b>V</b>	<b>Hz</b>	<b>m³/h</b>	<b>Pa</b>	<b>W</b>	<b>min<sup>-1</sup></b>	<b>kg</b>	<b>Ø</b>	<b>L1</b>	<b>L2</b>
RRL120-3020LH	230	50	100	100	29	2000	0,75	100	13	62
RRL140-3020LH	230	50	170	140	38	1700	0,8	120	12	60

Technical data valid for typical applications; bold print = standard type; subject to alterations

## RRL 120

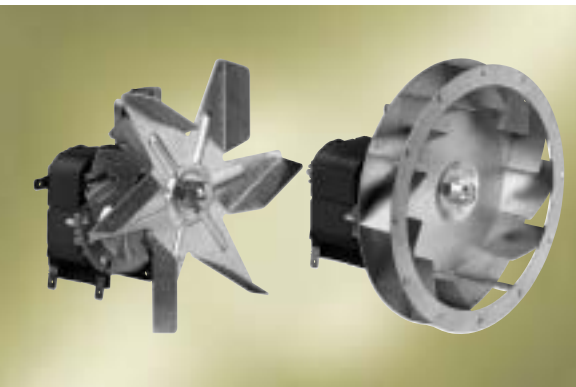


## RRL 140



# Hot air blowers

RRL 152, RRL 160



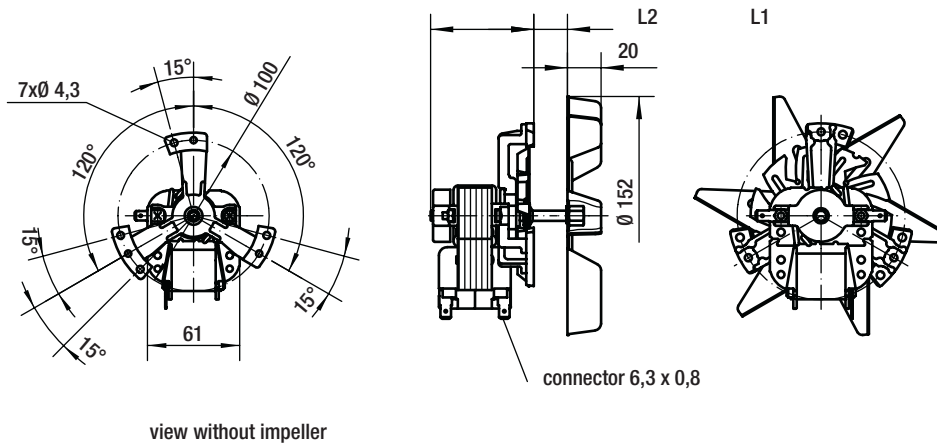
- bearing: RRL 152 ball bearings  
RRL 160 sintered sleeve bearings with additional lubricant depot
- mounting position: RRL 152 all mounting positions possible  
RRL 160 horizontal shaft
- impeller: RRL 152 FAL sheet steel  
RRL 160 galvanized sheet steel
- insulation class: H (EN 60335)

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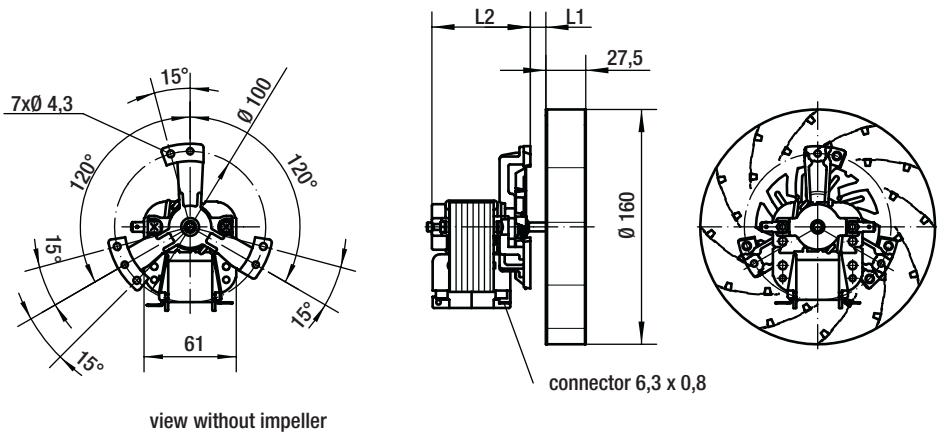
Nominal data	rated voltage	frequency	air flow	max. pressure increase	power input	speed	mass	recommended air intake	Dimensions mm	
									type	V
<b>RRL152-3030LH</b>	230	50	200	150	45	2200	1	120	30	71
RRL160-3038LH	230	50	210	200	37	1600	1,4	120	26	79

Technical data valid for typical applications; bold print = standard type; subject to alterations

## RRL 152



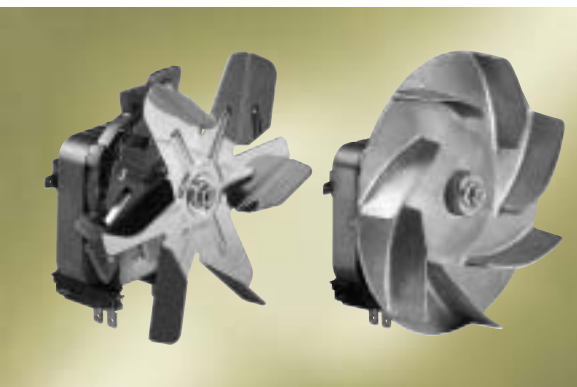
## RRL 160





# Hot air blowers

R2A150AC, R2A150AA

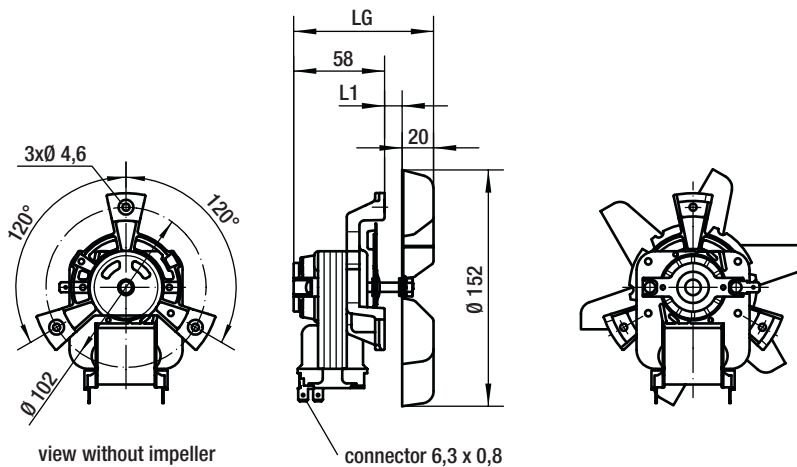


- bearing: sintered sleeve bearings with additional lubricant depot
- mounting position: horizontal shaft
- impeller: R2A150AC stainless steel  
R2A150AA die-cast aluminium
- insulation class: H (EN 60335)

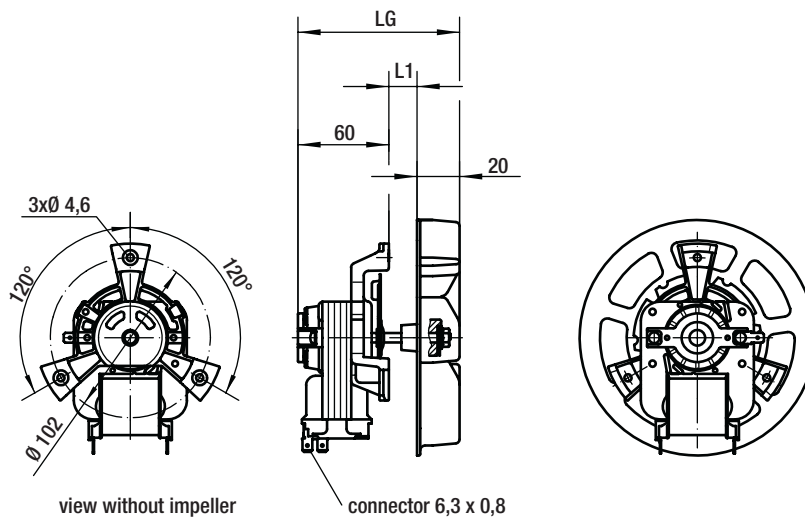
Nominal data	rated voltage	frequency	air flow	max. pressure increase	power input	speed	mass	recommended air intake	Dimensions mm	
	V	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>	kg	Ø	L1	LG
<b>R2A150-AC</b>	230	50	170	140	32	1800	1	120	21	98
R2A150-AA	230	50	190	180	30	2000	1,1	120	18,4	102,5

Technical data valid for typical applications; bold print = standard type; subject to alterations

## R2A150AC

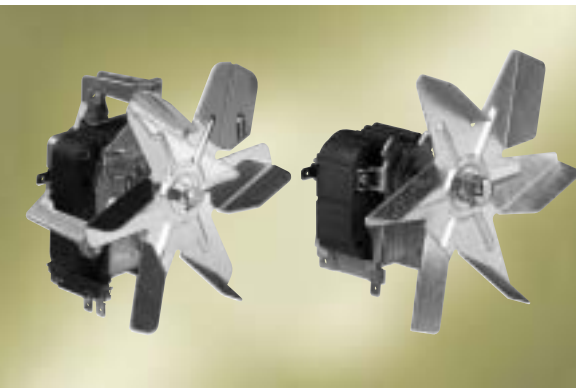


## R2A150AA



# Hot air blowers

R2K, RR



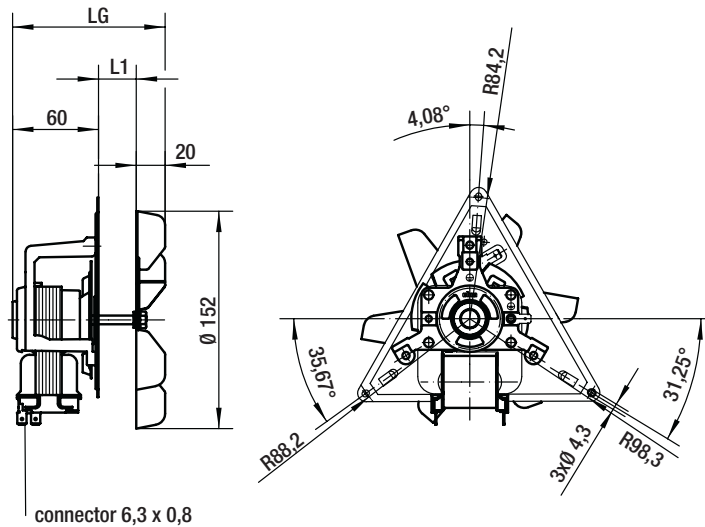
- bearing: R2K150 ball bearings „unit bearing“, integrated in rotor  
RR 152 sintered sleeve bearings with additional lubricant depot
- mounting position: R2K150 all mounting positions possible  
RR 152 horizontal shaft
- impeller: R2K150 stainless steel  
RR 152 FAL sheet steel
- mounting bracket: R2K150 three armed with triangular plate  
RR 152 bayonet type
- insulation class: H (EN 60335)

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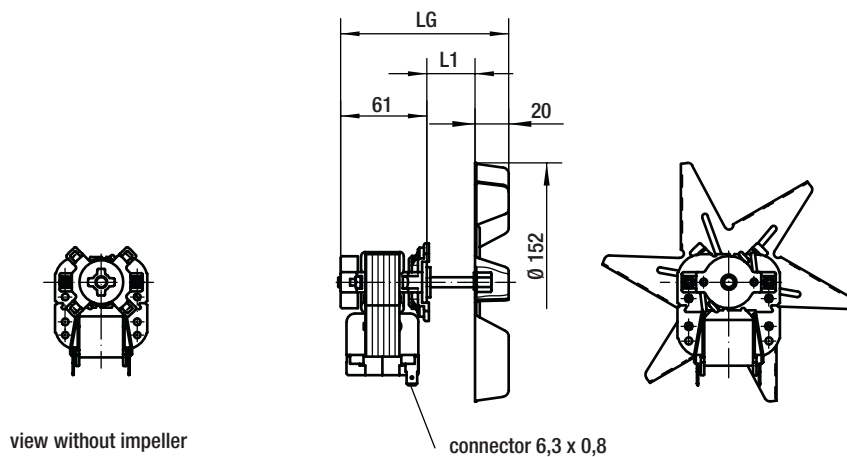
Nominal data	rated voltage	frequency	air flow	max. pressure increase	power input	speed	mass	recommended air intake	Dimensions mm		
	V	Hz	m <sup>3</sup> /h	Pa	W	min <sup>-1</sup>	kg	Ø	L1	L2	LG
<b>R2K150-AC</b>	230	50	200	155	32	2000	1	120	19	-	98,5
RR152-3025LH	230	50	190	150	37	2000	0,85	120	18,5	61	-

Technical data valid for typical applications; bold print = standard type; subject to alterations

## R2K150



## RR152



# Hot air blowers

R2E 180, R2D 225



- material: impeller of stainless steel
- bearings: maintenance-free ball bearings
- direction of rotation: R2E 180 -AH: counter-clockwise, seen on impeller  
R2D 225 -AG: clockwise, seen on impeller
- connection leads: terminal strip

ebm-papst • Mulfingen

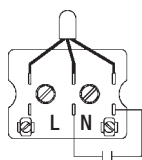
Nominal data		characteristic curve	rated voltage	frequency	air flow	current draw	power input	speed	mass	capacitor
type	motor		V	Hz	m <sup>3</sup> /h	A	W	min <sup>-1</sup>	kg	μF/VDB
R2E 180 -AH05-06	M2E068-DF	①	230	50	480	0,51	115	2600	3,1	3,0/400
			230	60	520	0,68	155	2850	3,1	3,0/400
R2D 225 -AG02-10*)	M2D068-EC	②	230/400	50	1265	0,29	165	2700	4,0	-
			230/400	60	1395	0,39	250	3000	4,0	-

\*) current draw established at 400 VAC (V), subject to alterations

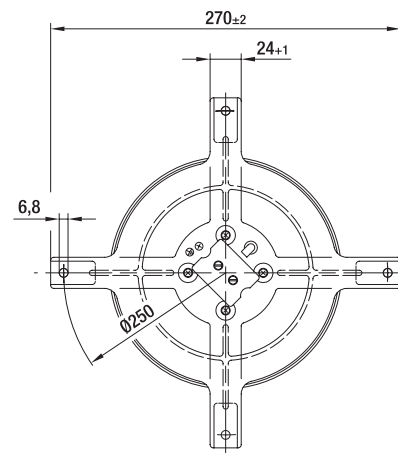
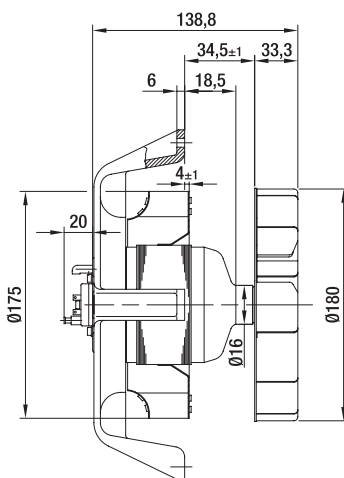
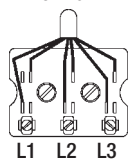
## R2E 180

electrical connection:

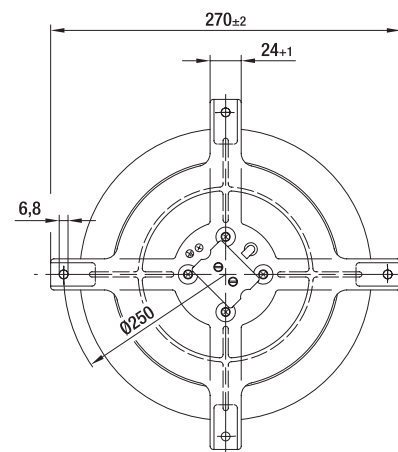
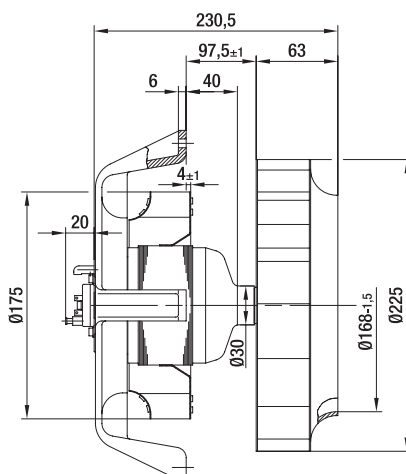
R2E 180 -AH



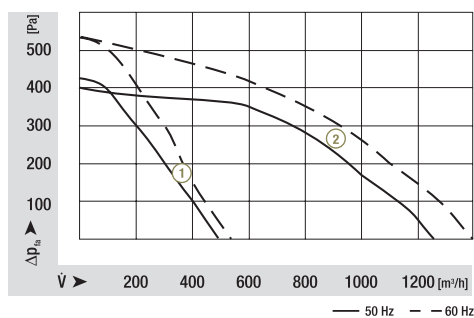
R2D 225 -AG

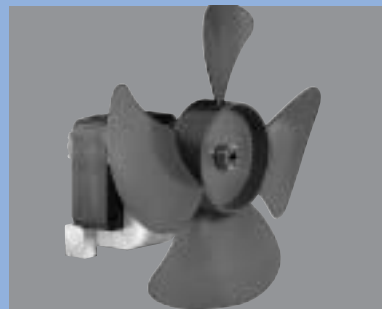


## R2D 225



## Characteristic curves





# Axial blowers

■	NoFrost AC design	100
■	NoFrost EC design	101
■	AC-Motor with impeller Ø 80 - 175 mm	102



# Axial blowers AC, NoFrost design

EM2513LN



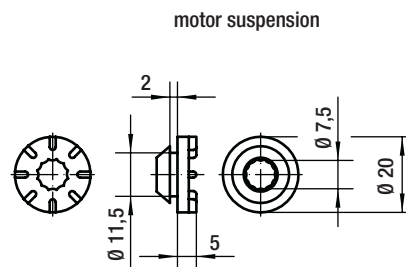
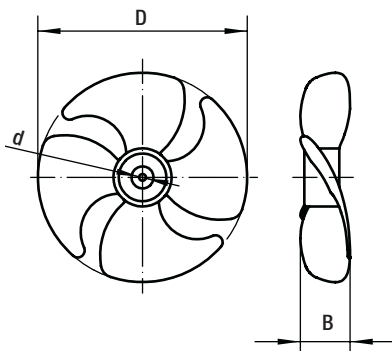
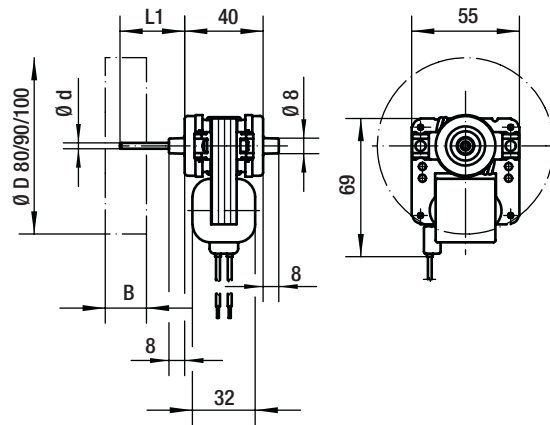
Circulation blowers are required in chest and upright freezers with automatic defrost function ("NoFrost" technology) as well as in chiller compartments in refrigerators. In these appliances, blowers must meet special requirements:

- Low power input for placing the appliance in low energy efficiency classes
- Long service life as a result of the long periods which they are switched on
- Resistance of the winding, bearing systems and the electronics in temperatures of as low as -40° C and relative humidity values of up to 95%
- Low noise to comply with maximum demands as to comfort.

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Nominal data	rated voltage	rated frequency	power input (230V)	rated current	speed	Dimensions mm			
						type	V	Hz	W
EM2513LN	220-240	50	4,2	37	2650	80	3,0/3,17	27	26,5
EM2513LN	220-240	50	4,5	38	2600	90	3,0/3,17	21	26,5
EM2513LN	220-240	50	4,8	40	2400	100	3,0/3,17	26,5	26,5

subject to alterations



# Axial blowers EC, NoFrost design

BG2012

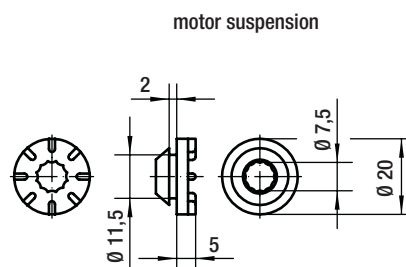
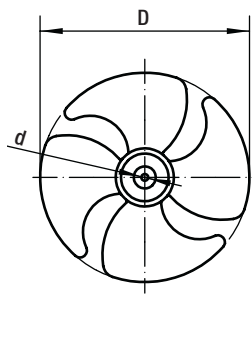
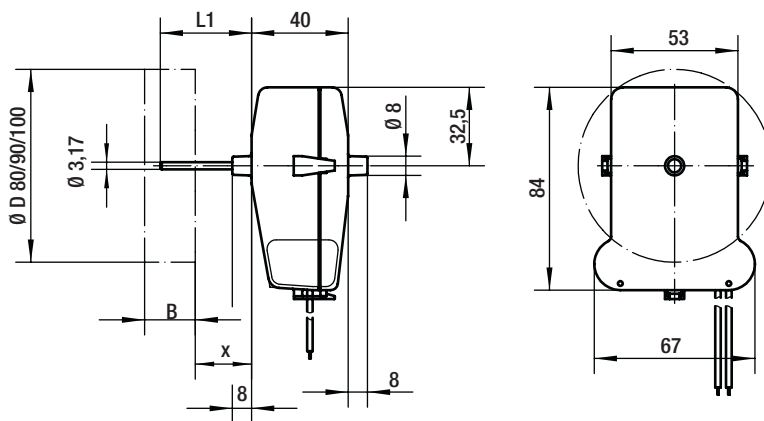


- Brushless DC motor with integrated humidity protected PCB electronics for direct connection to mains
- Plastic housing for motor and electronics

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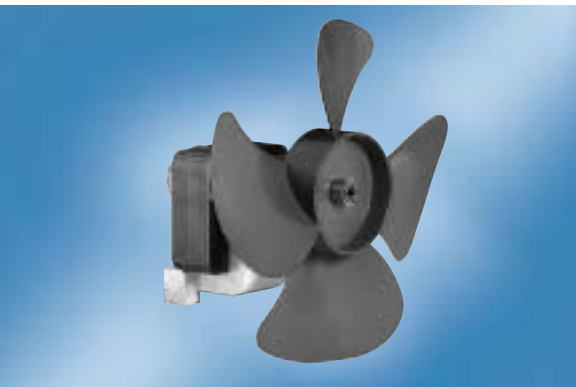
Nominal data	rated voltage	rated frequency	power input	rated current	speed	Dimensions mm			
	V	Hz	W	mA	min <sup>-1</sup>	ØD	B	L1	x
BG2012	230 VAC	50	1,9	70	2100	100	26,5	30	13,2

subject to alterations



# Axial blowers

AL



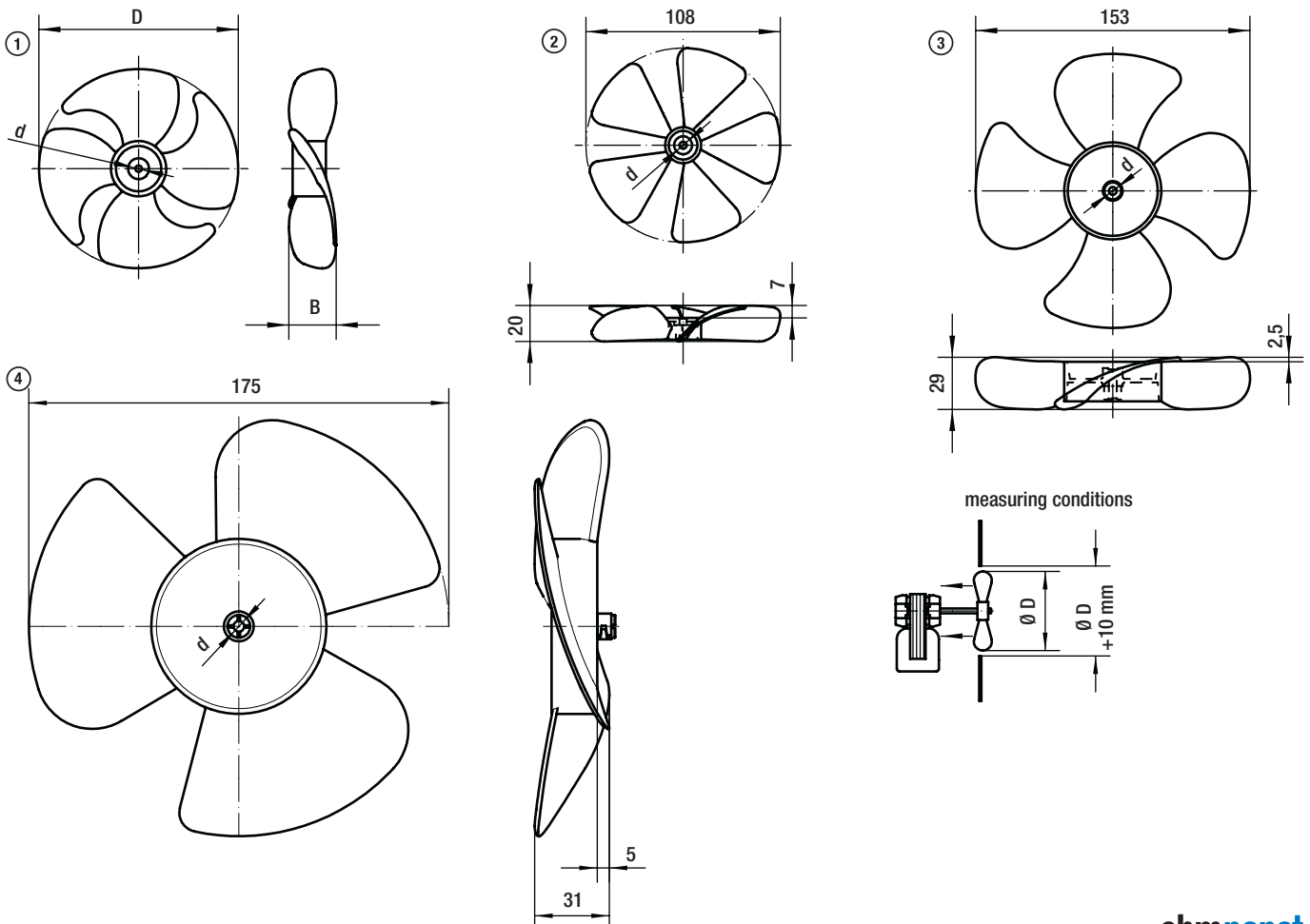
Shaded pole motors of the EM21, EM25 and EM30 series can be combined with axial plastic impellers. For standard applications, this makes for low cost, powerful solutions. The suitable motor/impeller combination depends on the technical requirements and must be determined in each case.

For better efficiency, the preferred direction of air flow should be blowing over motor.

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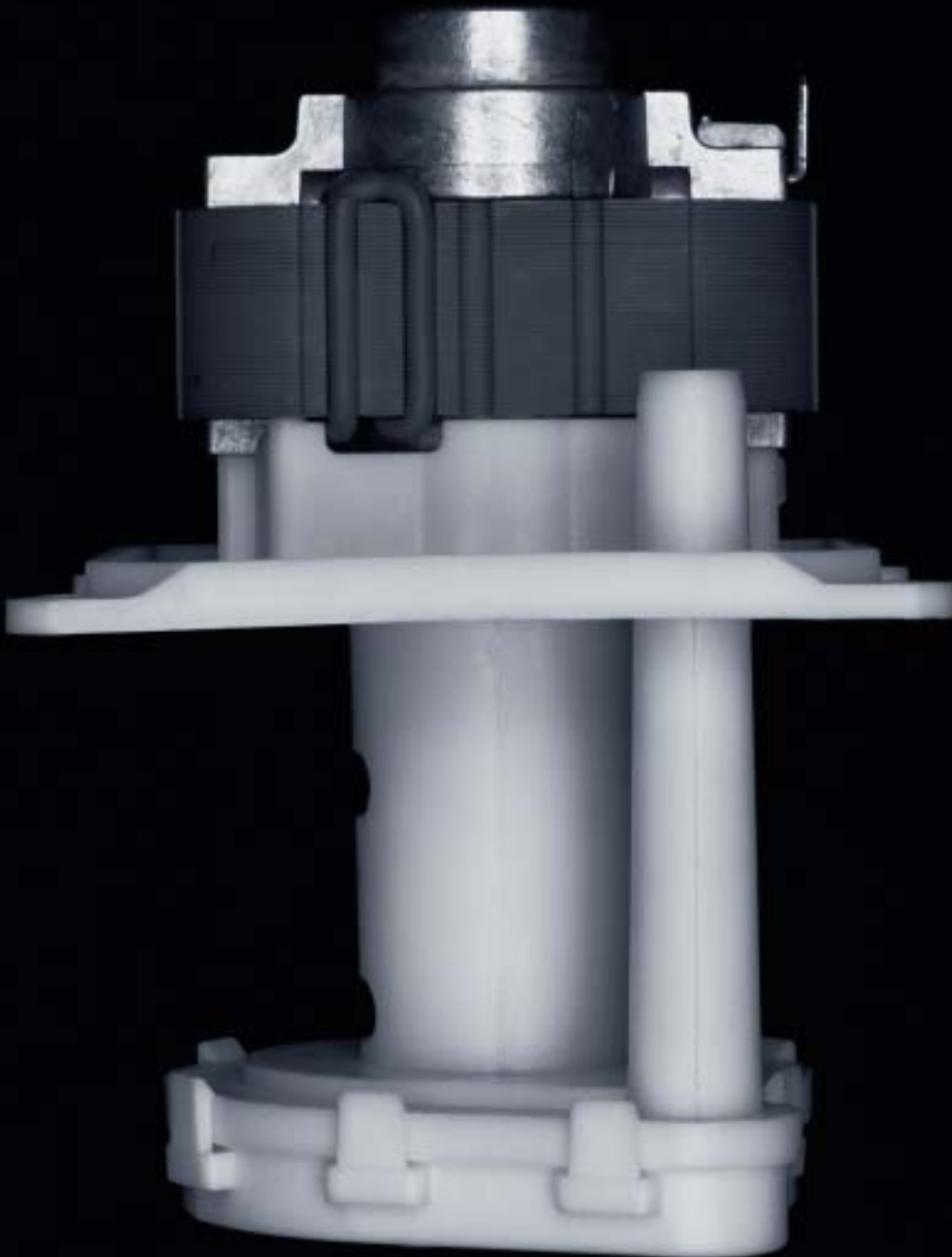
Nominal data	dimensional drawing	Ø diameter	Ø d (shaft)	material	air flow	max. pressure increase	reference speed	recommended motors
	d	D	d	Pa	m <sup>3</sup> /h*	Pa	min <sup>-1</sup>	
	①	80	3,0/3,17	ABS	46	22	2000	EM21, EM25
	①	90	3,0/3,17	ABS	54	24	2000	EM21, EM25
	①	100	3,0/3,17	ABS	72	34	2000	EM25
	②	108	4,0/4,5	PA 6 GV	105	28	2000	EM25
	③	153	4,0/4,5/6,0	PA 6.6 GV	235	70	2000	EM25, EM30
	④	175	4,5	PA 6.6 GV	255	82	2000	EM25, EM30

\*) measuring conditions see drawing, real performance depends on motor power (speed under load) and mounting situation; subject to alterations





Submersible circulation pumps with shaded pole motor P4, P5, P7	104
Submersible circulation pumps with capacitor motor P30, P2E..	108
Dosing pumps P51	110



# Submersible circulation pumps

P4



Submersible circulation pumps P5 are drain pumps for the conveyance of low-viscosity liquids (water, condensate, alkalines etc.).

Typical applications are, e.g. in condense dryers, condensing boilers, air-conditioning units and tapping systems.

Motor: Shaded pole motor EM25.

Motor above the pump housing.

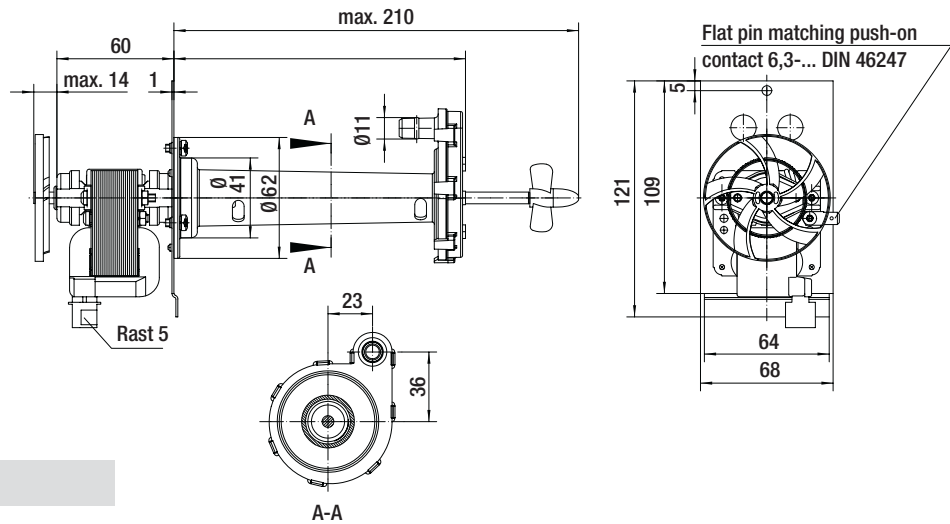
Special versions with longer pump shaft, other mounting plates etc. on request.

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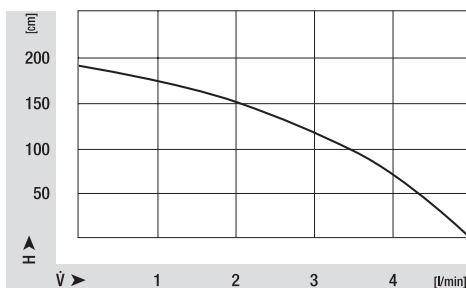
## Nominal data

type	rated voltage V	frequency Hz	power input W	rated current mA	flow rate (H 100cm) l/min	mode of operation S1	insulation class B	mass kg
<b>P4-2524</b>	230	50	27	220	1,2	S1	B	0,7

bold print = standard type; subject to alterations



## Characteristic curves



# Submersible circulation pumps

P5



Submersible circulation pumps P5 are drain pumps for the conveyance of low-viscosity liquids (water, condensate, alkalines etc.).

Typical applications are, e.g. in condense dryers, condensing boilers, air-conditioning units and tapping systems.

Motor: Shaded pole motor EM25.

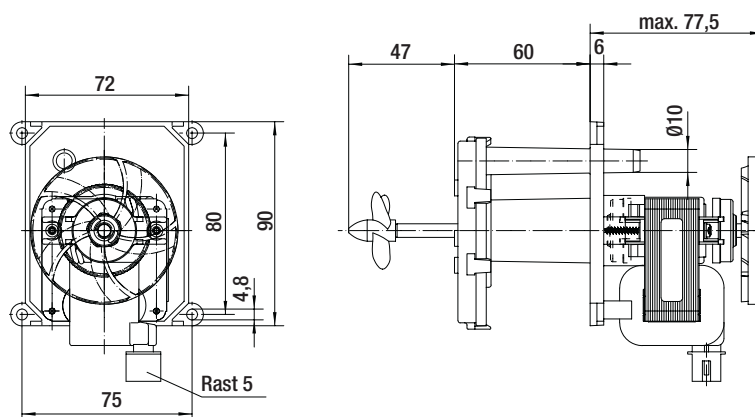
Motor above the pump housing.

Special versions with longer pump shaft, other mounting plates etc. on request.

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Nominal data	rated voltage	frequency	power input	rated current	flow rate (H 100cm)	mode of operation	insulation class	mass
type	V	Hz	W	mA	l/min			kg
<b>P5-2524</b>	230	50	24	200	2,0	S1	B	0,7

bold print = standard type; subject to alterations

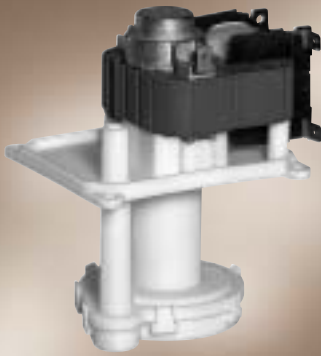


## Characteristic curves



# Submersible circulation pumps

## P5



Submersible circulation pumps P5 are drain pumps for the conveyance of low-viscosity liquids (water, condensate, alkalines etc.).

Typical applications are, e.g. in condense dryers, condensing boilers, air-conditioning units and tapping systems.

Motor: Shaded pole motor EM30.

Motor above the pump housing.

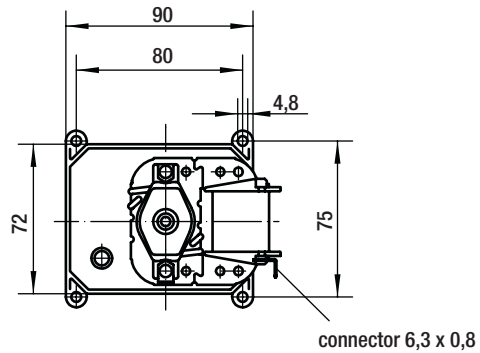
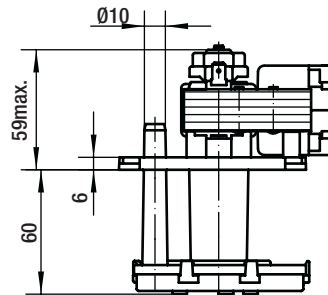
Special versions with longer pump shaft, other mounting plates etc. on request.

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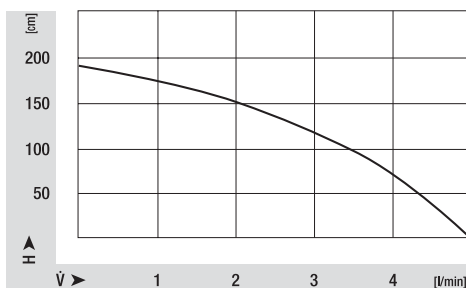
### Nominal data

type	rated voltage V	frequency Hz	power input W	rated current mA	flow rate (H 100cm) l/min	mode of operation S1	insulation class B	mass kg
<b>P5-3020</b>	230	50	22	190	3,5	S1	B	0,7

bold print = standard type; subject to alterations

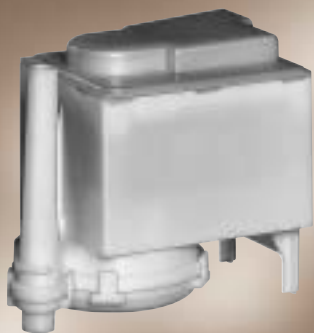


### Characteristic curves



# Submersible circulation pumps

P7



Submersible circulation pumps P7 are drain pumps for the conveyance of low-viscosity liquids (water, condensate, alkalines etc.).

Typical applications are, e.g. in condense dryers, condensing boilers, air-conditioning units.

Motor: Shaded pole motors EM2524.

Plastic-encapsulated coil.

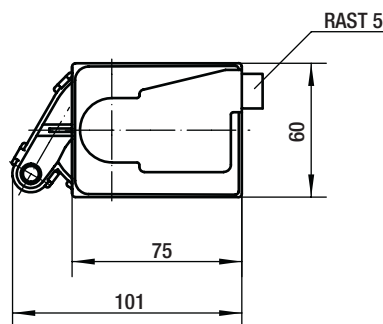
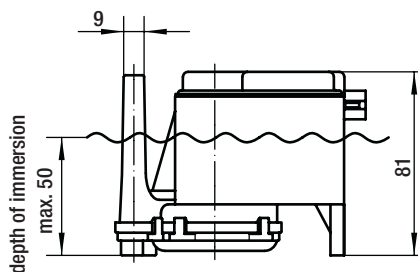
Connection Rast-5, 6.3 x 0.8 mm.

May be mounted directly in the condensate container.

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Nominal data	rated voltage	frequency	power input	rated current	flow rate (H 100cm)	mode of operation	insulation class	mass	mass
type	V	Hz	W	mA	l/min			kg	
<b>P7-2524</b>	230	50	25	210	3,2	S2	F	0,65	

bold print = standard type; subject to alterations



## Characteristic curves



# Submersible circulation pumps

## P30

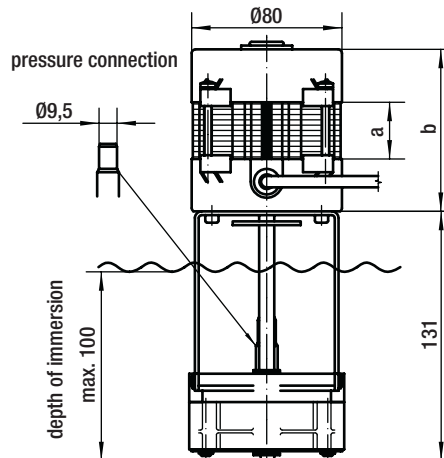
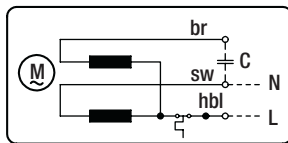
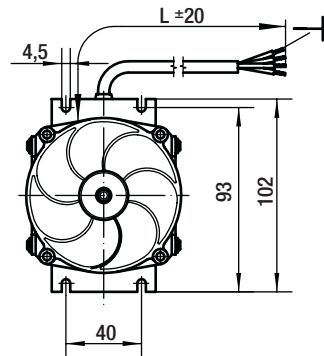


- immersion pump for low-viscosity liquids
- motor: capacitor motor KM43
- housing and impeller: ABS GV
- shaft: stainless steel 1.4305

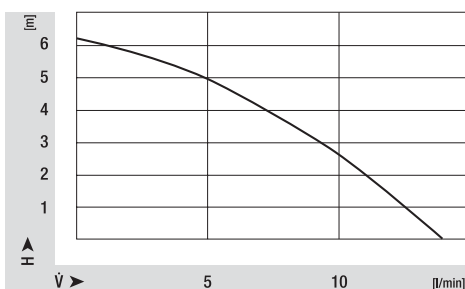
ebm-papst • Landshut

Nominal data	rated voltage	frequency	power input	rated current	capacitor (400V)	flow rate (H 100cm)	mode of operation	insulation class	mass	Dimensions mm		
	V	Hz	W	mA	$\mu\text{F}^*$	l/min			kg	a	b	L
<b>P30-4330</b>	230	50	48	210	1,5	12,5	S1	F	2,0	30	87	600

\*) not supplied by ebm-papst; bold print = standard type; subject to alterations



### Characteristic curves



# Submersible circulation pumps

## P2E 070 – with stirring propeller

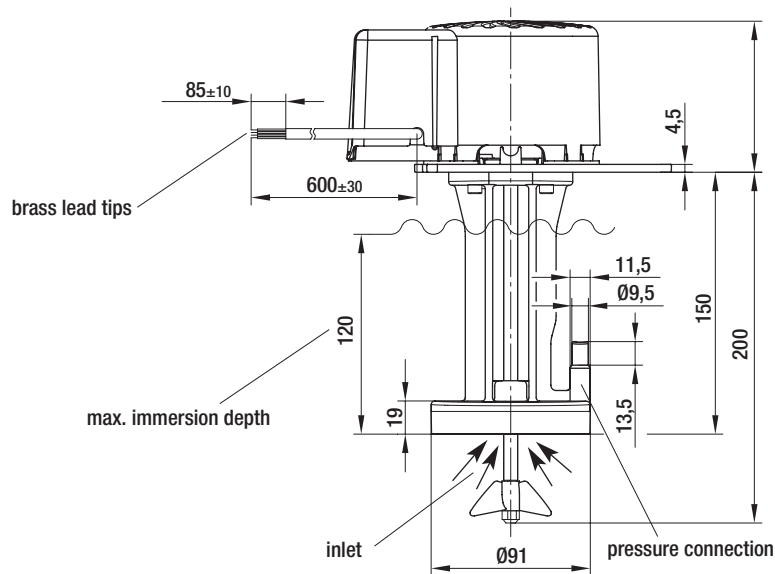


- for circulation or pumping of water or similar liquids
- pump housing, pump impeller, crosshead connecting and covers made of fibre-glass reinforced plastic, stirring propeller made of PE
- top mounted external-rotor motor, vacuum-encapsulated stator, varnished in black, protected against accidental contact underneath plastic cover and with shaft of stainless steel
- all screws in stainless steel
- capacitor integrated in plastic terminal box and wired up ready for plug-in
- mounting position: vertical
- insulation class B
- type of protection: IP44 when installed (final evaluation to be carried out in customer application)
- bearings: maintenance-free ball bearings
- connection leads: H0VV-F3G leads 0.75 in black, 600 mm
- approvals: CE, UL and CSA on request
- temp. of pumping medium 0 - 40 °C

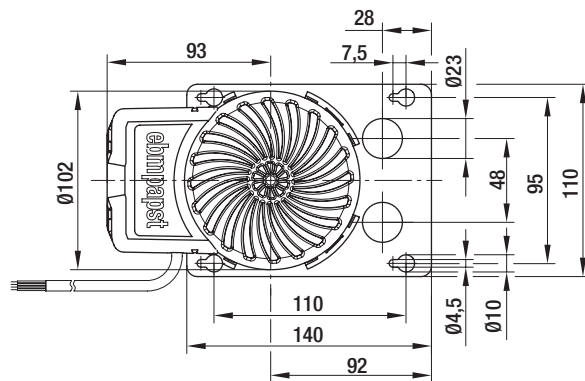
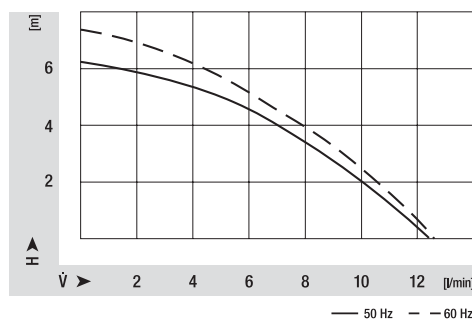
ebm-papst • Mulfingen

Nominal data	rated voltage	frequency	power input	current draw	flow rate (H 100cm)	speed	capacitor	max. delivery head	perm. amb. temp. motor	mass
type	V	Hz	W	mA	l/min	min <sup>-1</sup>	µF/VDB	m	°C	kg
<b>P2E 070 -AA26 -01</b>	230	50	66	290	11,1	2300	1,5/400	6,20	40	1,6
	230	60	83	370	11,6	2370	1,5/400	7,30	40	1,6

bold print = standard type; subject to alterations



### Characteristic curves



# Dosing pumps

P51

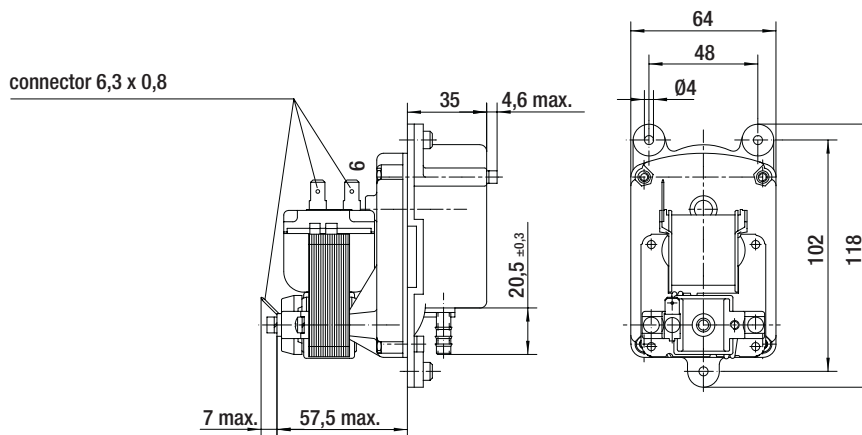


Dosing pump suitable for the media-separated fine dosing of highly viscous fluids, e.g. liquid detergents and fabric softeners, oil, paints and varnishes, disinfectants, chemicals.  
Tube: silicon

ebmpapst • Landshut

Nominal data	rated voltage	frequency	power input	rated current	flow rate	max. pressure	mode of operation	service life	insulation class	mass
type	V	Hz	W	mA	ml/min	bar		Std		kg
<b>P51-2518/Gtp22</b>	230	50	18	260	60	2,0	S2	500	B	0,7

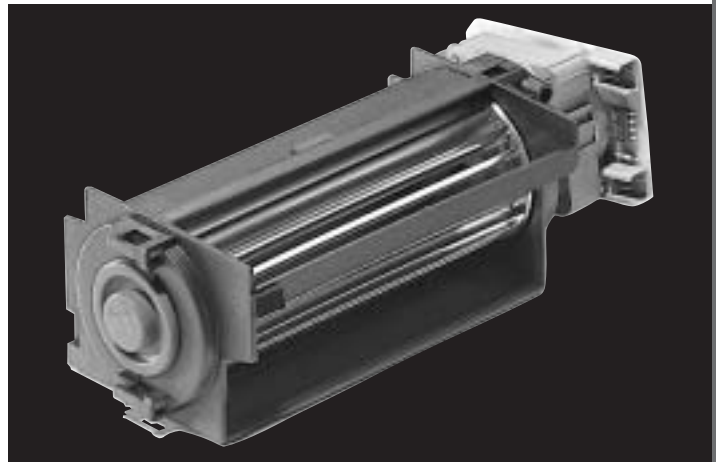
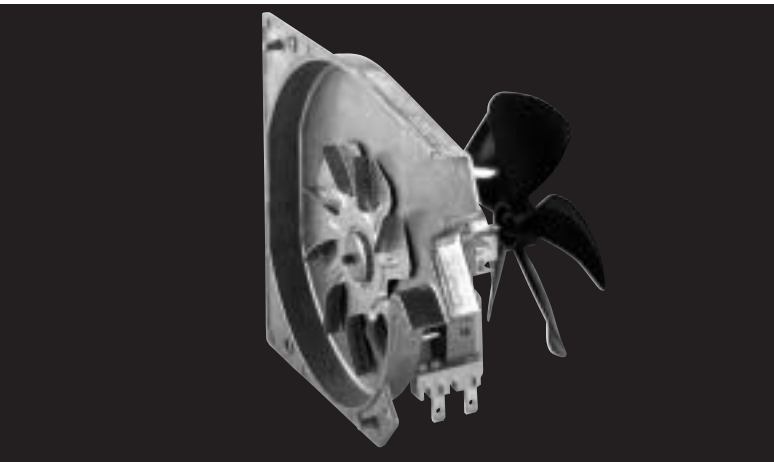
bold print = standard type; subject to alterations









# Customized products

For small to medium-scale serial production, motor and fan components can be modified to create a product tailored to a particular application. With motors, there is the option of different inductions, insulating systems, bearing systems, shaft dimensions, mounting configurations. Additional components like speedometer, brake, cooling blade can be added. Blowers can be adapted to special requirements on their scroll or impeller by applying special materials, balancing, coating, elastic motor suspension. Special components can be added on inlet or outlet side in order to meet the requirement of the individual application. With relevant demand, we gladly develop new products and complete solutions for your specific problems. Please contact us for further details.



-  fan agent
-  compact fan agent
-  motor specialist
-  motor agent

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