

max. 1220 m³/h

DC axial fans

Series 2200 FTD 220 x 200 x 51 mm



Highlights:

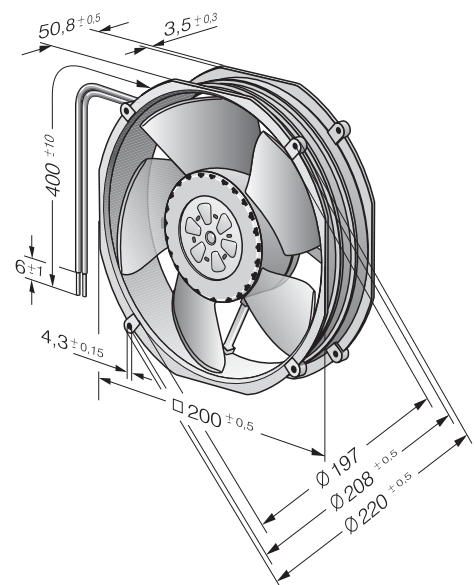
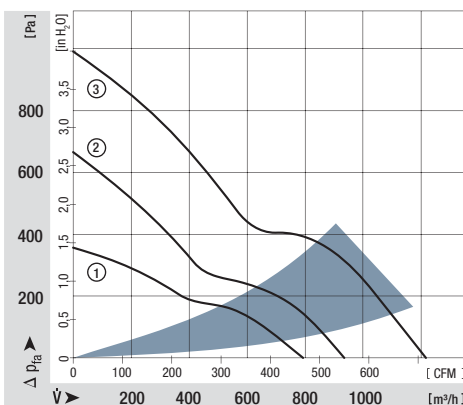
- High- performance 200 mm fan with compact overall height.
- Low operating noise level at high back pressure.
- 3-phase fan drive high degree of running smoothness and high efficiency.
- Standard with speed signal and PWM (P) or 0-10VDC / PWM (O) speed control.

General characteristics:

- Material: aluminium housing, fibreglass-reinforced PA impeller; housing with grounding lug for screw M4 x 8.
- Electronic commutation fully integrated.
- Protected against reverse polarity and locking.
- Connection via single strands AWG 20, UL 1007 / AWG 22, UL 1061, bared and tin-plated.
- Air exhaust over struts. Direction of rotation counter-clockwise, seen on rotor.
- Mass: 1000 g.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound pressure level	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C)	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	dB(A)	Bel(A)	□/■	Watts	RPM	°C	Hours	Hours	Hours		P. 110
NEW 2214 F/2TDHO		790	464,7	24	16...30	62	7,1	■	35,0	4250	-25...+75	90 000 / 42 500	180 000	180 000	1	/2
NEW 2214 F/2TDHHO		940	552,9	24	16...36	66	7,4	■	35,0	5000	-25...+70	85 000 / 42 500	170 000	170 000	2	/2
NEW 2218 F/2TDHO		790	464,7	48	36...57	62	7,1	■	48,0	4250	-25...+75	90 000 / 42 500	180 000	180 000	1	/2
NEW 2218 F/2TDHHO		940	552,9	48	36...72	66	7,4	■	48,0	5000	-25...+70	85 000 / 42 500	170 000	170 000	2	/2
NEW 2218 F/2TDH4P		1220	717,6	48	36...72	72	8,2	■	103,0	6500	-20...+65	70 000 / 40 000	140 000	140 000	3	/2

Speed control range from 1000 RPM up to maximum nominal speed. Stationary at 0 % PWM / 0 V,
Type O: stationary at sensor break; Type P: maximum speed at sensor break.



max. 1090 m³/h

DC axial fans

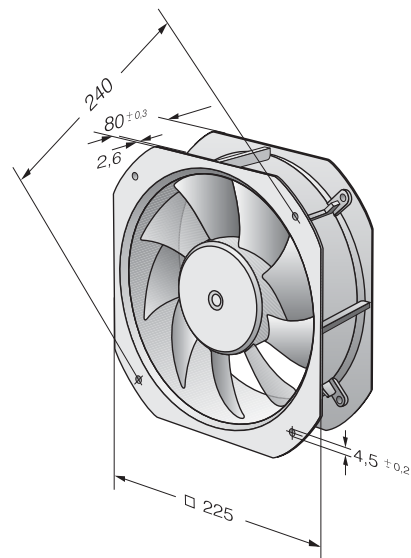
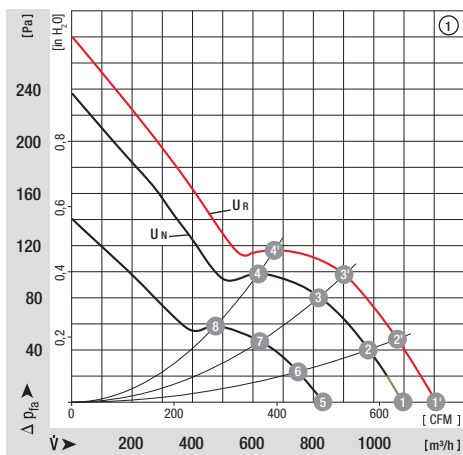
W1G 200 225 x 225 x 80 mm



- Material: Die-cast aluminium wall ring, 9 sheet steel blades. Blades and rotor coated in black.
- Protected against reverse polarity and locking.
- Direction of air flow: "V", exhaust over struts. Direction of rotation counter-clockwise, seen on rotor.
- Type of protection: IP 42. Insulation class: "B".
- Maintenance-free ball bearings.
- Control input 0-10 V DC / PWM and tach output.
- Electrical connection with terminal strip.
- Continuous operation (S1).
- Mass: 2.1 kg.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound pressure level	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Curve
Type		m ³ /h	CFM	VDC	VDC	dB(A)	Bel(A)	□ / ■	Watts	RPM	°C	Hours		
W1G 200-HH77-52		1090	641,6	24	16...28	60	—	■	55,0	2 950	-25...+60	57 000 / 42 000		1
W1G 200-HH01-52		1090	641,6	48	36...57	60	—	■	55,0	2 950	-25...+60	57 000 / 42 000		1

	n [RPM]	P ₁ [W]	Lp _A [dB(A)]
1	2300	73	63
2	2970	77	62
3	3100	80	63
4	2970	80	66
5	2950	55	60
6	2890	58	60
7	2800	61	61
8	2780	63	64
9	2270	27	55
10	2230	28	54
11	2170	29	54
12	2130	30	57



max. 1245 m³/h

DC diagonal module

K1G 200 225 x 225 x 80 mm



- Material: Housing made of fibreglass-reinforced PA6 plastic, seven blades made of fibre-glass-reinforced PA6 plastic. Rotor coated in black
- Protected against reverse polarity and locking.
- Direction of air flow "V". Direction of rotation CW, seen on rotor.
- Type of protection: IP 20 (... 02); IP 44 (... 04). Insulation class: "B".
- Maintenance-free ball bearings.
- Control input 0-10 VDC / PWM and tach output.
- Electrical connection via connection line AWG 20, 4x brass lead tips crimped.
- Continuous operation (S1).
- Mass: 1.7 kg.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Current draw	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Curve
Type		m ³ /h	CFM	VDC	VDC	A	dB(A)	□/■	Watts	RPM	°C	Hours		
NEW	K1G 200-AD65-04	1020	600,3	24	16...28	4,7	76	■	95	3 400	-25...+60	67 000 / 33 000		1
NEW	K1G 200-AD31-02	1045	614,9	24	16...28	5,3	77	■	107	3 520	-25...+70	100 000 / 50 000		2
NEW	K1G 200-AD49-04	1095	644,4	48	36...57	3,4	77	■	120	3 650	-25...+60	80 000 / 32 000		3
NEW	K1G 200-AD37-02	1245	732,7	48	36...57	5,6	81	■	183	4 140	-25...+70	75 000 / 30 000		4

n [RPM]	P ₁ [W]	I [A]	Lw _A [dB(A)]
3400	95	4,70	76
3410	116	5,61	74
3410	119	5,75	74
3410	117	5,62	76
3520	107	5,30	77
3520	127	6,24	75
3520	129	6,31	76
3520	126	6,18	76
3650	120	3,40	77
3650	141	3,90	75
3650	145	3,99	76
3650	141	3,88	78
4140	183	5,60	81
4090	212	6,46	79
4060	213	6,52	79
4110	211	6,43	80

Air performance measured as per: ISO 5801, Installation category A, without protection against accidental contact

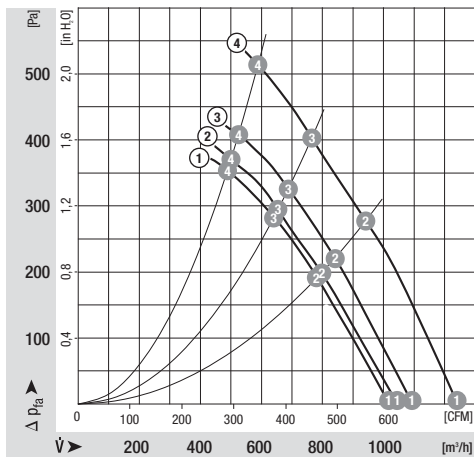
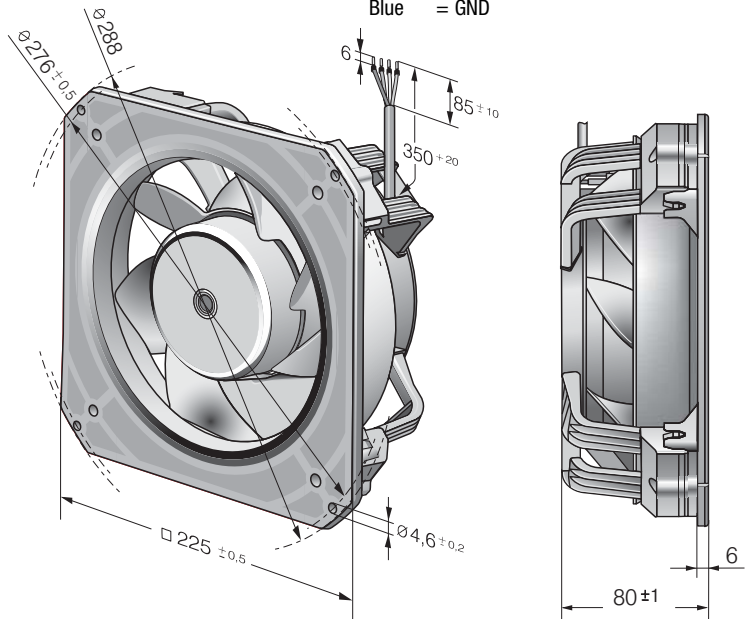
Suction-side noise levels: Lw_A as per ISO 13347

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

Cable assignment:

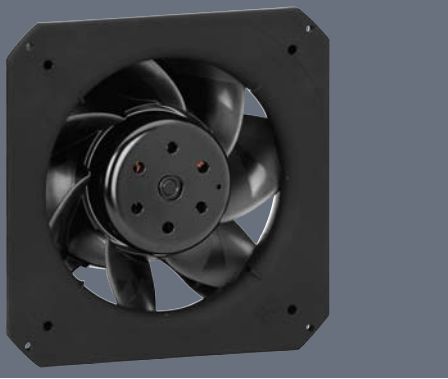
- Red = UN
- Yellow = 0-10 VDC
- White = Speed monitoring output
- Blue = GND



max. 1640 m³/h

DC diagonal module

K3G 200 225 x 225 x 89 mm



- Material: Housing made of fibreglass-reinforced PA6 plastic, seven blades made of fibre-glass-reinforced PA6 plastic. Rotor coated in black
- Protected against reverse polarity and locking.
- Direction of air flow "V". Direction of rotation CW, seen on rotor.
- Type of protection: IP 20 (... 02); IP 44 (... 04). Insulation class: "B".
- Maintenance-free ball bearings.
- Control input 0-10 VDC / PWM and tach output.
- Electrical connection via connection line AWG 16, 4x crimped core-end sleeves.
- Continuous operation (S1).
- Mass: 2.2 kg.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Current draw	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Curve
Type		m ³ /h	CFM	VDC	VDC	A	dB(A)	□/■	Watts	RPM	°C	Hours		
NEW	K3G 200-BDA3-04	1215	716,0	24	16...28	7,7	81	■	185	4 060	-25...+60	55 000 / 31 000		1
NEW	K3G 200-BDA1-02	1215	716,0	24	16...28	7,7	81	■	185	4 060	-25...+65	60 000 / 32 000		1
NEW	K3G 200-BDA4-04	1550	911,0	48	36...57	7,1	86	■	339	5 140	-25...+60	52 000 / 32 000		2
NEW	K3G 200-BDA2-02	1640	965,0	48	36...57	8,7	87	■	418	5 480	-25...+60	40 000 / 22 000		3

n [RPM]	P ₁ [W]	I [A]	Lw _A [dB(A)]
4060	185	7,70	81
4010	204	8,48	78
4010	209	8,70	78
4020	208	8,66	79
5140	339	7,10	86
5070	373	7,78	83
5060	385	8,01	83
5080	380	7,91	84
5480	418	8,70	87
5250	421	8,77	84
5190	422	8,78	83
5240	421	8,77	85

Air performance measured as per: ISO 5801, Installation category A, without protection against accidental contact

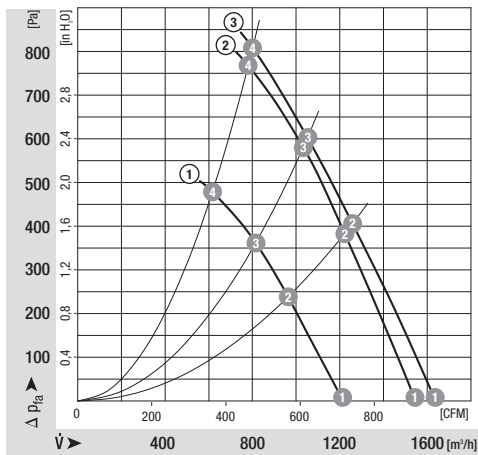
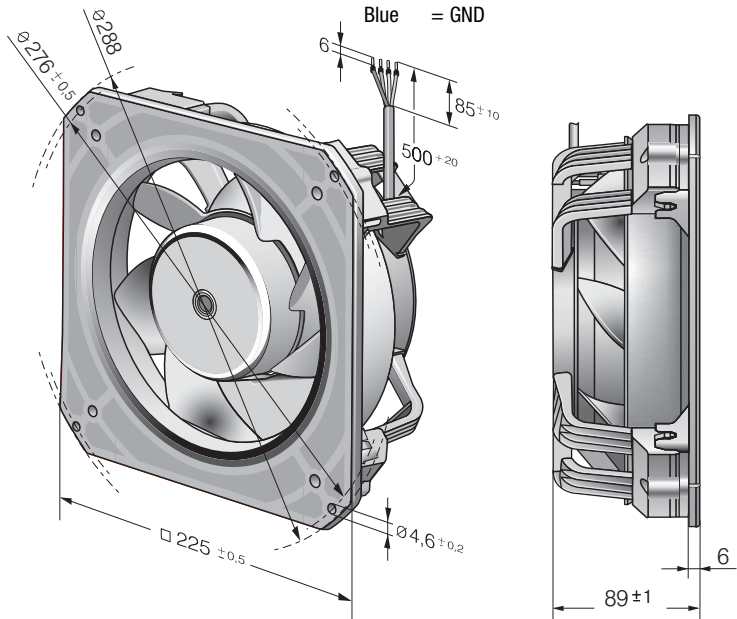
Suction-side noise levels: Lw_A as per ISO 13347

The acoustic values given are only valid under the measurement conditions listed and may vary depending on the installation situation.

With any deviation to the standard setup, the specific values have to be checked and reviewed once installed or fitted!

Cable assignment:

- Red = UN
- Yellow = 0-10 VDC
- White = Speed monitoring output
- Blue = GND



max. 1920 m³/h

DC axial fans

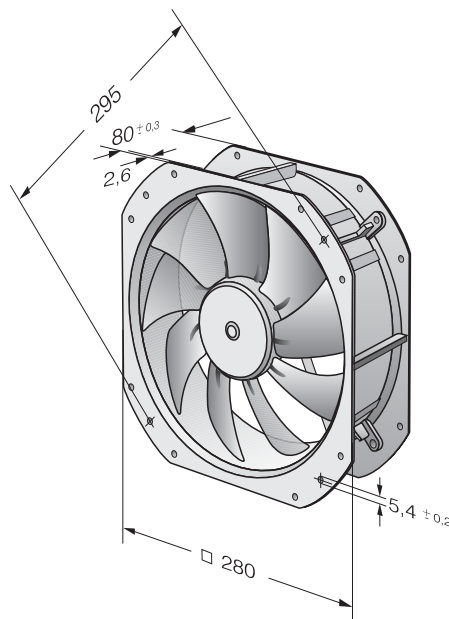
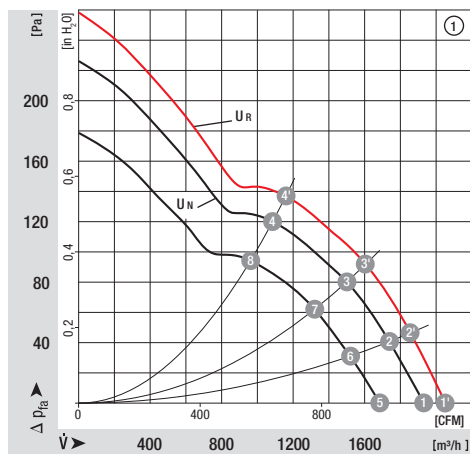
W1G 250 280 x 280 x 80 mm



- Material: Die-cast aluminium wall ring, 7 sheet steel blades. Blades and rotor coated in black.
- Protected against reverse polarity and locking.
- Direction of air flow: "V", exhaust over struts. Direction of rotation counter-clockwise, seen on rotor.
- Type of protection: IP 42. Insulation class: "B".
- Maintenance-free ball bearings.
- Control input 0-10 V DC / PWM and tach output.
- Electrical connection with terminal strip.
- Continuous operation (S1).
- Mass: 2.4 kg.

Nominal data	Air flow		Nominal voltage	Voltage range	Sound pressure level	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T max) ebm-papst Standard	Curve
	m ³ /h	CFM											
W1G 250-HH37-52	1920	1130,1	24	16...28	70	—	■	105,0	2 750	-25...+60	57 000 / 38 000		1
W1G 250-HH67-52	1920	1130,1	48	36...57	70	—	■	105,0	2 750	-25...+60	57 000 / 38 000		1

	n [RPM]	P ₁ [W]	LpA [dB(A)]
1	2920	129	71
2	2800	132	72
3	2680	135	71
4	2600	139	72
5	2750	105	70
6	2630	110	69
7	2520	111	69
8	2440	114	70
9	2610	73	66
10	2320	75	67
11	2230	78	67
12	2170	80	68



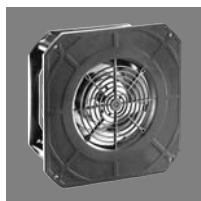
DC centrifugal fans

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DC fans

Technical information



Product line

Our centrifugal product line includes fans for every application. Whether as free-running impellers with a diameter between 97 mm and 225 mm or as assemblies in a ready-to-install, compact housing with inlet nozzle with an edge length between 51 mm and 270 mm. Of course, all models feature high-efficiency, brushless motor technology.



Electronic protection against reverse polarity

ebm-papst DC fans have electronically commutated drives with electronic protection against reverse polarity. The electronics are conveniently located in the fan hub.

Product life expectancy

A distinctive feature of DC fan technology is the convincingly high product life expectancy. Thanks to the excellent efficiency of the brushless drives, the thermal load of the bearings is reduced, thus considerably increasing the life expectancy of the fans.

Protection class

DC fans with sleeve and ball bearings are powered by Class E insulated motors. All ebm-papst fans conform to the requirements of Protection Class IP 20. Fans conforming to IP 54 and special protection classes are also available.

Voltage range

Many of our DC fans can be operated on voltages that are up to 50% lower and 25% higher than their nominal voltage (see Voltage range in the technical tables). This enables the air performance to be adapted to the cooling requirements and allows the noise to be reduced, even if the fan does not have a control input.

Closed-loop speed control and monitoring

Closed-loop speed control and function monitoring are becoming increasingly important in many applications. ebm-papst offers many fans in the standard design with a control input and open collector speed signal.

S-Force centrifugal – RadiCal

The new S-Force centrifugal fans provide peak performance among fans of this type. With air flow capacity at over 1500 m³/h and a pressure build-up of up to 1000 pascals, the highest heat flows are manageable. In addition, the models are extremely efficient due to the multi-pole, electronically commutated drive motors and can be adapted individually to every application thanks to intelligent motor features. Some models use our new, highly efficient RadiCal impellers.

Centrifugal fans for DC operation

Overview of air performance

Dimensions	Series	Air flow	Air flow performance (m³/h)																			Page					
			10	20	30	40	50	60	70	80	90	100	200	300	400	500	600	700	800	900	1000		2000	3000			
mm		m³/h																									
105 x 59 x 79	RV 40	18...24																									79
□ 51 x 15	RLF 35	9,6																									80
□ 76 x 27	RL 48	22...28																									81
97 x 93,5 x 33	RL 65	56...61																									82
□ 121 x 37	RL 90 N	40...55																									83
□ 127 x 25	RLF 100	64...80																									84
□ 135 x 38	RG 90 N	55																									85
□ 180 x 40	RG 125 N	60...137																									86
□ 220 x 56	RG 160 N	139...209																									87
□ 220 x 56	RG 160 NTD	59...370	NEW																								88
□ 225 x 85	RG 190 TD	630...930	NEW																								89
□ 270 x 99	RG 220 TD	1090...1280	NEW																								90
□ 270 x 119	RG 225 TD	1040...1210	NEW																								91
∅ 97 x 41	RET 97 TD	220	NEW																								92
∅ 104 x 25	REF 100	86...104																									93
∅ 101 x 52	RER 101	190																									94
∅ 120 x 54	RER 120 TD	320...390	NEW																								95
∅ 138 x 35	RER 125 N	74...166																									96
∅ 133 x 91	RER 133 TD	460...565	NEW																								97
∅ 165 x 51	RER 160 N	255																									98
∅ 165 x 51	RER 160 NTD	66...354	NEW																								99
∅ 175 x 55	REF 175 TD	800	NEW																								100
∅ 175 x 69	RER 175 TD	600...980	NEW																								101
∅ 190 x 69	RER 190 TD	650...970	NEW																								102
∅ 220 x 71	RER 220 TD	1090...1280	NEW																								103
∅ 225 x 99	RER 225 TD	1080...1600	NEW																								104
201...413 x 50 x 48	QG 030	75...155																									105



Centrifugal fans for DC operation

Overview of technically feasible designs

Centrifugal fans		OPTIONAL										P.				
Series	mm	Dimensions	VDE, UL, CSA	Sinter sleeve bearings/hall bearings	Sensor	Go / No-go alarm	Alarm with limit speed	External temperature sensor	Internal temperature sensor	PMW control input	Analogue control input	Multi-option control input	Humidity protection	IP >= IP54	Salt spray fog protection	Page
RV 40	105 x 59 x 79	yes	■	–	•	–	–	–	–	–	–	–	•	–	–	79
RLF 35	51 x 51 x 15	*	■	•	–	–	–	–	–	–	–	–	•	–	–	80
RL 48	76 x 76 x 27	yes	■	•	•	–	–	–	–	–	–	–	•	–	–	81
RL 65	97 x 93,5 x 33	*	■	•	•	•	•	•	•	•	•	–	•	–	–	82
RL 90 N	121 x 121 x 37	yes	□/■	•	•	•	•	•	•	•	•	–	•	•	•	83
RLF 100	127 x 127 x 25	yes	■	•	•	•	•	•	•	•	•	–	•	•	–	84
RG 90 N	135 x 135 x 38	yes	□/■	•	•	•	•	•	•	•	•	–	•	•	•	85
RG 125 N	180 x 180 x 40	yes	■	•	•	•	•	•	•	•	•	–	•	•	•	86
RG 160 N	220 x 220 x 56	yes	■	•	•	•	•	•	•	•	•	–	•	•	•	87
NEW RG 160 NTD	220 x 220 x 56	yes	■	•	•	•	•	•	•	•	•	–	•	•	•	88
NEW RG 190 TD	225 x 225 x 85	yes	■	•	•	•	•	•	•	•	•	–	•	•	•	89
NEW RG 220 TD	270 x 270 x 99	yes	■	•	•	•	•	•	•	•	•	–	•	•	–	90
NEW RG 225 TD	270 x 270 x 132	yes	■	•	•	•	•	•	•	•	•	–	•	•	–	91
NEW RET 97 TD	97 Ø x 41	*	■	•	•	•	•	•	•	•	•	–	•	–	–	92
REF 100	100 Ø x 25	yes	■	•	•	•	•	•	•	•	•	–	•	•	–	93
RER 101	101 Ø x 52	*	■	•	•	•	•	•	•	•	•	–	•	–	–	94
NEW RER 120 TD	120 Ø x 54	*	■	•	•	•	•	•	•	•	•	–	•	–	–	95
RER 125 N	138 Ø x 35	yes	■	•	•	•	•	•	•	•	•	–	•	–	–	96
NEW RER 133 TD	133 Ø x 91	*	■	•	•	•	•	•	•	•	•	–	•	–	–	97
RER 160 N	165 Ø x 51	yes	■	•	•	•	•	•	•	•	•	–	•	•	•	98
NEW RER 160 NTD	165 Ø x 51	yes	■	•	•	•	•	•	•	•	•	–	•	•	•	99
NEW REF 175 TD	175 Ø x 55	*	■	•	•	•	•	•	•	•	•	–	•	–	–	100
NEW RER 175 TD	175 Ø x 69	*	■	•	•	•	•	•	•	•	•	–	•	•	•	101
NEW RER 190 TD	190 Ø x 69	*	■	•	•	•	•	•	•	•	•	–	•	•	•	102
NEW RER 220 TD	220 Ø x 71	*	■	•	•	•	•	•	•	•	•	–	•	–	–	103
NEW RER 225 TD	225 Ø x 99	*	■	•	•	•	•	•	•	•	•	–	•	–	–	104
QG 030	201...413 x 50 x 48	yes	■	•	–	–	–	–	–	–	–	–	•	–	–	105

* approvals applied for
 – not yet available
 • available
 □ Sleeve Bearings
 ■ Ball Bearings

Please note that these special versions are not possible for all voltages and speeds, and not in all combinations. The special versions are designed for specific customers and projects. As a rule they are not available off the shelf and are tied to minimum volumes. Please consult your customer support representative about the feasibility of your special variant.

Optional special versions / Information pictograms (see page 20)

On the catalogue pages and in the overview on page 20, the pictograms shown provide information about the special designs that are technically feasible in the fan series. Please note that these special versions are not possible for all voltages and speeds, and not in all combinations.

The special versions are designed for specific customers and projects and are not usually available off the shelf.

max. 24 m³/h

DC centrifugal fans

Series RV 40 105 x 59 x 79 mm



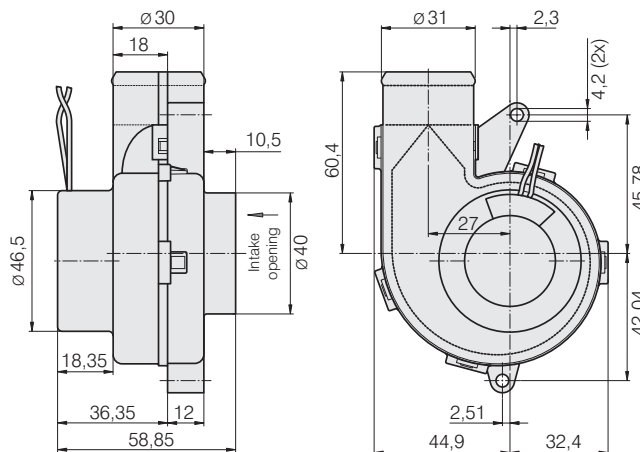
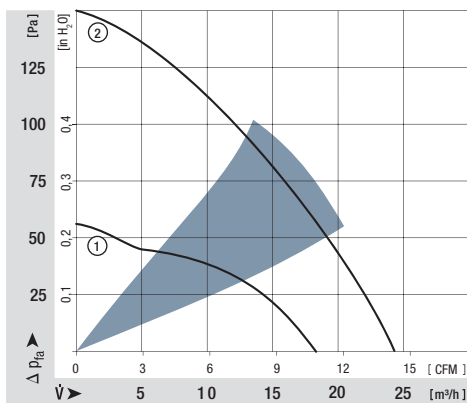
Highlights:

- Pressure-optimised blower.
- Motor with very low structure-borne noise properties.
- Forward curved impeller.

General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 26, TR 64. Bared and tin-plated.
- Mass: 100 g.

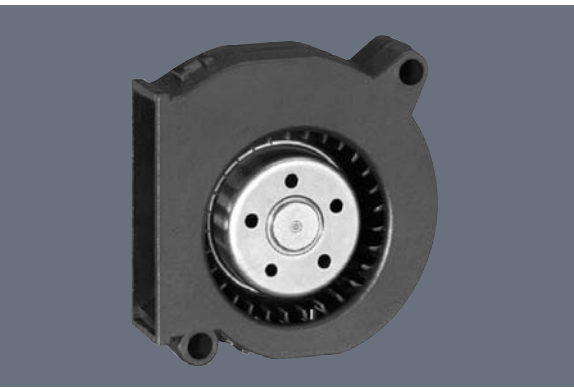
Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ ^Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
RV 40-18/12 L	18	10,6	12	9...16	4,0	■	2,0	3 900	-20...+70	70 000 / 35 000	110 000	1		
RV 40-18/12 H	24	14,1	12	9...16	5,0	■	4,5	4 800	-20...+70	50 000 / 25 000	80 000	2		



max. 9,6 m³/h

DC centrifugal fans

Series RLF 35 51 x 51 x 15 mm



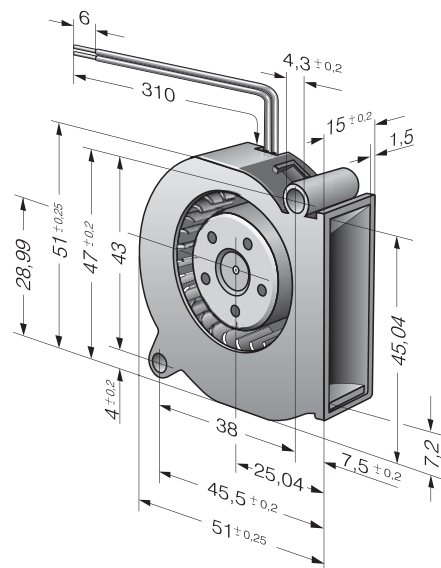
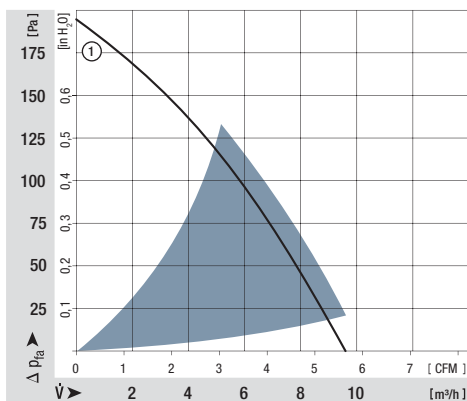
Highlights:

- Noise-optimised air outlet in scroll housing.
- Very flat and powerful centrifugal fan.
- Forward curved impeller.

General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 26, TR 64. Bared and tin-plated.
- Mass: 40 g.

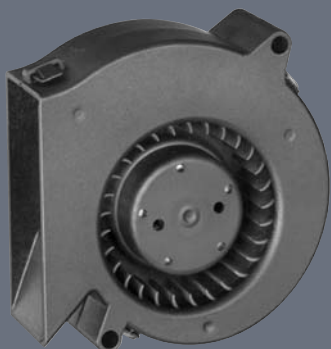
Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
RLF 35-8/12 N	9,6	5,7	12	8...13,2	5,5	■	3,5	6 700	-20...+70	60 000 / 30 000	120 000	1		
RLF 35-8/14 N	9,6	5,7	24	14...28	5,5	■	4,3	6 700	-20...+70	60 000 / 30 000	120 000	1		



max. 28 m³/h

DC centrifugal fans

Series RL 48 76 x 76 x 27 mm



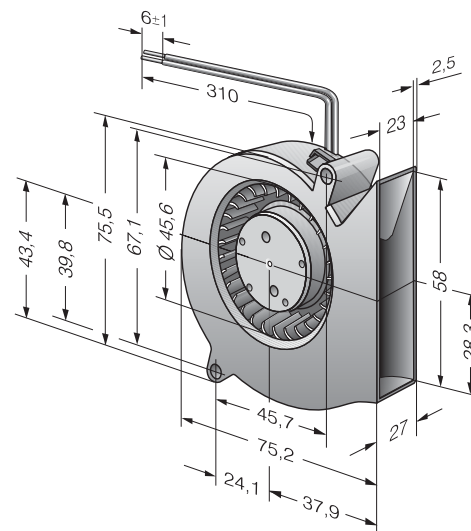
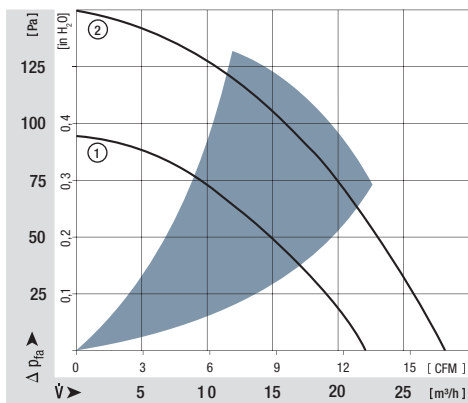
Highlights:

- Pressure-optimised blower.
- Noise-optimised air outlet in scroll housing.
- Forward curved impeller.

General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 26, TR 64. Bared and tin-plated.
- Mass: 75 g.

Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst-Standard	Service life L ₁₀ (T _{max}) ebm-papst-Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
	Type	m ³ /h												
RL 48-19/12 ML	22	12,9	12	8...15	5,3	■	2,9	3 500	-20...+70	70 000 / 35 000	140 000	1		
RL 48-19/12	28	16,5	12	8...13,5	5,7	■	5,0	4 400	-20...+70	60 000 / 30 000	120 000	2	/2	
RL 48-19/14 ML	22	12,9	24	18...28	5,3	■	2,9	3 500	-20...+70	70 000 / 35 000	140 000	1		
RL 48-19/14	28	16,5	24	18...26,4	5,7	■	5,0	4 400	-20...+70	60 000 / 30 000	120 000	2	/2	



Information
DC axial fans
DC centrifugal fans
DC fans - specials
ACmaxx / GreenTech EC-compact fans
AC axial fans
AC centrifugal fans
Accessories
Representatives

max. 61 m³/h

DC centrifugal fans

Series RL 65 97 x 93,5 x 33 mm



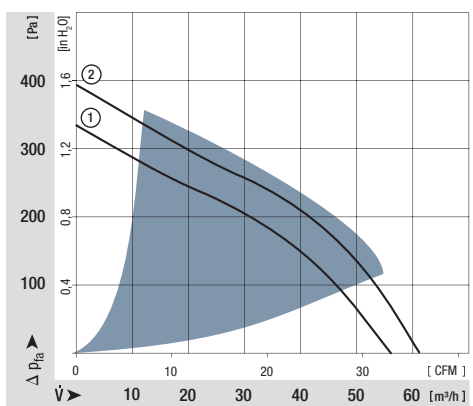
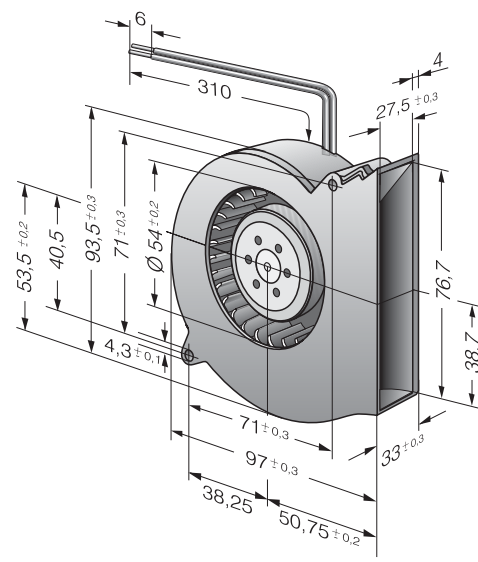
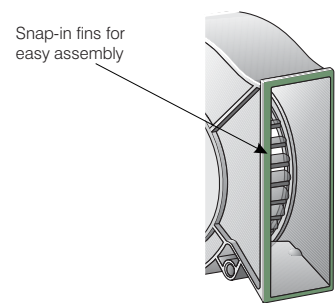
Highlights:

- Optional Vario-Pro: Highly adaptable software configuration of the fan enables a tailor-made solution to the specific requirements of your applications.
- Pressure-optimised blower. Noise-optimised air outlet in scroll housing.
- Forward curved impeller.
- Integrated snap-in fins for easy assembly.

General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 26, TR 64. Bared and tin-plated.
- Mass: 170 g.

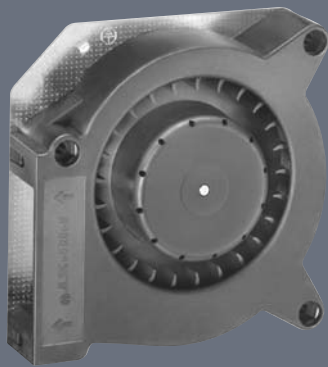
Nominal data	Air flow		Nominal voltage	Voltage range		Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM		VDC	VDC										
RL 65-21/12	56	33,0	12	6,8...13,8	6,6	■	15,0	4 500	-20...+70	60 000 / 30 000	120 000	1	/2		
RL 65-21/12H	61	35,9	12	6,8...13,2	6,8	■	19,2	4 900	-20...+55	55 000 / 37 500	105 000	2			
RL 65-21/14	56	33,0	24	12...26,4	6,6	■	14,0	4 500	-20...+70	60 000 / 30 000	120 000	1			
RL 65-21/14H	61	35,9	24	12...26,4	6,8	■	18,0	4 900	-20...+60	55 000 / 35 000	105 000	2			



max. 55 m³/h

DC centrifugal fans

Series RL 90 N 121 x 121 x 37 mm



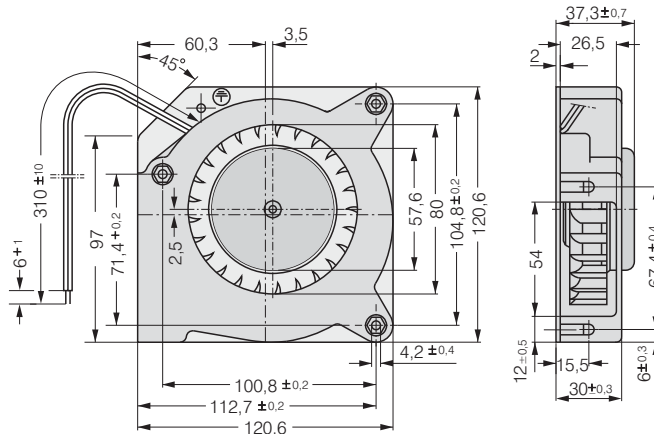
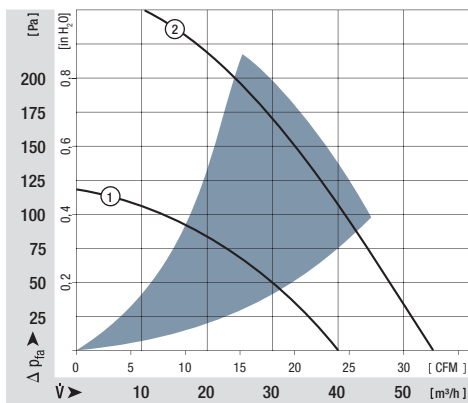
Highlights:

- Optional Vario-Pro: Highly adaptable software configuration of the fan enables a tailor-made solution to the specific requirements of your applications.
- Forward curved impeller.

General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller; Housing base of steel plate.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Mass: 420 g.

Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ ^Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
RL 90-18/12 N	40	23,5	12	7...15	5,8	■	5,5	2 500	-30...+75	62 500 / 27 500	112 500	1	/2	
RL 90-18/14 NG	40	23,5	24	12...28	5,8	□	5,0	2 500	-10...+75	62 500 / 27 500	112 500	1		
RL 90-18/14 N	40	23,5	24	12...28	5,8	■	5,0	2 500	-30...+75	62 500 / 27 500	112 500	1	/2	
RL 90-18/18 NH	55	32,4	48	40...53	6,9	■	15,0	3 500	-30...+55	32 500 / 22 500	62 500	2		

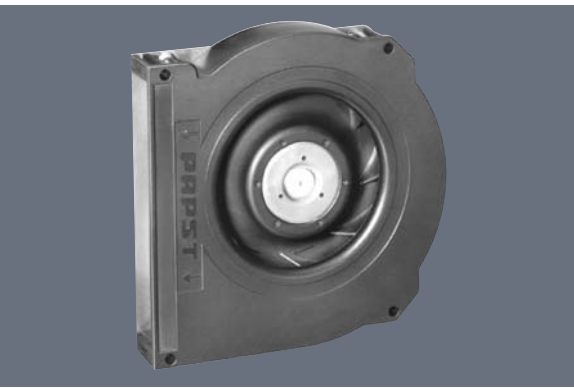


Screw clip M4 or 8-32UNC. Screw-in depth max. 12.5 min. 9.0

max. 80 m³/h

DC centrifugal fans

Series RLF 100 127 x 127 x 25 mm



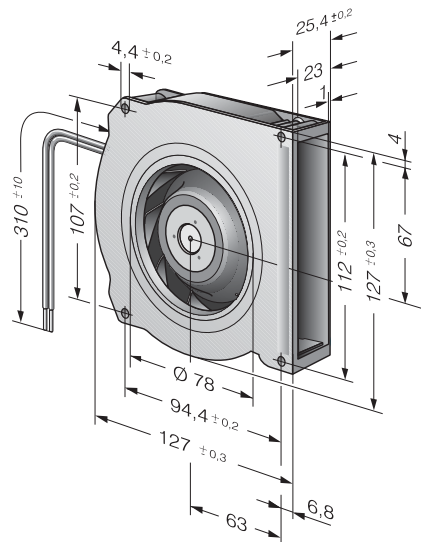
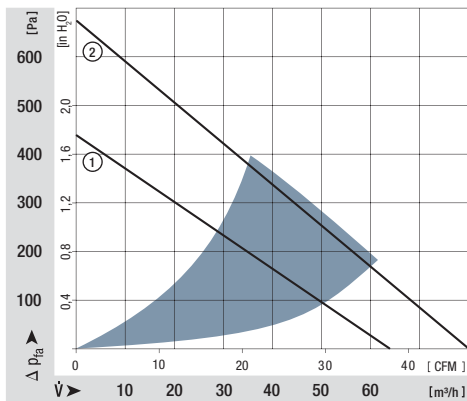
Highlights:

- Very flat and powerful centrifugal fan. Pressure-optimised blower.
- Optional Vario-Pro: Highly adaptable software configuration of the fan enables a tailor-made solution to the specific requirements of your applications.
- Some models available as standard with PWM control input and speed signal.
- Backward curved impeller.

General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller. Housing base of galvanised steel plate.
- Fully integrated electronic commutation. Protected against reverse polarity and locking.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Mass: 320 g.

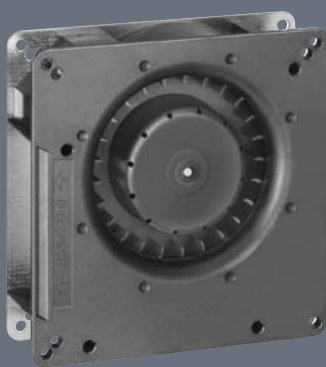
Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
RLF 100-11/12	64	37,7	12	8...15	6,4	■	8,0	5 100	-20...+75	80 000 / 30 000	150 000	1	/2	
RLF 100-11/14	64	37,7	24	16...30	6,4	■	8,0	5 100	-20...+75	80 000 / 30 000	150 000	1	/19	
RLF 100-11/18	64	37,7	48	36...60	6,4	■	8,6	5 100	-20...+75	80 000 / 30 000	150 000	1		
High speed models with Open Collector Tacho and PWM speed control.														
RLF 100-11/12/2HP-200	80	47,1	12	10...13,2	7,5	■	18,6	6 400	-20...+60	72 500 / 45 000	112 500	2	/2	
RLF 100-11/18/2HP-182	80	47,1	48	43...53	7,5	■	17,0	6 400	-20...+70	72 500 / 35 000	112 500	2	/2	



max. 55 m³/h

DC centrifugal fans

Series RG 90 N 135 x 135 x 38 mm



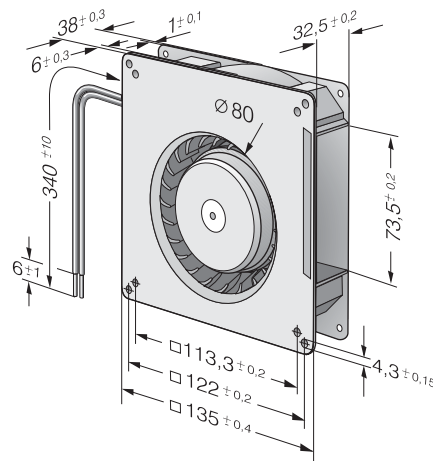
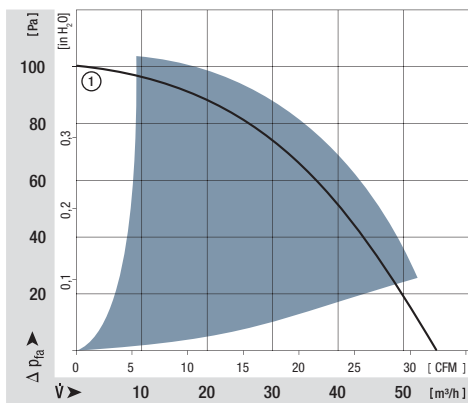
Highlights:

- Optional Vario-Pro: Highly adaptable software configuration of the fan enables a tailor-made solution to the specific requirements of your applications.
- Backward curved impeller.

General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller; Housing base of steel plate.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- 48 V Model: Flat plug 6.3 x 0.8 mm for protective earth.
- Mass: 440 g.

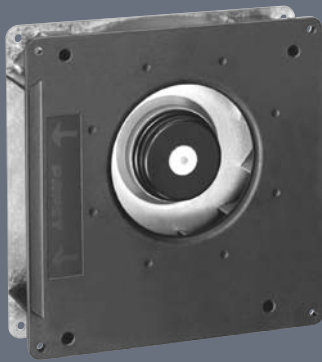
Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
RG 90-18/12 N	55	32,4	12	7...15	5,5	■	6,0	2 200	-30...+75	62 500 / 27 500	112 500	1		
RG 90-18/14 NG	55	32,4	24	12...28	5,5	□	5,5	2 200	-10...+75	62 500 / 27 500	112 500	1		
RG 90-18/14 N	55	32,4	24	12...28	5,5	■	5,5	2 200	-30...+75	62 500 / 27 500	112 500	1		
RG 90-18/18 N	55	32,4	48	36...56	5,5	■	5,5	2 200	-30...+75	62 500 / 27 500	112 500	1		



max. 137 m³/h

DC centrifugal fans

Series RG 125 N 180 x 180 x 40 mm



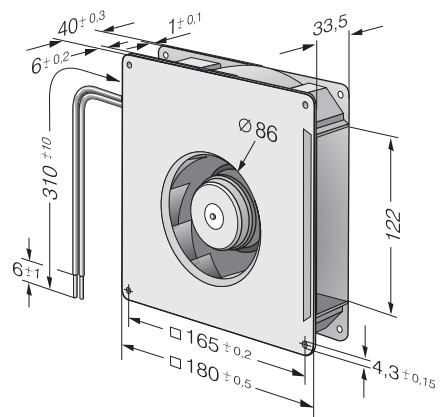
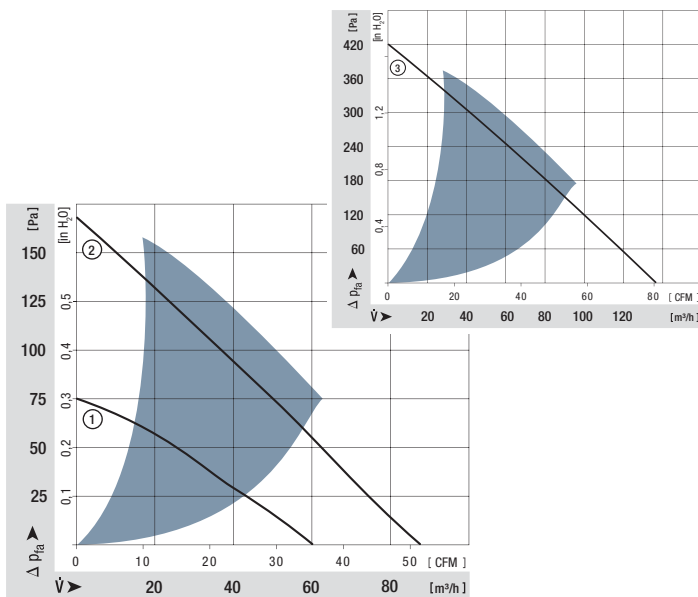
Highlights:

- Optional Vario-Pro: Highly adaptable software configuration of the fan enables a tailor-made solution to the specific requirements of your applications.
- Backward curved impeller.

General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller; Housing base of steel plate.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- 48 V Model: Flat plug 6.3 x 0.8 mm for protective earth.
- Mass: 730 g.

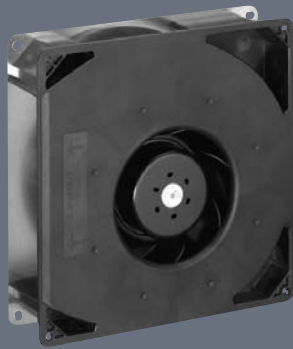
Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
RG 125-19/12 NM	60,0	35,3	12	7...15	4,8	■	2,0	1 750	-30...+75	70 000 / 30 000	135 000	1		
RG 125-19/12 N	87,5	51,5	12	7...15	5,8	■	5,0	2 550	-30...+75	62 500 / 27 500	125 000	2	/2/12	
RG 125-19/14 NM	60,0	35,3	24	12...28	4,8	■	2,0	1 750	-30...+75	70 000 / 30 000	135 000	1		
RG 125-19/14 N	87,5	51,5	24	12...28	5,8	■	5,0	2 550	-30...+75	62 500 / 27 500	125 000	2	/2	
RG 125-19/18 N	87,5	51,5	48	36...56	5,8	■	5,0	2 550	-30...+75	62 500 / 27 500	125 000	2		
RG 125-19/18 NH	137	80,6	48	36...56	7,0	■	19,0	4 000	-20...+70	55 000 / 27 500	110 000	3		



max. 209 m³/h

DC centrifugal fans

Series RG 160 N 220 x 220 x 56 mm



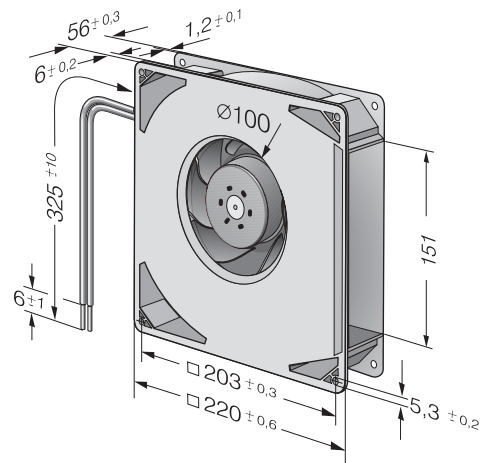
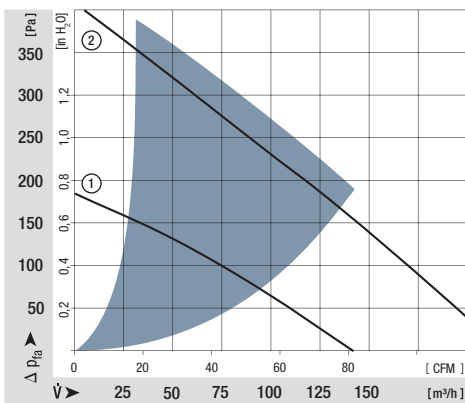
Highlights:

- Optional Vario-Pro: Highly adaptable software configuration of the fan enables a tailor-made solution to the specific requirements of your applications.
- Backward curved impeller.

General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller; Housing base of steel plate.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- 48 V Model: Flat plug 6.3 x 0.8 mm for protective earth.
- Mass: 1.4 kg.

Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
RG 160-28/12 NM	139	81,1	12	7...14	5,6	■	7,5	1 900	-20...+70	80 000 / 40 000	160 000	1		
RG 160-28/12 N	209	123,0	12	7,5...14	6,6	■	21,0	2 850	-20...+70	70 000 / 35 000	140 000	2	/12	
RG 160-28/14 NM	139	81,1	24	12...28	5,6	■	7,0	1 900	-20...+70	80 000 / 40 000	120 000	1		
RG 160-28/14 N	209	123,0	24	12...28	6,6	■	20,0	2 850	-20...+70	70 000 / 35 000	120 000	2		
RG 160-28/18 N	209	123,0	48	28...60	6,6	■	20,0	2 850	-20...+70	70 000 / 35 000	120 000	2	/12	



max. 444 m³/h

DC centrifugal fans

Series RG 160 NTD 220 x 220 x 56 mm



Highlights:

- Control inputs, alarm and speed signals available on request.
- 3-phase fan drive with high degree of running smoothness.
- Very high pressure build-up.
- Backward curved impeller.

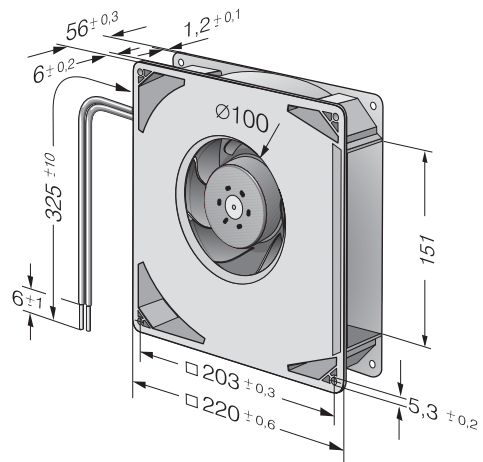
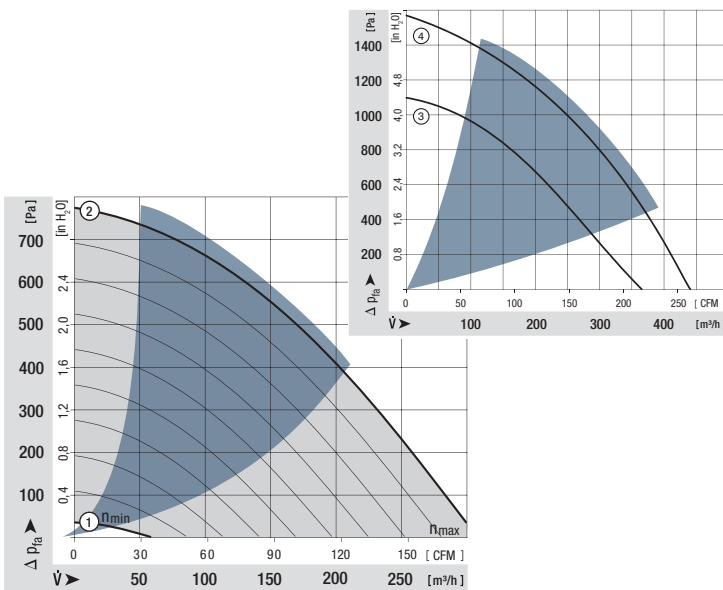
General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller; Housing base of sheet steel.
- Fully integrated electronic commutation.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- 48 V Model: Flat plug 6.3 x 0.8 mm for protective earth.
- Mass: 1.4 kg.

Nominal data		Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ ^Δ (40 °C) see P. 15	Curve	Specials
Type	m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours	Hours	P.		
min. max.	RG 160-28/14 NTD...	59	16,4	24	16...28	—	2,0	800	-20...+60	55 000 / 27 500	110 000	1	1		
	308	85,6	7,5											64,0	4 200
	RG 160-28/14 NTD	308	85,6	24	16...28	7,5	64,0	4 200	-20...+60	55 000 / 35 000	110 000	2	2		
	RG 160-28/14 NTDH	370	217,8	24	16...28	7,8	101,0	5 000	-20...+60	50 000 / 32 500	102 500	3	3		
min. max.	RG 160-28/18 NTD...	59	16,4	48	38...57	—	2,0	800	-20...+70	55 000 / 27 500	110 000	1	1		
	308	85,6	7,5											59,0	4 200
NEW	RG 160-28/18/ 2NTDHP*	444	261,2	48	36...60	8,5	159	6 000	-20...+65	40 000 / 22 500	80 000	4	4		

Models RG 160-28/14 NTD... and RG 160-28/18 NTD... are available in customer-specific, custom-developed variants only. The data specified here are technically feasible benchmark values. The fans can be specially adapted to your application with signal outputs and control inputs.

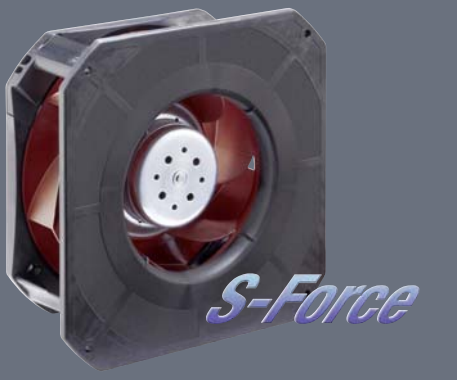
*The specific service life is valid when an external capacitor is wired between the plus and minus strands. Please note the wiring suggestion.



max. 930 m³/h

DC centrifugal fans

Series RG 190 TD 225 x 225 x 85 mm



Highlights:

- 3-phase fan drive with high degree of running smoothness. Very high pressure build-up.
- Backward-curved RadiCal impeller with high efficiency.
- Standard models available with multifunctional control input for analogue, PWM and speed sign.
- Compact design with integrated mounting plate and optimised inlet nozzle.

General characteristics:

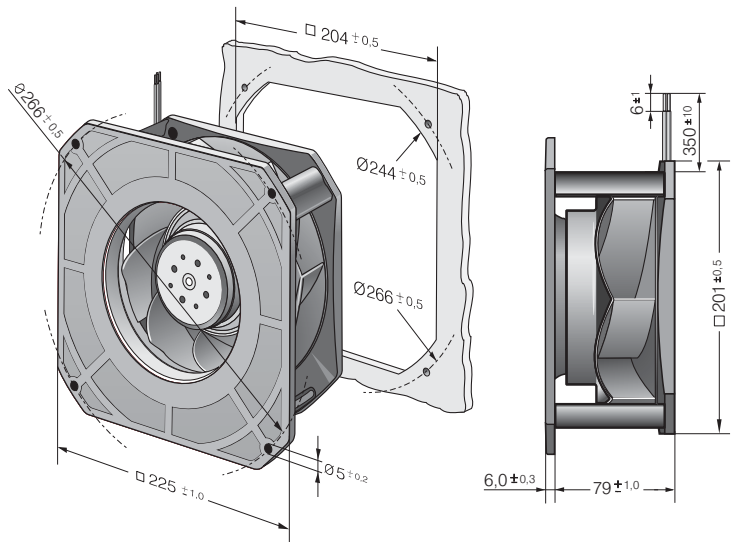
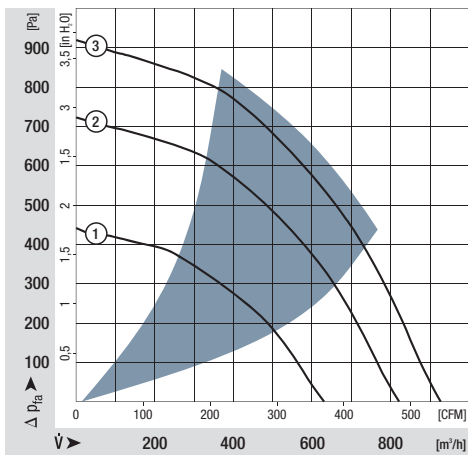
- Housing and impeller of fibreglass-reinforced plastic.
- Fully integrated electronic commutation.
- Direction of rotation: CW seen on rotor.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 18, 20 or AWG 22, TR 64, speed signal and control input AWG 22, bared and tin-plated.
- Mass: 1210 g.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours			
NEW	RG 190-39/14/2 TDML0	630	370,6	24	16...30	7,6	■	54	3 000	-20...+60	55 000 / 35 000	110 000	1		
NEW	RG 190-39/14/2 TDMO	820	482,4	24	16...36	7,9	■	100	3 900	-20...+65	52 500 / 30 000	105 000	2		
NEW	RG 190-39/18/2 TDML0	630	370,6	48	36...57	7,6	■	52	3 000	-20...+65	55 000 / 35 000	110 000	1		
NEW	RG 190-39/18/2 TDMO	820	482,4	48	36...72	7,9	■	100	3 900	-20...+65	52 500 / 30 000	105 000	2		
NEW	RG 190-39/18/2 TDO	930	547,1	48	36...72	8,3	■	135	4 400	-20...+65	40 000 / 25 000	80 000	3		

Speed control range from 800 rpm at 7 % PWM up to nominal speed at > 90 % PWM, standstill at 0 % PWM, standstill if control cable is interrupted.



For suitable guard grilles, see page 176.



max. 1280 m³/h

DC centrifugal fans

Series RG 220 TD 270 x 270 x 99 mm



Highlights:

- 3-phase fan drive with high degree of running smoothness. Very high pressure build-up.
- Backward-curved impeller.
- Standard models available with multifunctional control input for analogue, PWM and speed signal.
- Compact design with integrated mounting plate and optimised inlet nozzle.

General characteristics:

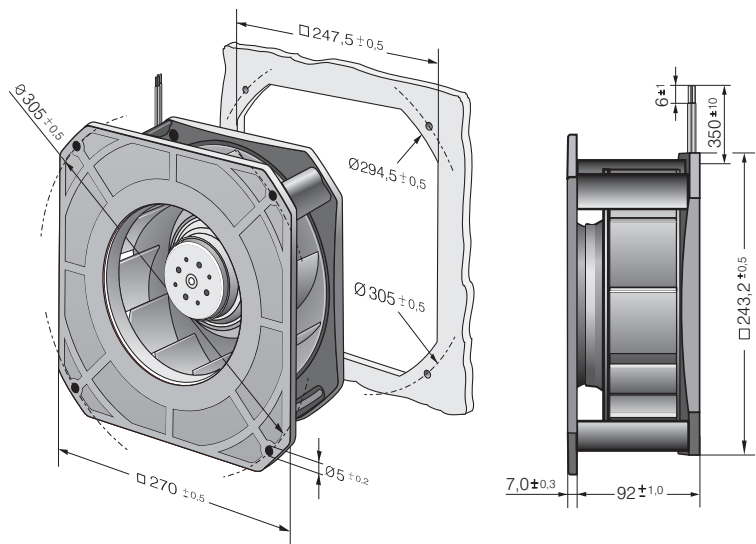
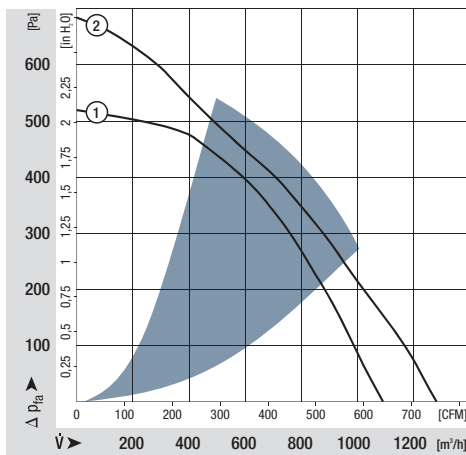
- Housing and impeller of fibreglass-reinforced plastic.
- Fully integrated electronic commutation.
- Direction of rotation: CW seen on rotor.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 18, 20 or AWG 22, TR 64, speed signal and control input AWG 22, bared and tin-plated.
- Mass:1870 g.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours	Hours		
NEW	RG 220-44/14/2TDMO	1090	641,2	24	16...36	7,7	■	82	3 000	-20...+55	75 000 / 52 500	150 000	150 000	1	
NEW	RG 220-44/18/2TDMO	1090	641,2	48	36...72	7,7	■	80	3 000	-20...+55	75 000 / 52 500	150 000	150 000	1	
NEW	RG 220-44/18/2TDO	1280	752,9	48	36...72	8,0	■	140	3 500	-20...+55	55 000 / 40 000	110 000	110 000	2	

Speed control range from 800 rpm at 7 % PWM up to nominal speed at > 90 % PWM. Standstill at 0 % PWM, standstill if control cable is interrupted.



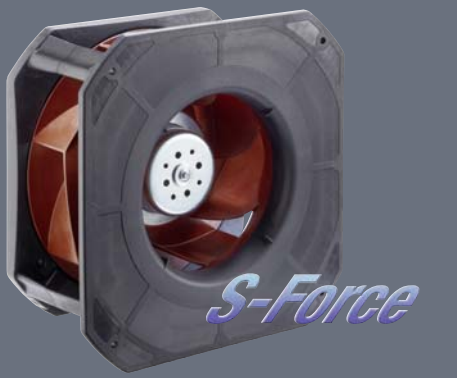
For suitable guard grilles, see page 176.



max. 1210 m³/h

DC centrifugal fans

Series RG 225 TD 270 x 270 x 119 mm



Highlights:

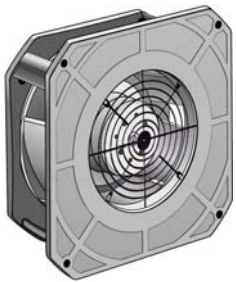
- 3-phase fan drive with high degree of running smoothness. Very high pressure build-up.
- Backward-curved RadiCal impeller with high efficiency.
- Standard models available with multifunctional control input for analogue, PWM and speed sign.
- Compact design with integrated mounting plate and optimised inlet nozzle.

General characteristics:

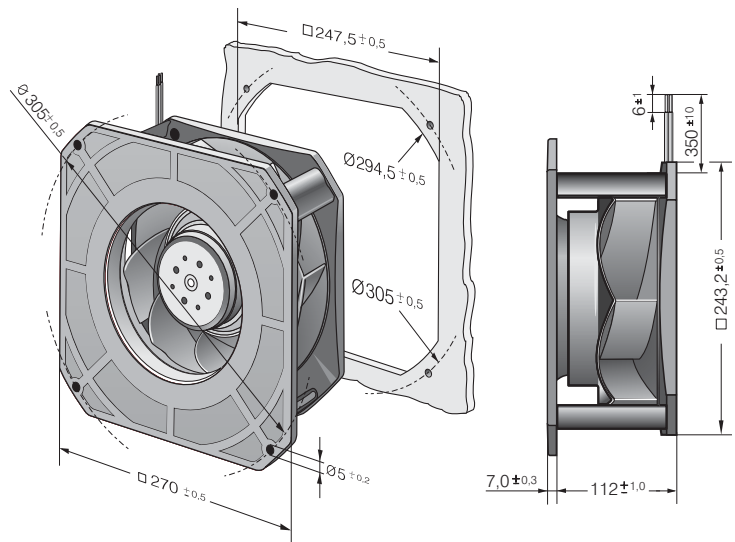
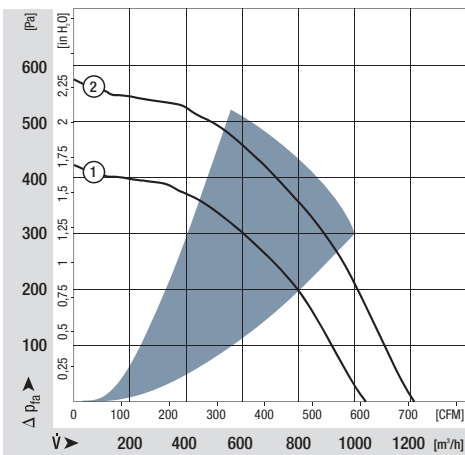
- Housing and impeller of fibreglass-reinforced plastic.
- Fully integrated electronic commutation.
- Direction of rotation: CW seen on rotor.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 18, 20 or AWG 22, TR 64, speed signal and control input AWG 22, bared and tin-plated.
- Mass:1750 g.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours			
NEW	RG 225-55/14/2TDMLO	1040	611,8	24	16...36	7,3	■	65	2 400	-20...+55	72 500 / 52 500	145 000	1		
NEW	RG 225-55/18/2TDMLO	1040	611,8	48	36...72	7,3	■	65	2 400	-20...+55	72 500 / 52 500	145 000	1		
NEW	RG 225-55/18/2TDMO	1210	711,8	48	36...72	7,9	■	116	2 800	-20...+55	55 000 / 40 000	110 000	2		

Speed control range from 800 rpm at 7 % PWM up to nominal speed at > 90 % PWM. Standstill at 0 % PWM, standstill if control cable is interrupted.
The specific service life is valid when an external capacitor is wired between the plus and minus strands.
Please note the wiring suggestion.



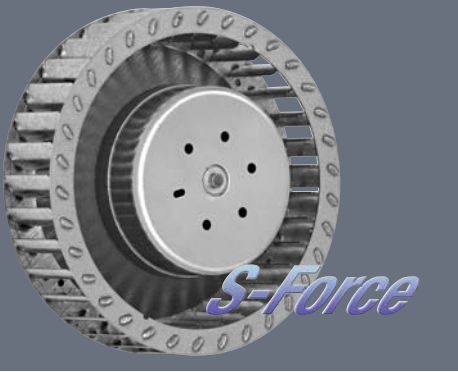
For suitable guard grilles, see page 176.



max. 220 m³/h

DC centrifugal fans

Series RET 97 TD 97 Ø x 41 mm



Highlights:

- 3-phase fan drive with high degree of running smoothness.
- Very high pressure build-up.
- Forward curved impeller.
- Available as standard with PWM control input and speed signal. Additional inputs and outputs on request.

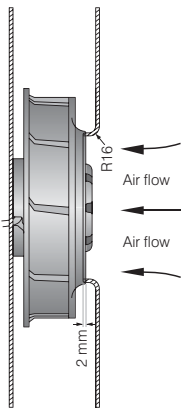
General characteristics:

- Impeller of galvanised steel plate.
- Fully integrated electronic commutation.
- Direction of rotation: CW seen on rotor.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Mass: 430 g.

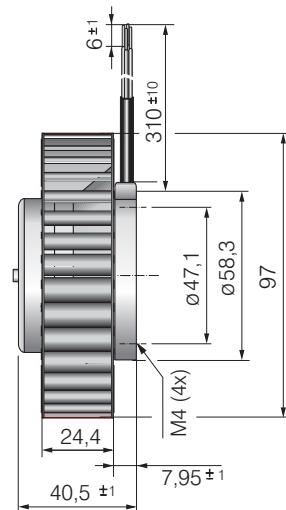
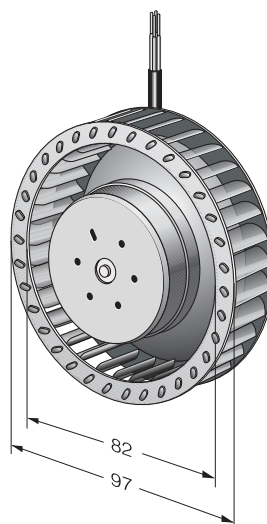
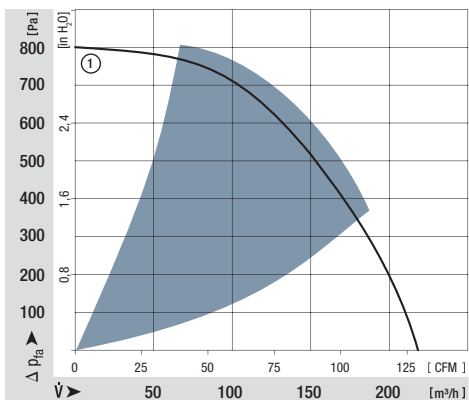
Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours	Hours		
NEW	RET 97-25/14/2TDP*	220	129	24	16...36	8,1	■	72	6 000	-20...+60	80 000 / 50 000	160 000	160 000	1	
NEW	RET 97-25/18/2TDP	220	129	48	36...60	8,1	■	72	6 000	-20...+60	80 000 / 50 000	160 000	160 000	1	

* Preliminary

Speed control range from 800 rpm at 7 % PWM up to nominal speed at > 90 % PWM. Standstill at 0 % PWM, maximum speed at sensor break.
To attain the specified service life, an external capacitor must be wired between the plus and minus strands.
Please note the wiring suggestion on page.



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:
Centrifugal fan mounted on a base plate 116 x 116 mm.
Cover plate 116 x 116 mm with an air inlet of Ø 80 mm, concentric to the impeller.



max. 104 m³/h

DC centrifugal fans

Series REF 100 104 Ø x 25 mm



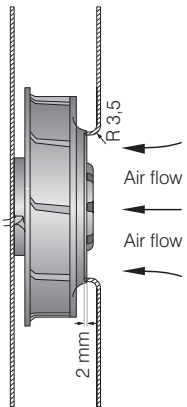
Highlights:

- Pressure-optimised blower.
- Very flat and powerful centrifugal fan.
- Optional Vario-Pro: Highly adaptable software configuration of the fan enables a tailor-made solution to the specific requirements of your applications.
- Backward curved impeller.

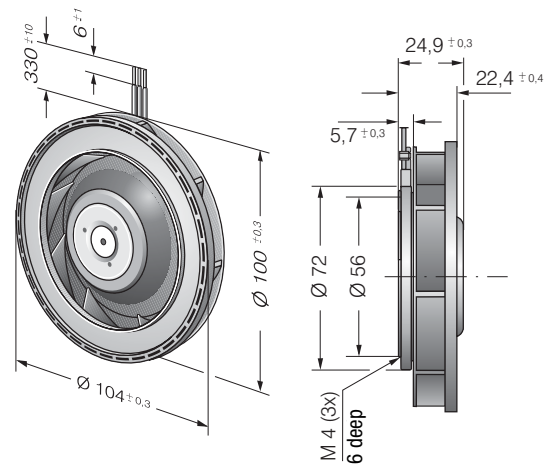
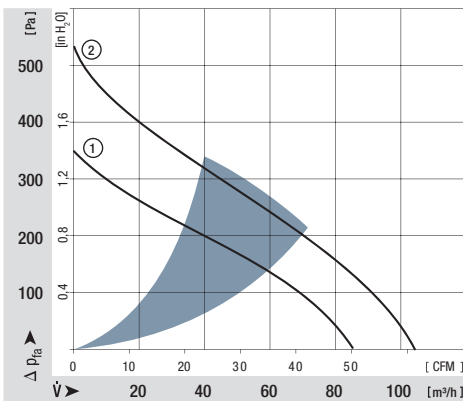
General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow radial, direction of rotation clockwise, seen on rotor.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Mass: 160 g

Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst-Standard	Service life L ₁₀ (T _{max}) ebm-papst-Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
REF 100-11/12	86	50,6	12	8...15	6,3	■	7,5	5 400	-20...+75	80 000 / 30 000	135 000	1	/2	
REF 100-11/14	86	50,6	24	16...30	6,3	■	7,5	5 400	-20...+75	80 000 / 30 000	135 000	1	/2	
REF 100-11/18	86	50,6	48	36...60	6,3	■	7,5	5 400	-20...+75	80 000 / 30 000	135 000	1	/2	
REF 100-11/18 H	104	61,2	48	36...56	6,9	■	14,8	6 700	-20...+70	67 500 / 30 000	120 000	2		



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:
Centrifugal fan mounted on a base plate 127 x 127 mm.
Cover plate 127 x 127 mm with an air inlet of Ø 70 mm, concentric to the impeller.



max. 190 m³/h

DC centrifugal fans

Series RER 101 101 Ø x 52 mm



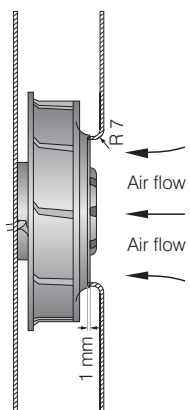
Highlights:

- Optional Vario-Pro: Highly adaptable software configuration of the fan enables a tailor-made solution to the specific requirements of your applications.
- Backward curved impeller.

General characteristics:

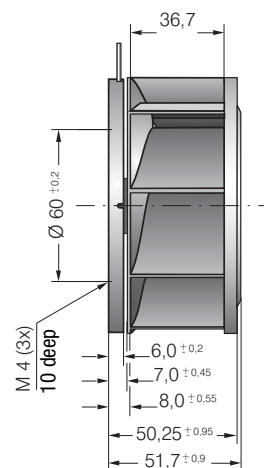
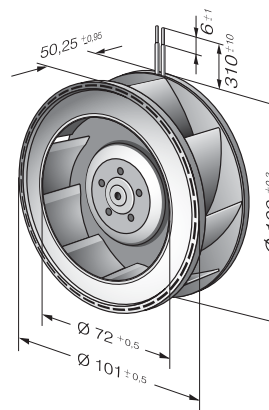
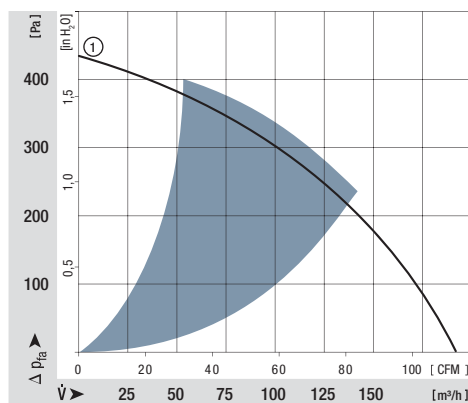
- Fibreglass-reinforced plastic scroll housing and impeller.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow radial, direction of rotation clockwise, seen on rotor.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Mass: 305 g.

Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
RER 101-36/12NHH	190	111,8	12	9..13,6	7,2	■	20,5	5 900	-20...+70	60 000 / 30 000	120 000	1		
RER 101-36/14NHH	190	111,8	24	18..27,2	7,2	■	20,0	5 900	-20...+70	60 000 / 30 000	120 000	1		
RER 101-36/18NHH	190	111,8	48	43...52	7,2	■	19,0	5 900	-20...+70	60 000 / 30 000	120 000	1	/19	



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:

Centrifugal fan mounted on a base plate 148 x 148 mm.
Cover plate 148 x 148 mm with an air inlet of Ø 66 mm, concentric to the impeller.



max. 390 m³/h

DC centrifugal fans

Series RER 120 TD 120 Ø x 54 mm



Highlights:

- 3-phase fan drive with high degree of running smoothness.
- Very high pressure build-up.
- Backward curved impeller.
- Available as standard with PWM control input and speed signal. Additional inputs and outputs on request.

General characteristics:

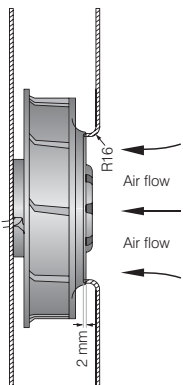
- Impeller of fibreglass-reinforced plastic.
- Fully integrated electronic commutation.
- Direction of rotation: CW seen on rotor.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Mass: 430 g.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst-Standard	Service life L ₁₀ (T _{max}) ebm-papst-Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours	Hours		
NEW	RER 120-26/14/2 TDMP*	320	188,2	24	16...32	tbd	■	51	5 200	-20...+60	60 000 / 37 500	120 000	120 000	1	
NEW	RER 120-26/14/2 TDP	377	221,9	24	16...32	8,2	■	78	6 100	-20...+60	55 000 / 35 000	110 000	110 000	2	
NEW	RER 120-26/18/2 TDMP*	320	188,2	48	36...60	tbd	■	51	5 200	-20...+60	57 500 / 35 000	115 000	115 000	1	
NEW	RER 120-26/18/2 TDP	390	229,5	48	36...60	8,3	■	92	6 300	-20...+60	50 000 / 30 000	100 000	100 000	3	

*Preliminary

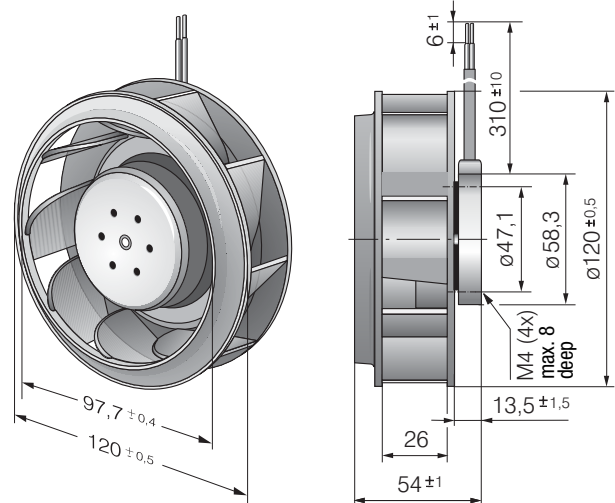
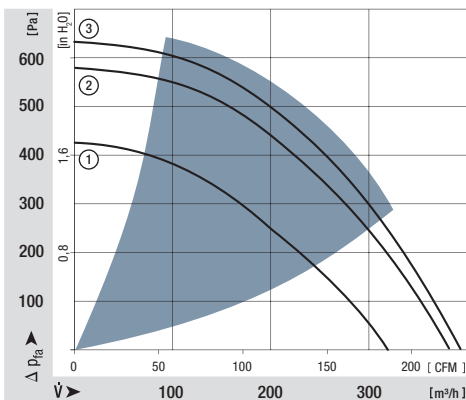
Speed control range from 800 rpm at 7 % PWM up to nominal speed at > 90 % PWM. Standstill at 0 % PWM, max. speed if control cable is interrupted.

The specific service life is valid when an external capacitor is wired between the plus and minus strands. Please note the wiring suggestion.



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:

Centrifugal fan mounted on a base plate 140 x 140 mm. Cover plate 140 x 140 mm with an air inlet of Ø 96 mm, concentric to the impeller.



max. 166 m³/h

DC centrifugal fans

Series RER 125 N 138 Ø x 35 mm



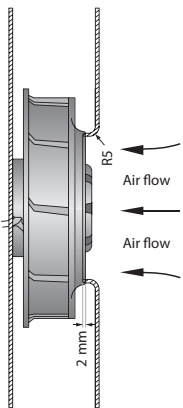
Highlights:

- Optional Vario-Pro: Highly adaptable software configuration of the fan enables a tailor-made solution to the specific requirements of your applications.
- Backward curved impeller.

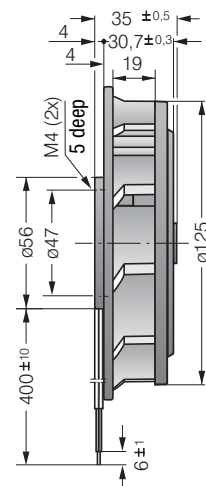
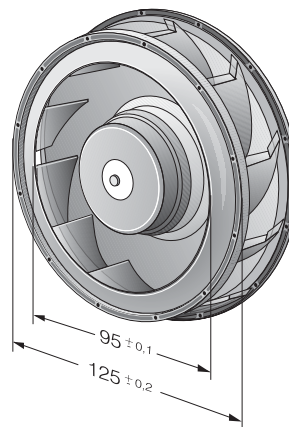
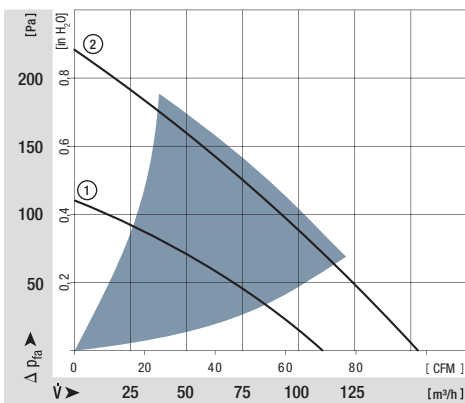
General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow radial, direction of rotation clockwise, seen on rotor.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Mass: 320 g.

Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst-Standard	Service life L ₁₀ (T _{max}) ebm-papst-Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
RER 125-19/12 N	110	64,7	12	7...15	5,7	■	4,5	2 650	-30...+75	62 500 / 27 500	125 000	1	/12	
RER 125-19/14 N	110	64,7	24	12...28	5,7	■	4,5	2 650	-30...+75	62 500 / 27 500	125 000	1		
RER 125-19/14 NH	166	97,7	24	12...28	7,0	■	13,0	4 000	-20...+70	55 000 / 27 500	110 000	2		
RER 125-19/18 N	110	64,7	48	36...56	5,7	■	5,0	2 650	-30...+75	62 500 / 27 500	125 000	1		



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:
Centrifugal fan mounted on a base plate 220 x 220 mm.
Cover plate 220 x 220 mm with an air inlet of Ø 86 mm, concentric to the impeller.



max. 565 m³/h

DC centrifugal fans

Series RER 133 TD 133 Ø x 91 mm



Highlights:

- 3-phase fan drive with high degree of running smoothness.
- Very high pressure build-up.
- Backward curved impeller.
- Available as standard with PWM control input and speed signal. Additional inputs and outputs on request.

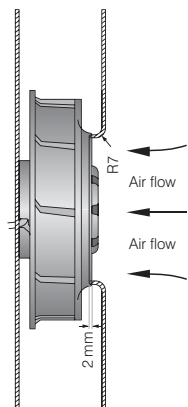
General characteristics:

- Impeller of fibreglass-reinforced plastic.
- Fully integrated electronic commutation.
- Direction of rotation: CW seen on rotor.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Mass: 890 g.

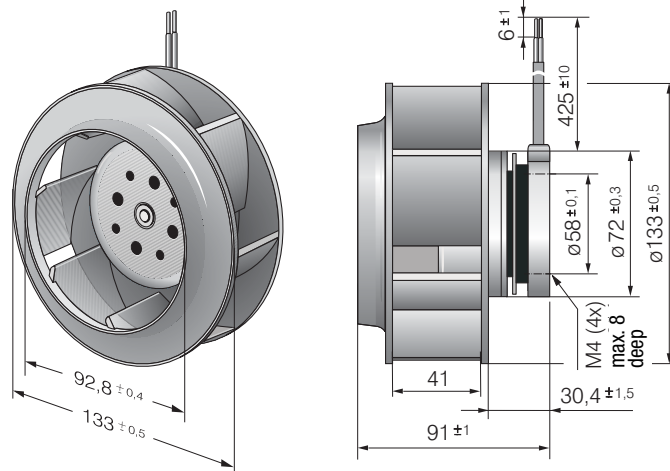
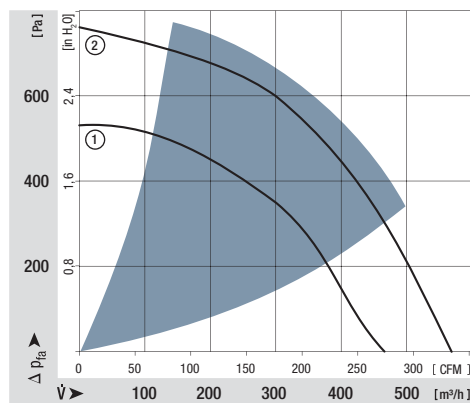
Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst-Standard	Service life L ₁₀ (T _{max}) ebm-papst-Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours			
NEW	RER 133-41/14/2 TDMP	460	270,6	24	16...30	tbd	■	53	5 000	-20...+65	72 500 / 40 000	145 000	1		
NEW	RER 133-41/14/2 TDP*	565	332,4	24	16...36	tbd	■	90	6 000	-20...+65	70 000 / 37 500	140 000	2		
NEW	RER 133-41/18/2 TDMP*	460	270,6	48	36...57	tbd	■	50	5 000	-20...+65	72 500 / 40 000	145 000	1		
NEW	RER 133-41/18/2 TDP	565	332,4	48	36...72	8,2	■	87	6 000	-20...+65	70 000 / 37 500	140 000	2		

*Preliminary

Speed control range from 800 rpm at 7 % PWM up to nominal speed at > 90 % PWM. Standstill at 0 % PWM, max. speed if control cable is interrupted.



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:
Centrifugal fan mounted on a base plate 140 x 140 mm.
Cover plate 140 x 140 mm with an air inlet of Ø 87 mm, concentric to the impeller.



max. 255 m³/h

DC centrifugal fans

Series RER 160 N 165 Ø x 51 mm



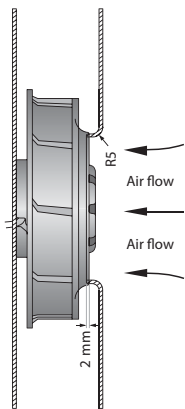
Highlights:

- Optional Vario-Pro: Highly adaptable software configuration of the fan enables a tailor-made solution to the specific requirements of your applications.
- Backward curved impeller.

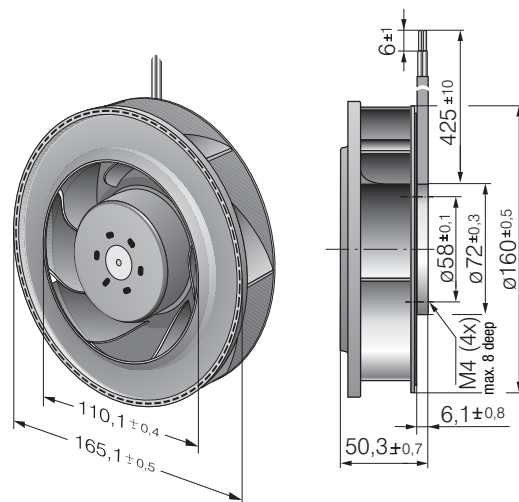
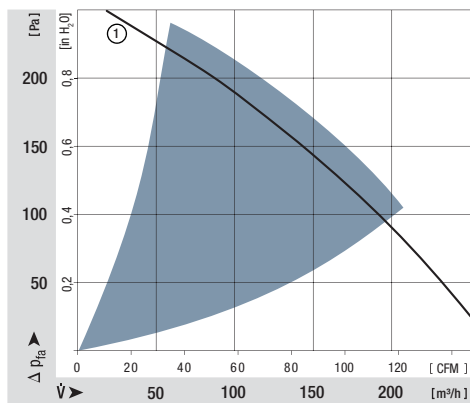
General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Direction of air flow radial, direction of rotation clockwise, seen on rotor.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Mass: 590 g.

Nominal data	Air flow		Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
RER 160-28/12 N	255	150,1	12	7...14	6,4	■	19,0	3 000	-20...+70	75 000 / 35 000	140 000	1	/12	
RER 160-28/14 N	255	150,1	24	12...28	6,4	■	19,0	3 000	-20...+70	75 000 / 35 000	140 000	1		
RER 160-28/18 N	255	150,1	48	28...60	6,4	■	19,0	3 000	-20...+70	75 000 / 35 000	140 000	1	/12	



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:
Centrifugal fan mounted on a base plate 260 x 260 mm.
Cover plate 260 x 260 mm with an air inlet of Ø 100 mm, concentric to the impeller.



max. 505 m³/h

DC centrifugal fans

Series RER 160 NTD 165 Ø x 51 mm



Highlights:

- Control inputs, alarm and speed signals available on request.
- 3-phase fan drive with high degree of running smoothness.
- High pressure build-up.
- Backward curved impeller.

General characteristics:

- Fibreglass-reinforced plastic scroll housing and impeller; Housing base of steel plate.
- Fully integrated electronic commutation.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Mass: 590 g.

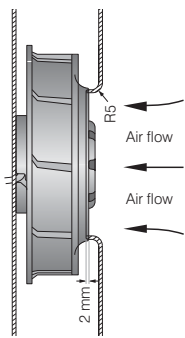
Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst-Standard	Service life L ₁₀ (T _{max}) ebm-papst-Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours		P	
NEW	RER 160-28/14N/2TDA	370	217	24	16...28	7,4	■	51	4 200	-20...+60	55 000 / 27 500	110 000		2	
NEW	RER 160-28/18N/2TDHHP*	505	297,5	48	36...60	8,5	■	142	6 000	-20...+65	40 000 / 22 500	80 000		3	
min. max.	RER 160-28/18 NTD...	66	18,3	48	38...57	—	□	2,0	800	-20...+70	55 000 / 27 500	110 000		1	

Model RER 160-28/18 NTD... is available in customer-specific, custom-developed variant only.

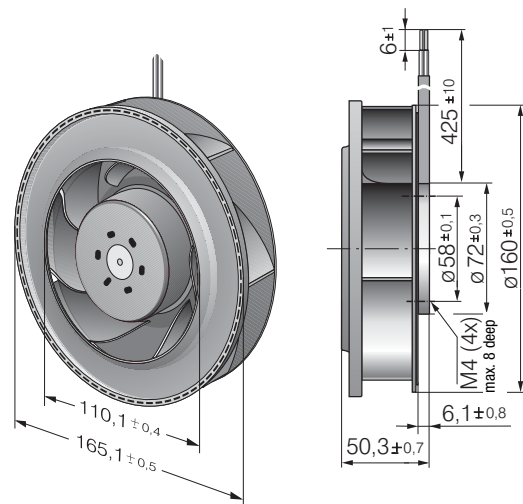
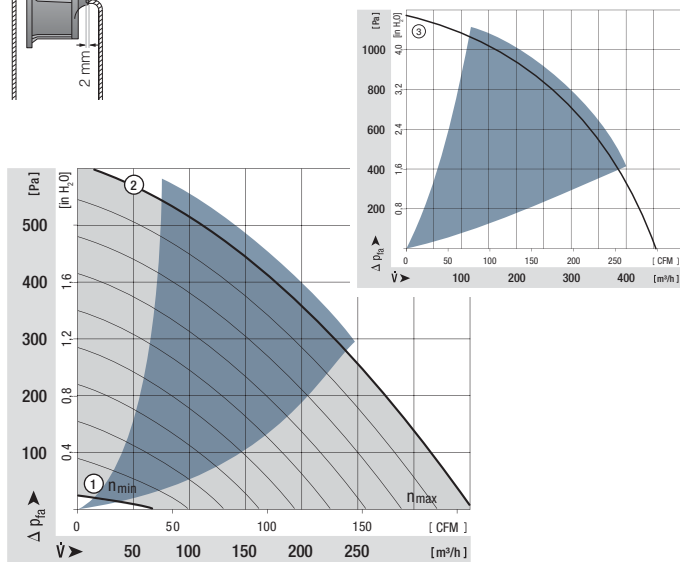
The data specified here are technically feasible benchmark values. The fans can be specially adapted to your application with signal outputs and control inputs.

*The specific service life is valid when an external capacitor is wired between the plus and minus strands.

Please note the wiring suggestion.



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:
Centrifugal fan mounted on a base plate 260 x 260 mm.
Cover plate 260 x 260 mm with an air inlet of Ø 100 mm, concentric to the impeller.



max. 800 m³/h

DC centrifugal fans

Series REF 175 TD 175 Ø x 55 mm



Highlights:

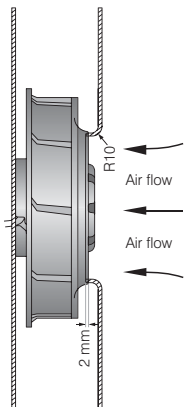
- 3-phase fan drive with high degree of running smoothness.
- Very high pressure build-up. Backward curved impeller.
- Available as standard with PWM control input and speed signal. Additional inputs and outputs on request.

General characteristics:

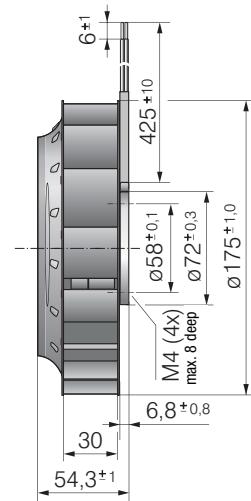
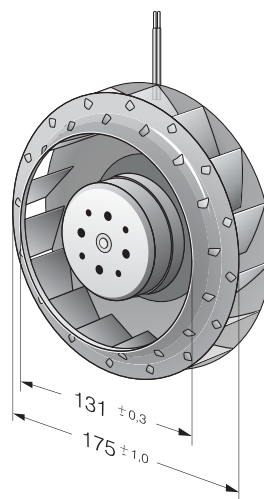
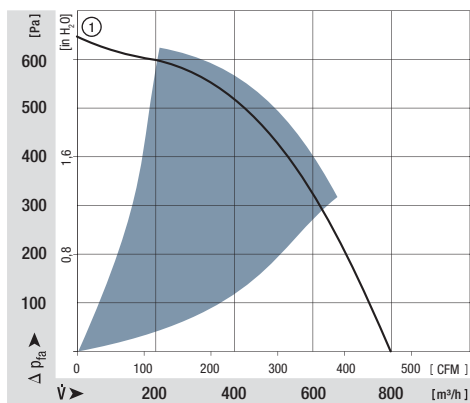
- Impeller of galvanised steel plate.
- Fully integrated electronic commutation.
- Direction of rotation: CW seen on rotor.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 20, TR 64, speed signal and control input AWG 22, bared and tin-plated.
- Mass: 930 g.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours	Hours		
NEW	REF 175-30/18/2TDP	800	470	48	36 ... 72	8,3	■	121	4 400	-20...+60	65 000 / 37 500	130 000	1		

Speed control range from 800 rpm at 7 % PWM up to nominal speed at > 90 % PWM. Standstill at 0 % PWM, max. speed if control cable is interrupted.



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:
Centrifugal fan mounted on a base plate 180 x 180 mm.
Cover plate 180 x 180 mm with an air inlet of Ø 125,5 mm, concentric to the impeller.



max. 980 m³/h

DC centrifugal fans

Series RER 175 TD 175 Ø x 69 mm



Highlights:

- 3-phase fan drive with high degree of running smoothness.
- Very high pressure build-up. Backward curved impeller.
- Available as standard with PWM control input and speed signal. Additional inputs and outputs on request.

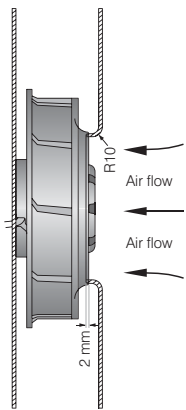
General characteristics:

- Impeller of fibreglass-reinforced plastic.
- Fully integrated electronic commutation.
- Direction of rotation: CW seen on rotor.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 18, 20 or AWG 22, TR 64, speed signal and control input AWG 22, bared and tin-plated.
- Mass: 775 g.

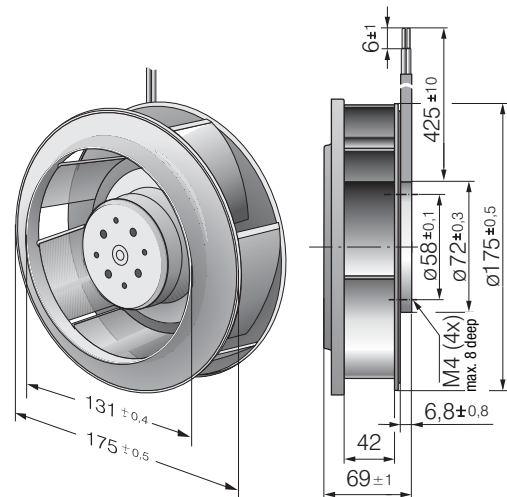
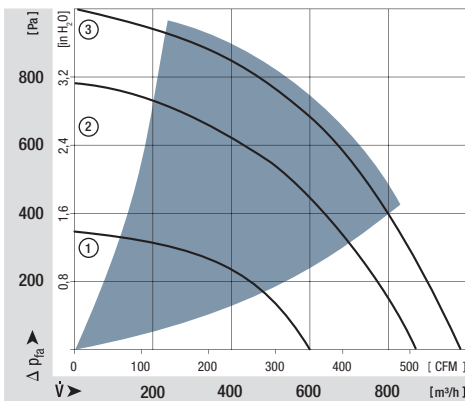
Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst-Standard	Service life L ₁₀ (T _{max}) ebm-papst-Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours			
NEW	RER 175-42/14/2 TDMLP	600	353,0	24	16...30	7,3	■	45	3 400	-20...+65	72 500 / 45 000	145 000	1		
NEW	RER 175-42/14/2 TDMP	865	508,8	24	16...36	8,2	■	110	4 800	-20...+65	70 000 / 40 000	140 000	2		
NEW	RER 175-42/18/2 TDMLP	600	353,0	48	36...57	7,3	■	46	3 400	-20...+65	72 500 / 45 000	145 000	1		
NEW	RER 175-42/18/2 TDMP*	865	508,8	48	36...72	8,2	■	110	4 800	-20...+65	70 000 / 40 000	140 000	2		
NEW	RER 175-42/18/2 TDP	980	576,8	48	36...72	8,5	■	166	5 400	-20...+65	60 000 / 32 500	115 000	3		

* preliminary data

Speed control range from 800 rpm at 7 % PWM up to nominal speed at > 90 % PWM. Standstill at 0 % PWM, max. speed if control cable is interrupted.



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:
Centrifugal fan mounted on a base plate 180 x 180 mm.
Cover plate 180 x 180 mm with an air inlet of Ø 125,5 mm, concentric to the impeller.



max. 970 m³/h

DC centrifugal fans

Series RER 190 TD 190 Ø x 69 mm



Highlights:

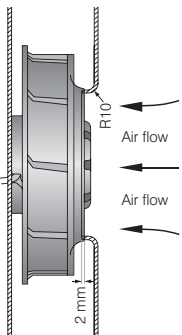
- 3-phase fan drive with high degree of running smoothness.
- Very high pressure build-up.
- Backward curved RadiCal impeller with maximum efficiency.
- Standard models available with multifunctional control input for analogue, PWM and speed signal.

General characteristics:

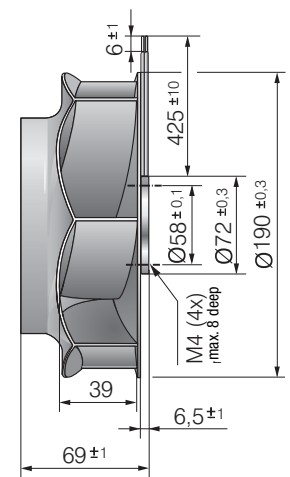
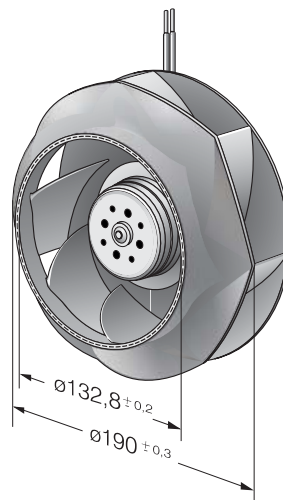
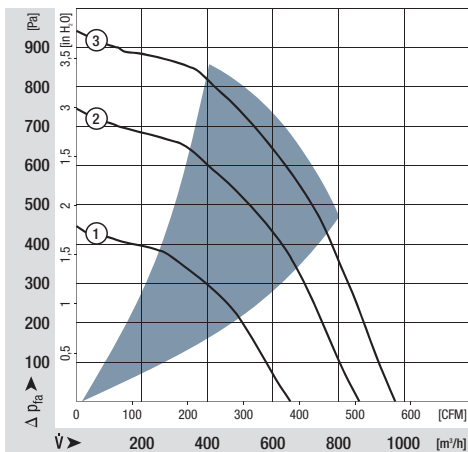
- Impeller of fibreglass-reinforced plastic.
- Fully integrated electronic commutation.
- Direction of rotation: CW seen on rotor.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 18, 20 or AWG 22, TR 64, speed signal and control input AWG 22, bared and tin-plated.
- Mass: 870 g.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours	Hours		
NEW	RER 190-39/14/2TDML0	650	382,4	24	16...30	7,6	■	58	3 000	-20...+60	55 000 / 35 000	110 000	110 000	1	
NEW	RER 190-39/14/2TDM0	860	505,9	24	16...36	7,9	■	110	3 900	-20...+65	52 500 / 30 000	105 000	105 000	2	
NEW	RER 190-39/18/2TDML0	650	382,4	48	36...57	7,6	■	56	3 000	-20...+65	55 000 / 35 000	110 000	110 000	1	
NEW	RER 190-39/18/2TDM0	860	505,9	48	36...72	7,9	■	105	3 900	-20...+65	52 500 / 30 000	105 000	105 000	2	
NEW	RER 190-39/18/2TDO	970	570,6	48	36...72	8,3	■	148	4 400	-20...+65	40 000 / 22 500	80 000	80 000	3	

Speed control range from 800 rpm at 7 % PWM up to nominal speed at > 90 % PWM. Standstill at 0 % PWM, standstill if control cable is interrupted.



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:
Centrifugal fan mounted on a base plate 195 x 195 mm.
Cover plate 195 x 195 mm with an air inlet of Ø 125,5 mm, concentric to the impeller.



max. 1280 m³/h

DC centrifugal fans

Series RER 220 TD 221 Ø x 71 mm



Highlights:

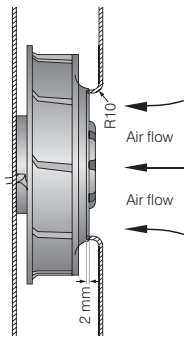
- 3-phase fan drive with high degree of running smoothness.
- Very high pressure build-up.
- Backward curved impeller.
- Standard models available with multifunctional control input for analogue, PWM and speed sign.

General characteristics:

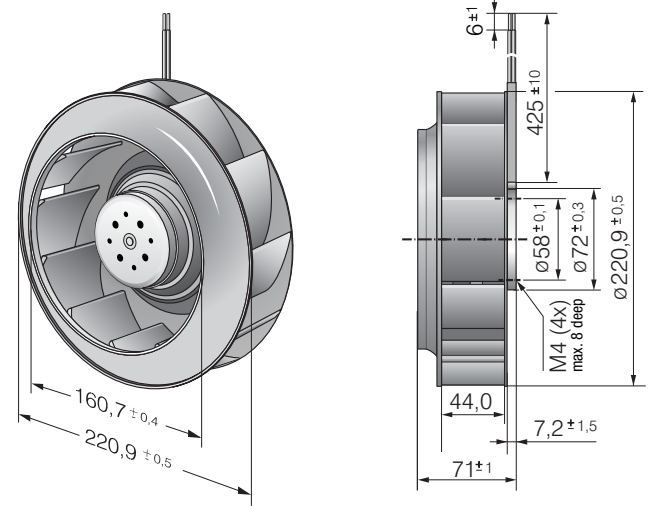
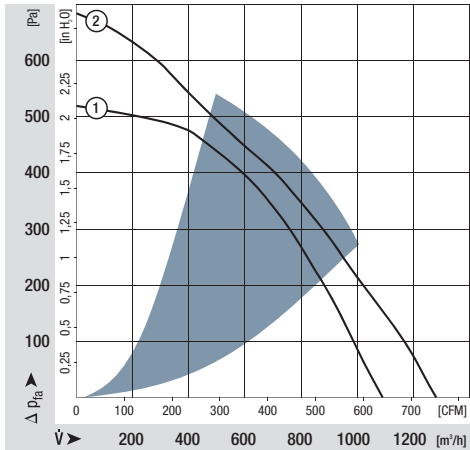
- Impeller of fibreglass-reinforced plastic.
- Fully integrated electronic commutation.
- Direction of rotation: CW seen on rotor.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 18, 20 or AWG 22, TR 64, speed signal and control input AWG 22, bared and tin-plated.
- Mass: 940 g.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst-Standard	Service life L ₁₀ (T _{max}) ebm-papst-Standard	Life expectancy L ₁₀ Δ (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours	Hours		
NEW	RER 220-44/14/2TDMO	1090	641,2	24	16...36	7,7	■	82	3 000	-20...+55	75 000 / 52 500	150 000	150 000	1	
NEW	RER 220-44/18/2TDMO	1090	641,2	48	36...72	7,7	■	80	3 000	-20...+55	75 000 / 52 500	150 000	150 000	1	
NEW	RER 220-44/18/2TDO	1280	752,9	48	36...72	8,0	■	140	3 500	-20...+55	55 000 / 40 000	110 000	110 000	2	

Speed control range from 800 rpm at 7 % PWM up to nominal speed at > 90 % PWM. Standstill at 0 % PWM, standstill if control cable is interrupted.



The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:
Centrifugal fan mounted on a base plate 230 x 230 mm.
Cover plate 230 x 230 mm with an air inlet of Ø 146 mm, concentric to the impeller.



max. 1600 m³/h

DC centrifugal fans

Series RER 225 TD 225 Ø x 99 mm



Highlights:

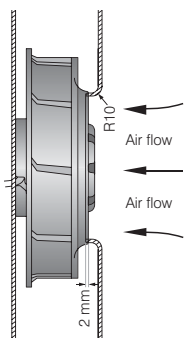
- 3-phase fan drive with high degree of running smoothness.
- Very high pressure build-up.
- TDM and TDML model with backward-curved RadiCal impeller with maximum efficiency.
- Standard models available with multifunctional control input for analogue, PWM and speed signal.

General characteristics:

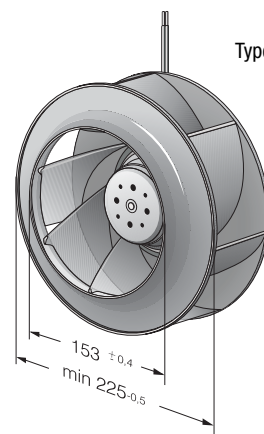
- Impeller of fibreglass-reinforced plastic.
- Fully integrated electronic commutation.
- Direction of rotation: CW seen on rotor.
- Direction of air flow: axial air intake, centrifugal air exhaust out of the outlet.
- Connection via single strands AWG 18, 20 or AWG 22, TR 64, speed signal and control input AWG 22, bared and tin-plated.
- Mass: 1030 g.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L _{10Δ} (40 °C) see P. 15	Curve	Specials
Type		m ³ /h	CFM	VDC	VDC	Bel(A)	□ / ■	Watts	RPM	°C	Hours	Hours	Hours		
NEW	RER 225-55/18/2TDML0	1080	635,4	48	36...72	7,5	■	82	2 500	-20...+55	70 000 / 50 000	140 000	140 000	1	
NEW	RER 225-55/18/2TDM0	1210	711,9	48	36...72	7,9	■	120	2 800	-20...+55	55 000 / 40 000	110 000	110 000	2	
NEW	RER 225-63/18/2TDP-402	1600	941,3	48	36...72	8,1	■	165	3 300	-20...+55	52 500 / 37 500	105 000	105 000	3	

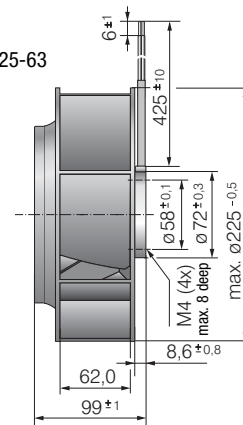
Speed control range from 800 rpm at 7 % PWM up to nominal speed at > 90 % PWM. Standstill at 0% PWM, Type O: standstill at sensor break. Type P: maximum speed at sensor break.



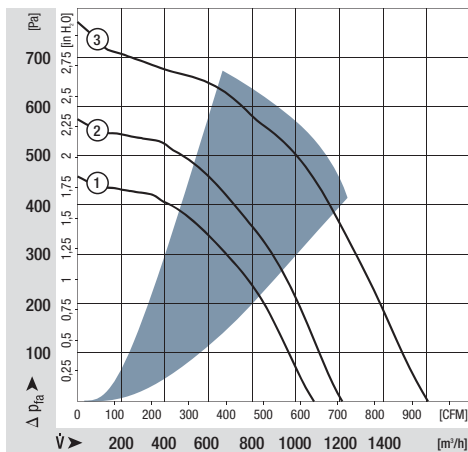
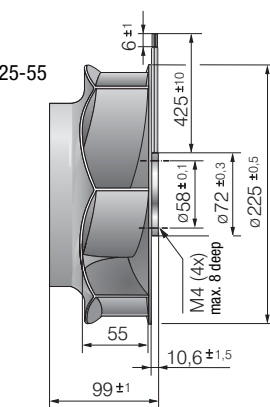
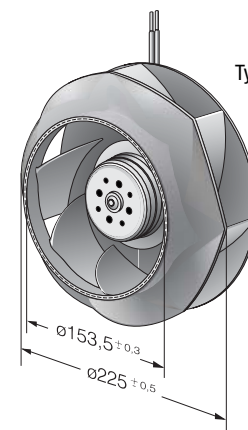
The air flow and noise level of fans without external housing depends on the installation conditions. The stated air flow and noise levels have been measured under the following conditions:
Centrifugal fan mounted on a base plate 230 x 230 mm.
Cover plate 230 x 230 mm with an air inlet of Ø 146 mm, concentric to the impeller.



Type RER 225-63



Type RER 225-55



max. 155 m³/h

DC tangential fan

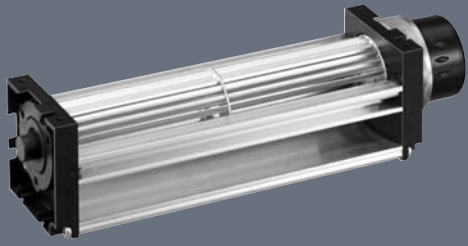
Series QG 030 201...413 x 50 x 48 mm

Highlights:

- Tangential fans with high air flow.
- Large air outlet.

General characteristics:

- Motor with ball bearing system. Impeller mounting plate with sleeve bearings.
- Fan housing and impeller of aluminium. Plastic housing side parts.
- Fully integrated electronic commutation.
- Protected against reverse polarity and locking.
- Air exhaust out of the outlet.
- Connection via single strands. Bared and tin-plated.
- Mass: 235 / 290 / 380 / 415 g.



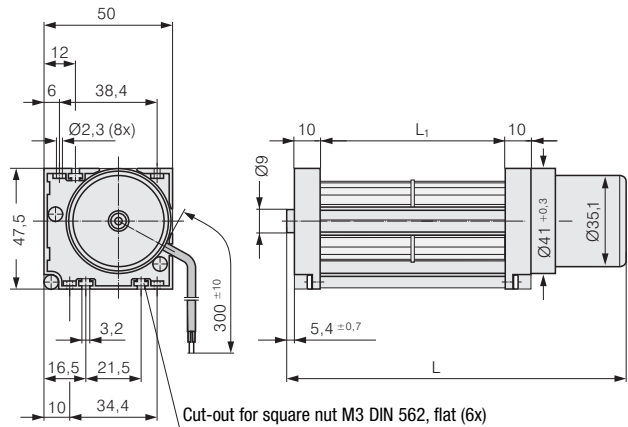
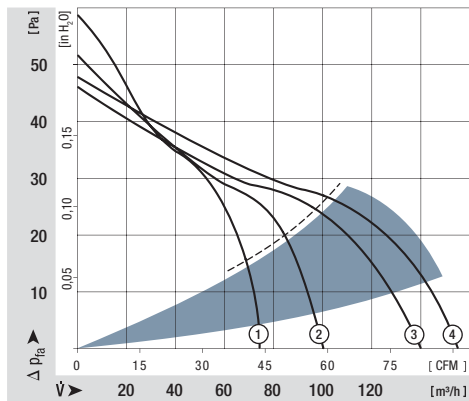
Nominal data

Type	Air flow		Nominal voltage	Voltage range	Sound pressure level	Sound power level	Sleeve bearings Ball bearings	Power input	Temperature range	Service life L ₁₀ (40 °C) ebm-papst-Standard	Service life L ₁₀ (T _{max}) ebm-papst-Standard	Life expectancy L ₁₀ ^Δ (40 °C) see P. 15	Curve	Specials
	m ³ /h	CFM												
QG 030-148/12	75	44,1	12	8...14	49	5,7	□/■	6,2	-20...+60	30 000 / 10 000		32 500	1	
QG 030-198/12	100	58,9	12	8...14	51	5,8	□/■	8,0	-20...+60	30 000 / 10 000		32 500	2	
QG 030-303/12	140	82,4	12	8...14	51	5,8	□/■	8,7	-20...+60	30 000 / 10 000		32 500	3	
QG 030-353/12	155	91,3	12	8...14	51	5,9	□/■	9,6	-20...+60	30 000 / 10 000		32 500	4	
QG 030-148/14	75	44,1	24	16...28	49	5,7	□/■	6,2	-20...+60	30 000 / 10 000		32 500	1	
QG 030-198/14	100	58,9	24	16...28	51	5,8	□/■	8,0	-20...+60	30 000 / 10 000		32 500	2	
QG 030-303/14	140	82,4	24	16...28	51	5,8	□/■	8,7	-20...+60	30 000 / 10 000		32 500	3	
QG 030-353/14	155	91,3	24	16...28	51	5,9	□/■	9,6	-20...+60	30 000 / 10 000		32 500	4	

Tangential fans are only suitable for operation with high rate and low back pressure.

Type	Dimension:	L	L ₁
QG 030-148/ ..		201 ^{+1,5}	148
QG 030-198/ ..		258 ^{+1,5}	198
QG 030-303/ ..		363 ^{+1,5}	303
QG 030-353/ ..		413 ^{+1,5}	353

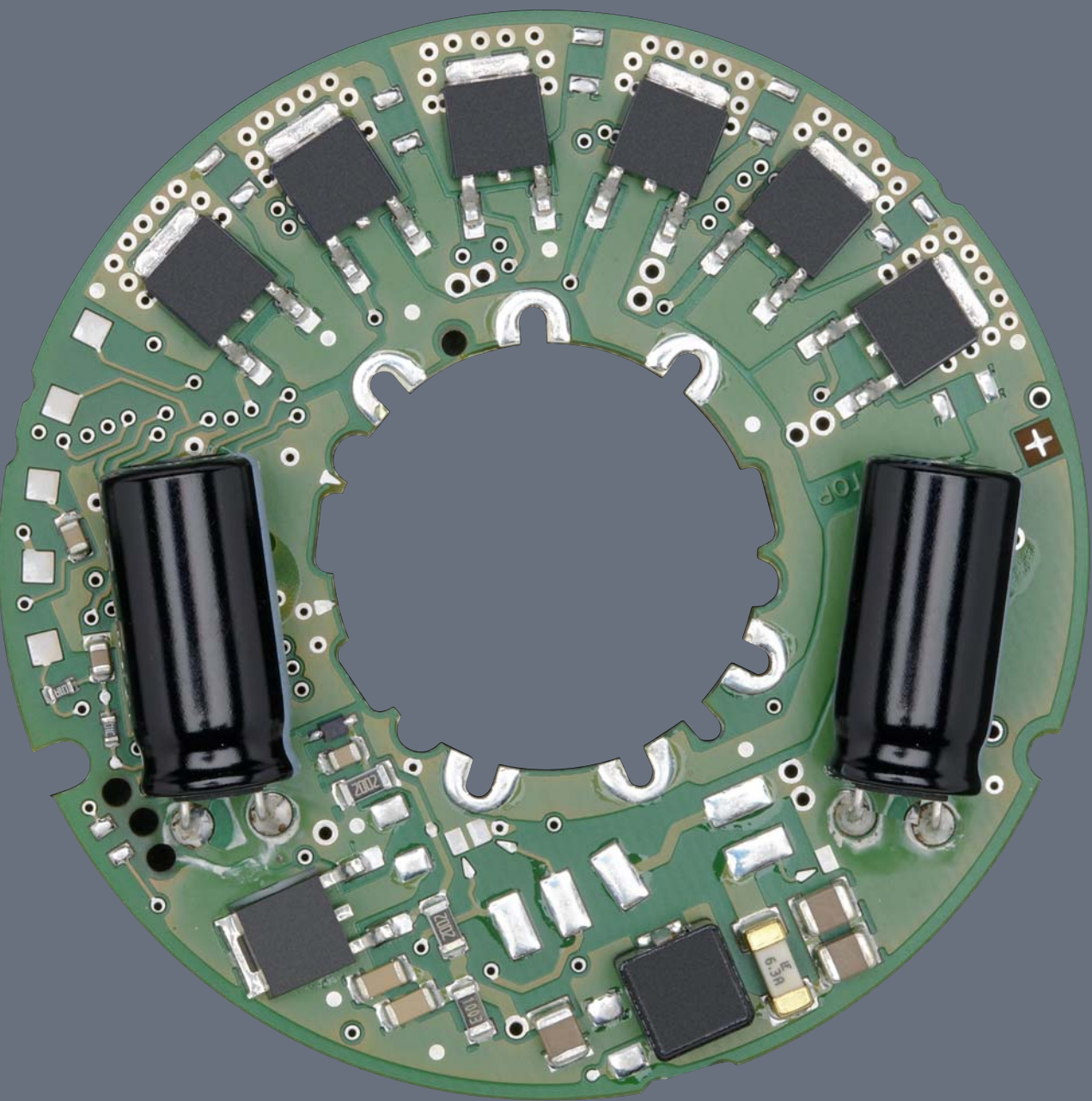
The service life values refer to horizontal installation of the fan.





DC fans - specials

	Sensor signal	110
	Alarm signal	114
	Vario-Pro / Speed setting / Control input	119
	Protection against ambient influences	123



Information
 DC axial fans
 DC centrifugal fans
 DC fans - specials
 ACmaxx / GreenTech EC-compact fans
 AC axial fans
 AC centrifugal fans
 Accessories
 Representatives

DC fans - specials

Technical information

Cooling capacity and efficiency

Greater power density, increasing miniaturisation and extreme electronic component density are posing increased demands on the cooling capacity and efficiency of fans. The intelligent and space-saving integration of the fan in the device configuration is therefore of major importance:

- Tailor-made cooling adapted to the situation as and when required.
- Programmable cooling by defining speed profiles.
- Transparency of function thanks to complete, interactive monitoring in all operating conditions.

ebm-papst provides intelligent cooling concepts which are optimally adapted to requirements. For example:

1. Speed adaptation via NTC sensor

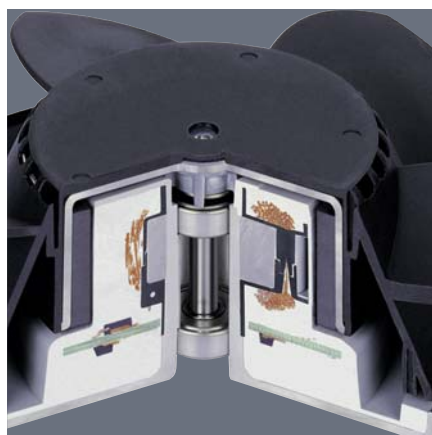
Standard fans in electronics cooling— tried and tested by the millions and nevertheless a temporary solution, because standard fans have a distinct disadvantage: With constant speed and a corresponding high noise factor, they continuously provide the air flow required in extreme cases. This extreme case only occurs-, if it occurs at all-, for a fraction of the service life. What is needed is an intelligent fan that automatically adapts to the current cooling requirements.

The ebm-papst answer: A complete range of DC fans with temperature-controlled speed adaptation - in all standard dimensions.

Installation is simple. The control electronics receive their thermal information for speed adaptation steplessly and loss-free via a temperature sensor either externally via a single lead, positioned as required, or internally directly in the fan hub in the air flow.

2. DC fans with separate control input

Open or closed-loop speed control is also possible with DC fans that have a separate control input. A variation in speed can thus be implemented via a control voltage or a pulse-width modulated signal. These possibilities are used primarily in devices that have appropriate standard interfaces and thus require a load-dependent variation of the fans.



DC fans - specials



Technical information

3. Sensor signal

DC fans with sensor signal.

The integrated „electronic tachometer“ continuously provides an actual speed signal for external evaluation. The user is informed at all times of the current fan speed via an extremely simple signal evaluation on the customer side. The sensor signal is via a separate lead.

4. Alarm signal

For applications which require monitored fan operation with alarm signal, ebm-papst has numerous alarm signal versions, either a static, pre-processed or interface-compatible high or low continuous signal depending on the type of fan.

5. Turbo drives

Fans with three-phase EC drives and micro-processor-controlled motor electronics. These three-phase motors whose torque is virtually non-reliant on the rotor position are used for extremely high running smoothness. The speed of these fans can be controlled over a very wide range with PWM, analogue voltage or temperature. Optionally, the fans can be supplied with reversible direction of rotation and active brake operation.

6. Vario-Pro fans

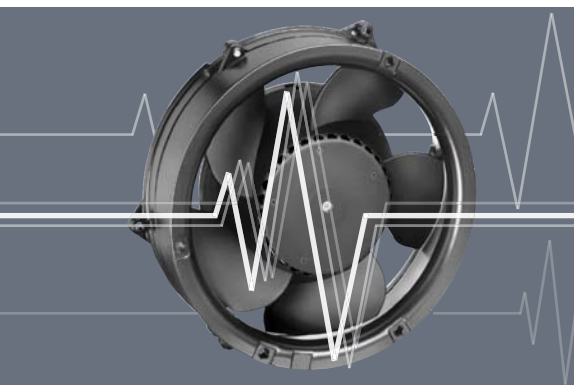
This high-end fan concept by ebmpapst with programmed intelligence and customer-specific integrated functions makes your electronics cooling even more versatile and competitive. Vario-Pro ensures a fresh economic breeze for all demanding cooling tasks – e.g. where greater reliability, more flexibility and intelligent function features such as alarm function, speed control etc. are required.

The successful concept of Vario-Pro is: Tailor-made software instead of fixed hardware, because programmed software modules for motor control and application intelligence are responsible for the work that analogue components were responsible for in the past. This central control unit of the Vario-Pro comprises a microcontroller and an EEPROM, on which all characteristics are stored.

7. Protection against environmental influences

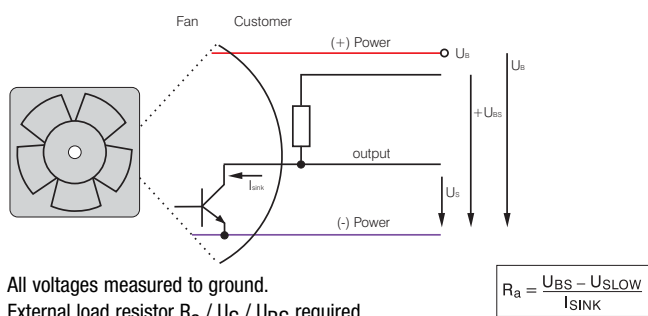
Some applications place particular demands on the fans' resistance to ambient influences, such as dust, moisture, water and salt. ebm-papst offer solutions for adapting fans to these ambient conditions.

Speed signal /2



- Speed-proportional rectangular pulse for external speed monitoring of fan motor.
- 2, 3 or 6 pulses per revolution.
- Open collector signal output.
- Extremely wide operating voltage range.
- Easy adaptation to user interface.
- Connection via separate lead.
- The sensor signal also serves as a major comparison variable for setting and maintaining the setpoint speed for interactive or controlled cooling with one or several interconnected fans.

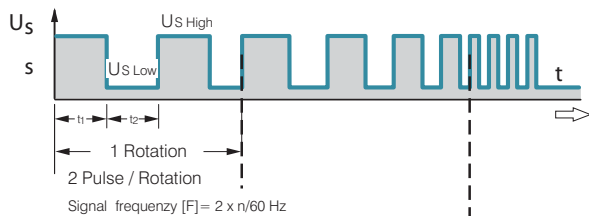
Electrical connection



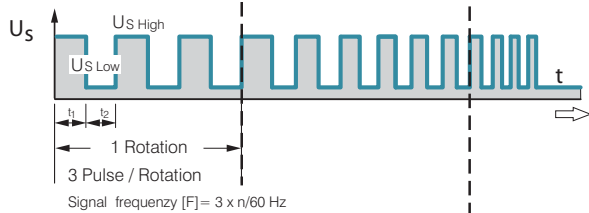
All voltages measured to ground.
External load resistor $R_a / U_S / U_{BS}$ required.

Signal output voltage

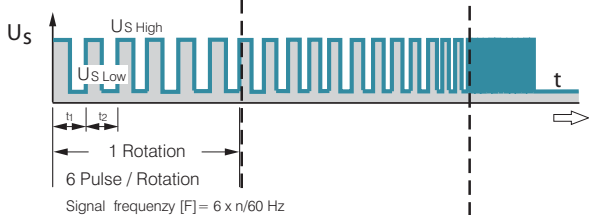
Standard signal for all models (exceptions see below)



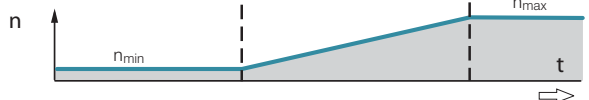
only for 4100 NH7 and NH8



All TD fans. Ex.: 6400 TD



Fan Speed



Signal data	Speed signal $U_{S\ Low}$	Condition: I_{SINK}	Speed signal $U_{S\ High}$	Condition: I_{SOURCE}	Sensor operating voltage U_{BS}	Perm. sink current $I_{SINK\ max.}$	Pulses per revolution	Fan description
Type	VDC	mA	VDC	mA	VDC	mA	Page	
250	≤ 0,4	≤ 2	30	0	≤ 30	2	2	23
400 F	≤ 0,4	1	30	0	≤ 30	≤ 2	2	24
400	≤ 0,4	1	30	0	≤ 30	≤ 2	2	25
400 J	≤ 0,4	2	30	0	≤ 30	≤ 4	2	26
500 F	≤ 0,4	1	30	0	≤ 30	≤ 2	2	27
600 F	≤ 0,4	1	30	0	≤ 30	≤ 2	2	28
620	≤ 0,4	2	30	0	≤ 30	≤ 4	2	29
630 U	≤ 0,4	2	30	0	≤ 30	≤ 4	2	30
600 N	≤ 0,4	2	28	0	≤ 28	≤ 4	2	31
600 J	≤ 0,4	2	30	0	≤ 30	≤ 4	2	33
700 F	≤ 0,4	2	30	0	≤ 30	≤ 4	2	34
8450	≤ 0,4	2	28	0	≤ 28	≤ 4	2	35
8400 N	≤ 0,4	2	28	0	≤ 28	≤ 4	2	36
8400 N VARIOFAN	≤ 0,4	2	30	0	≤ 30	≤ 4	2	37
8300	≤ 0,4	2	30	0	≤ 30	≤ 4	2	38
8200 J	≤ 0,4	2	30	0	≤ 30	≤ 4	2	39
3400 N	≤ 0,4	2	28	0	≤ 28	≤ 4	2	40
3400 N VARIOFAN	≤ 0,4	2	30	0	≤ 30	≤ 4	2	41
3300	≤ 0,4	2	30	0	≤ 30	≤ 4	2	42
3212 J / 3214 J	≤ 0,4	2	30	0	≤ 30	≤ 4	2	43
3218 J	≤ 0,4	2	60	0	≤ 60	≤ 4	2	43
4412 F / 4414 F	≤ 0,4	2	30	0	≤ 30	≤ 4	2	44
4418 F	≤ 0,4	2	60	0	≤ 60	≤ 4	2	44
4400 FN	≤ 0,4	2	30	0	≤ 30	≤ 4	2	45
4312 / 4314	≤ 0,4	2	30	0	≤ 30	≤ 4	2	46
4318	≤ 0,4	2	60	0	≤ 60	≤ 4	2	46
4312 / 4314 VARIOFAN	≤ 0,4	2	30	0	≤ 30	≤ 4	2	47
4318 VARIOFAN	≤ 0,4	2	60	0	≤ 60	≤ 4	2	47
4400	≤ 0,4	2	30	0	≤ 30	≤ 4	2	48
4100 N	≤ 0,4	2	30	0	≤ 30	≤ 4	2	49
4100 NHH...NH6	≤ 0,4	2	≤ 60	0	≤ 60	≤ 10	2	50
4100 NH7...NH8	≤ 0,4	2	≤ 60	0	≤ 60	≤ 20	3	51
DV 4100	≤ 0,4	2	30	0	≤ 30	≤ 4	2	52
5200 N	≤ 0,4	2	30	0	≤ 30	≤ 4	2	53

Available on request:

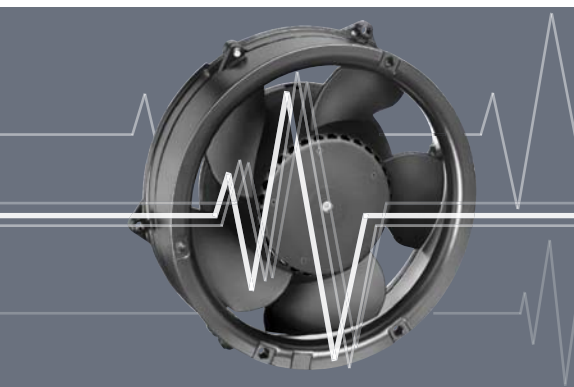
- Electrically isolated sensor and signal circuit.
- Varying voltage potentials for power and logic circuit.

Signal data	Speed signal U_S Low	Condition: I_{SINK}	Speed signal U_S High	Condition: I_{SOURCE}	Sensor operating voltage U_{BS}	Perm. sink current I_{SINK} max.	Pulses per revolution	Fan description
Type	VDC	mA	VDC	mA	VDC	mA	Page	
DV 5200	≤ 0,4	2	30	0	≤ 30	≤ 4	2	54
5112 N	≤ 0,4	2	15	0	≤ 5	≤ 20	2	55
5114 N / 5118 N	≤ 0,4	2	60	0	≤ 60	≤ 20	2	55
5300	≤ 0,4	2	≤ 72	0	≤ 72	≤ 4	2	56
5300 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	57
7112 N / 7118 N	≤ 0,4	2	60	0	≤ 60	≤ 20	2	58
7114 N	≤ 0,4	2	30	0	≤ 30	≤ 20	2	58
7200 N	≤ 0,4	2	15	0	≤ 15	≤ 20	2	59
6300	≤ 0,4	2	≤ 72	0	≤ 72	≤ 20	2	61
6300 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	62
DV 6200	≤ 0,4	2	30	0	≤ 60	≤ 20	2	64
6400	≤ 0,4	2	60	0	≤ 60	≤ 20	2	66
2200 FTD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	70
RL 48	≤ 0,4	2	3	0	≤ 30	≤ 4	2	81
RL 65	≤ 0,4	2	30	0	≤ 30	≤ 4	2	82
RL 90 N	≤ 0,4	2	30	0	≤ 30	≤ 4	2	83
RLF 100	≤ 0,4	2	30	0	≤ 30	≤ 4	2	84
RG 90 N	≤ 0,4	2	30	0	≤ 30	≤ 4	2	85
RG 125 N	≤ 0,4	2	30	0	≤ 30	≤ 4	2	86
RG 160 N	≤ 0,4	2	30	0	≤ 30	≤ 20	2	87
RG 160 TD	≤ 0,4	2	60	0	≤ 60	≤ 20	6	88
RG 190 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	89
RG 220 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	90
RG 225 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	91
RET 97 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	92
REF 100	≤ 0,4	2	30	0	≤ 30	≤ 4	2	93
RER 120 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	95
RER 133 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	97
RER 160 TD	≤ 0,4	2	60	0	≤ 60	≤ 20	6	99
REF 175 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	100
RER 175 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	101
RER 190 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	102
RER 220 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	103
RER 225 TD	≤ 0,4	2	72	0	≤ 72	≤ 20	6	104

Attention:

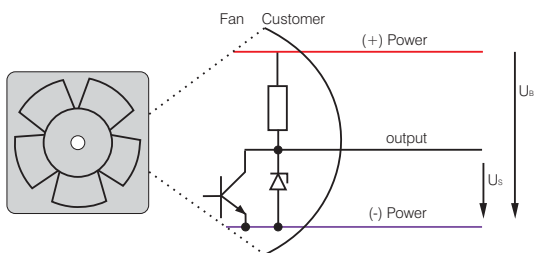
With these fan options, deviations in regard to temperature range, voltage range and power consumption are possible compared with standard fan data.

Speed signal /12



- Speed-proportional rectangular pulse for external speed monitoring of fan motor.
- 2, 3 or 6 pulses per revolution.
- TTL-compatible.
- Integrated pull-up resistor.
- Connection via separate lead.
- The sensor signal also serves as a major comparison variable for setting and maintaining the setpoint speed for interactive or controlled cooling with one or more interconnected fans.

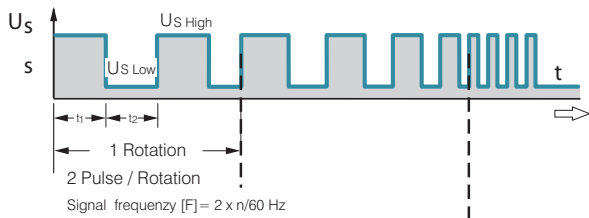
Electrical connection



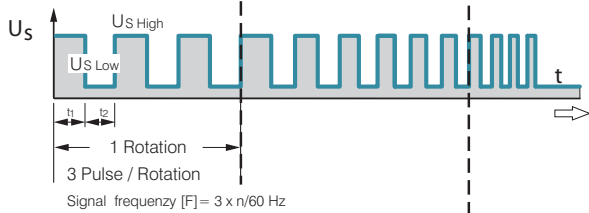
All voltages measured to ground.

Signal output voltage

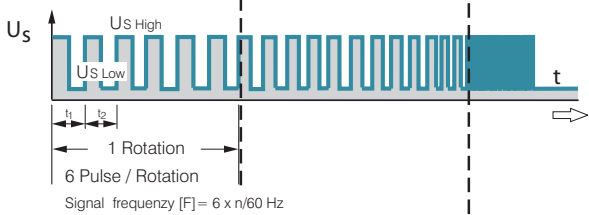
Standard signal for all models (exceptions see below)



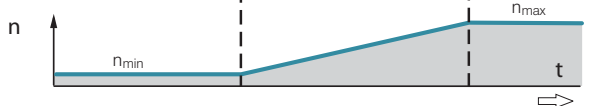
only for 4100 NH7 and NH8



All TD fans. Ex.: 6400 TD



Fan Speed



Signal data	Speed signal $U_{S\ Low}$	Condition: I_{sink}	Speed signal $U_{S\ High}$	Condition: I_{source}	Perm. sink current $I_{sink\ max.}$	Fan description
Type	VDC	mA	VDC	mA	mA	Page
614 N/12 GM	$\leq 0,4$	1	2,5-5,5	1	1	31
618 N/12 N	$\leq 0,4$	1	2,5-5,5	1	1	31
8412 N/12 H	$\leq 0,4$	1	2,5-5,5	1	1	36
4412 F/12 GM	$\leq 0,4$	1	2,5-5,5	1	1	44
4418 F/12	$\leq 0,4$	1	2,5-5,5	1	1	44
4312 /12 M	$\leq 0,4$	1	2,5-5,5	1	1	46
4314 /12	$\leq 0,4$	1	2,5-5,5	1	1	46
4182 N/12 X	$\leq 0,4$	1	2,5-5,5	1	1	49

Attention:

With these fan options, deviations in regard to temperature range, voltage range and power consumption are possible compared with standard fan data..

Available on request:

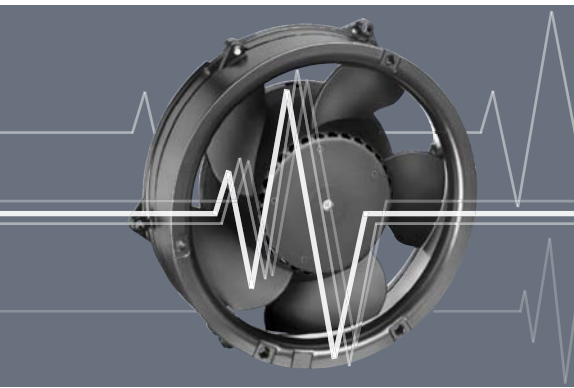
- Electrically isolated sensor and signal circuit.
- Varying voltage potentials for power and logic circuit.

Signal data	Speed signal U_S Low	Condition: I_{sink}	Speed signal U_S High	Condition: I_{source}	Perm. sink current I_{sink} max.	Fan description
Type	VDC	mA	VDC	mA	mA	Page
7214 N/12	≤0,4	2	2,5–5,5	1	≤20	59
DV 6224 /12	≤0,4	2	4,5–5,25	2	≤12	64
6424 /12 H	≤0,4	2	2,5–5,5	1	≤20	66
DV 6424 /12	≤0,4	2	4,5–5,25	2	≤12	68
DV 6448 /12	≤0,4	2	4,5–5,25	2	≤12	68
RG 125-19/12N/12	≤0,4	1	2,5–5,5	1	≤1	86
RG 160-28/12N/12	≤0,4	2	2,5–5,5	1	≤5	87
RG 160-28/18N/12	≤0,4	2	2,5–5,5	1	≤20	87
RER 125-19/12N/12	≤0,4	1	2,5–5,5	1	≤1	96
RER 160-28/12N/12	≤0,4	2	2,5–5,5	1	≤5	98
RER 160-28/18N/12	≤0,4	2	2,5–5,5	1	≤20	98

Attention:

With these fan options, deviations in regard to temperature range, voltage range and power consumption are possible compared with standard fan data.

Alarm signal /17

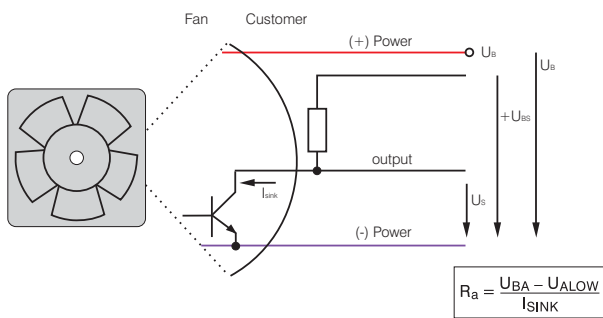


- Alarm signal for speed monitoring.
- Signal output via open collector.
- The fan emits a high continuous signal during trouble-free operation within the permissible voltage range.
- Low signal when speed limit is not reached.
- After elimination of fault, the fan returns to its setpoint speed; the alarm signal reverts to high.

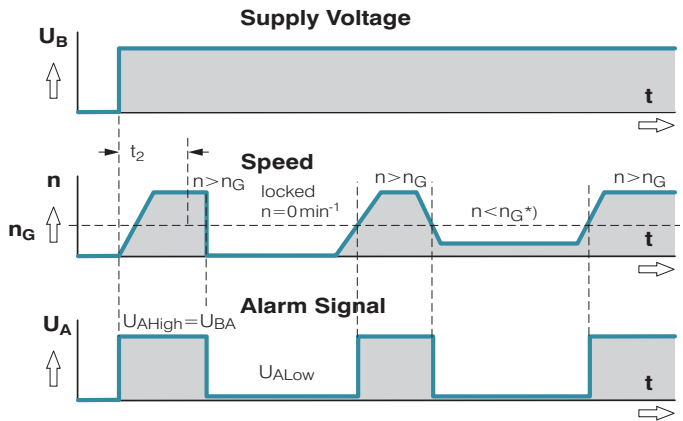
Alarm signal data	Alarm output voltage U_A Low	Condition:	Condition: $I_{sink} =$	Alarm output-voltage U_A High	Condition:	Condition: I_{source}	Alarm operating-voltage U_{BA} max.	Max. permissible Sink current	Alarm delay time t_2	Condition:	Speed limit n_G	Fan description
Type	VDC		mA	VDC		mA	VDC	mA	S		min^{-1}	Page
8318 /17	$\leq 0,4$	$n < n_G$	2	60	$n > n_G$	0	≤ 60	20	≤ 15	*	1500 ± 100	38
8318 /17 H	$\leq 0,4$	$n < n_G$	2	60	$n > n_G$	0	≤ 60	20	≤ 15	*	1500 ± 100	38
3314 /17	$\leq 0,4$	$n < n_G$	2	60	$n > n_G$	0	≤ 60	20	≤ 15	*	1500 ± 100	42
3318 /17 H	$\leq 0,4$	$n < n_G$	2	60	$n > n_G$	0	≤ 60	20	≤ 15	*	1500 ± 100	42
4318 /17	$\leq 0,4$	$n < n_G$	2	60	$n > n_G$	0	≤ 60	20	≤ 15	*	850 ± 100	46
4184 N /17 X	$\leq 0,4$	$n < n_G$	2	60	$n > n_G$	0	≤ 60	20	≤ 15	*	1500 ± 100	49

Attention: With these fan specials, deviations as regards temperature range, voltage range and power consumption are possible compared with standard fans.

Electrical connection



All voltages measured to ground.
 External load resistor R_a from U_A to U_{BA} required.
 With VARIOFANs with external temperature sensor for controlling the motor speed, the NTC sensor is not included in the scope of delivery.
 Temperature sensor LZ 370, see Accessories.



t_2 = Alarm signal suppression during start-up
 * $n < n_G$ by braking or locking.

Available on request:

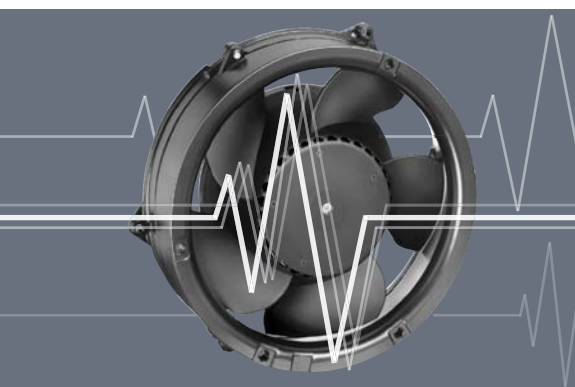
- With integrated signal latching for subsequent recognition of short-time faults.
- Alarm circuit open collector or TTL.
- Electrically isolated for maximum device safety;
Defects in the power circuit do not affect the alarm circuit.

Alarm signal data	Alarm output voltage U_A Low	Condition:	Condition: $I_{sink} =$	Alarm output-voltage U_A High	Condition:	Condition: $I_{source} =$	Alarm operating-voltage U_{BA} max.	Max. permissible Sink current	Alarm delay-time t_2	Condition:	Speed limit n_G	Fan description
Type	VDC		mA	VDC		mA	VDC	mA	S		min^{-1}	Page
4312/17 MV VARIOFAN	$\leq 0,4$	$n < n_G$	2	60	$n > n_G$	0	≤ 60	20	≤ 15	*	1500 ± 100	47
4312/17 T VARIOFAN	$\leq 0,4$	$n < n_G$	2	60	$n > n_G$	0	≤ 60	20	≤ 15	*	1500 ± 100	47
4314/17 T VARIOFAN	$\leq 0,4$	$n < n_G$	2	60	$n > n_G$	0	≤ 60	20	≤ 15	*	1150 ± 100	47
4318/17 V VARIOFAN	$\leq 0,4$	$n < n_G$	2	60	$n > n_G$	0	≤ 60	20	≤ 15	*	850 ± 100	47
7214 N/17	$\leq 0,4$	$n < n_G$	2	60	$n > n_G$	0	≤ 60	15	≤ 15	*	1330 ± 60	59

* After switching on U_B **Attention:**

With these fan specials, deviations as regards temperature range, voltage range and power consumption are possible compared with standard fans.

Alarm signal /19



- Alarm signal for speed monitoring.
- Signal output via open collector.
- The fan emits a low continuous signal during trouble-free operation within the permissible voltage range.
- High signal when speed limit is not reached.
- After elimination of fault, the fan returns to its setpoint speed; the alarm signal reverts to low.

Alarm signal data	Alarm output voltage U_A Low	Condition:	Condition: $I_{sink} =$	Alarm output voltage U_A High	Condition:	Condition: $I_{source} =$	Alarm operating-voltage U_{BA} max.	Max. permissible Sink current	Alarm delay-time t_2	Condition:	Speed limit n_G	Fan description
Type	VDC		mA	VDC		mA	VDC	mA	S		min ⁻¹	Page
8314 /19 H	≤0,4	$n > n_G$	2	60	$n < n_G$	0	≤60	20	≤15	*	1500 ± 100	38
4312 /19	≤0,4	$n > n_G$	2	60	$n < n_G$	0	≤60	20	≤15	*	1500 ± 100	46
7214 N /19	≤0,4	$n > n_G$	2	60	$n < n_G$	0	4,5–60	10	10 ± 4	*	1800 ± 20	59
RLF 100-11/14 /19	≤0,4	$n > n_G$	2	≤28	$n < n_G$	0	16–28	10	10 ± 4	*	1900 ± 100	84
RER 101-36/18N /19 HH	≤0,4	$n > n_G$	2	≤28	$n < n_G$	0	16–28	10	10 ± 4	*	1900 ± 100	94

* After switching on U_B

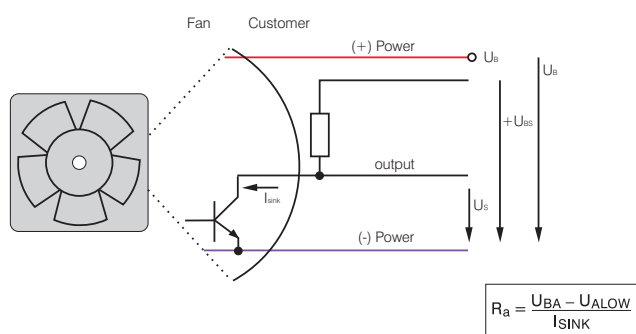
Attention:

With these fan specials, deviations as regards temperature range, voltage range and power consumption are possible compared with standard fans.

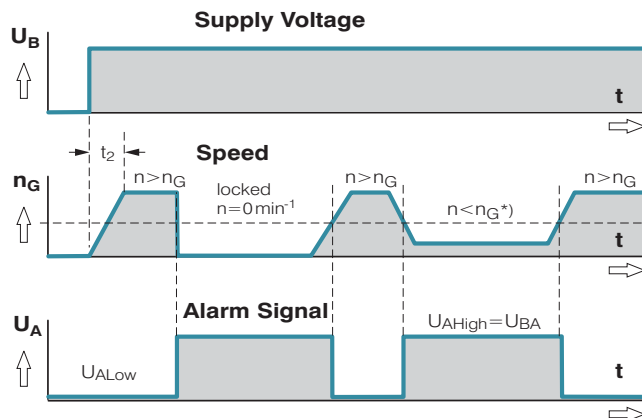
Available on request:

- With integrated signal latching for subsequent recognition of short-term faults.
- Alarm circuit open collector or TTL.
- Electrically isolated for max. device safety; defects in power circuit have no effect on the alarm circuit.

Electrical connection

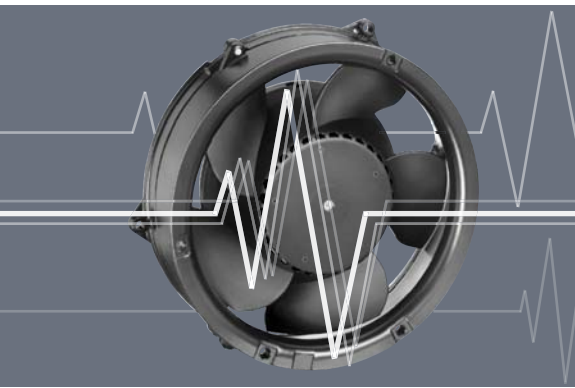


All voltages measured to ground.
External load resistor R_a from U_A to U_{BA} required.



t_2 = Alarm signal suppression during start-up.
* $n <$ Speed limit n_G by braking or locking.

Alarm signal /37



- Alarm signal for speed monitoring.
- Signal output via open collector.
- The fan emits a high continuous signal during trouble-free operation within the permissible voltage range.
- Low signal when speed limit is not reached.
- After elimination of fault, the fan returns to its setpoint speed; the alarm signal reverts to high.

Available on request:

- Alarm circuit TTL compatible.

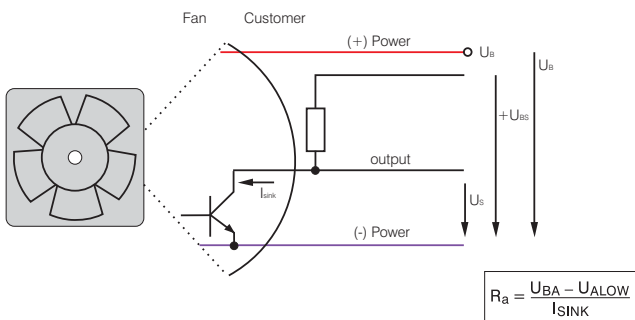
Alarm signal data	Alarm output voltage U_A Low	Condition:	Condition: $I_{sink} =$	Alarm output voltage U_A High	Condition:	Condition: $I_{source} =$	Alarm operating-voltage U_{BA} max.	Max. permissible Sink current I_{sink}	Alarm delay-time t_2	Condition:	Speed limit n_G	Fan description
Type	VDC		mA	VDC		mA	VDC	mA	S		min^{-1}	Page
8412 N/37 GMLV	$\leq 0,4$	$n \leq n_G$	2	28	$n > n_G$	0	≤ 28	10	< 1	*	0	36
3412 N/37 GV	$\leq 0,4$	$n \leq n_G$	2	28	$n > n_G$	0	≤ 28	10	< 1	*	0	40

* After switching on U_B

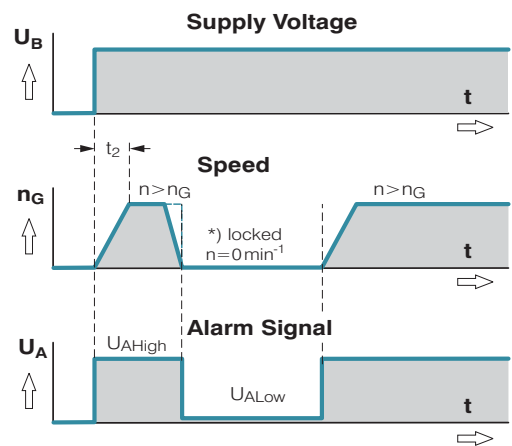
Attention:

With these fan specials, deviations as regards temperature range, voltage range and power consumption are possible compared with standard fans.

Electrical connection

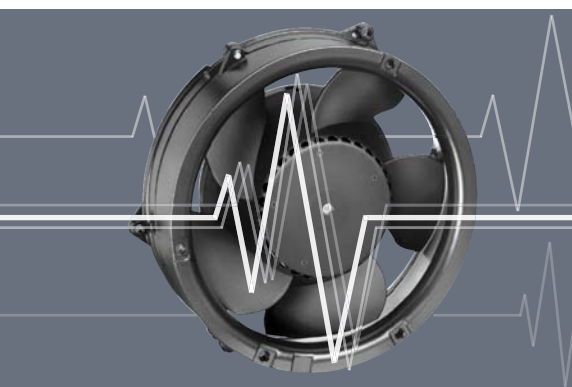


All voltages measured to ground.
External load resistor R_a from U_A to U_{BA} required.



t_2 = Alarm signal suppression during start-up.
* $n < n_G$ by braking or locking.

Alarm signal /39



- Alarm signal for speed monitoring.
- Signal output via open collector.
- The fan emits a low continuous signal during trouble-free operation within the permissible voltage range.
- High signal when speed limit is not reached.
- After elimination of fault, the fan returns to its setpoint speed; the alarm signal reverts to low.

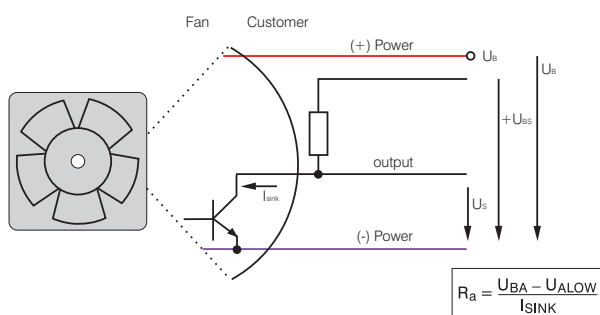
Alarm signal data	Alarm output voltage U_A Low	Condition:	Condition: $I_{sink} =$	Alarm output voltage U_A High	Condition:	Condition: $I_{source} =$	Alarm operating-voltage U_{BA} max.	Max. permissible Sink current I_{sink}	Alarm delay-time t_2	Condition:	Speed limit n_G	Fan description
Type	VDC		mA	VDC		mA	VDC	mA	S		min^{-1}	Page
412 /39	$\leq 0,5$	$n > n_G$	2	28	$n = n_G$	0	≤ 28	10	< 1	*	0	25
612 F/39 H	$\leq 0,5$	$n > n_G$	2	28	$n = n_G$	0	≤ 28	10	< 1	*	0	28
614 N /39 M	$\leq 0,5$	$n > n_G$	2	28	$n = n_G$	0	≤ 28	10	< 1	*	0	31
618 N /39 N	$\leq 0,5$	$n > n_G$	2	28	$n = n_G$	0	≤ 28	10	< 1	*	0	31
3412 N/39 H	$\leq 0,5$	$n > n_G$	2	28	$n = n_G$	0	≤ 28	10	< 1	*	0	40
3414 N/39 HH	$\leq 0,5$	$n > n_G$	2	28	$n = n_G$	0	≤ 28	10	< 1	*	0	40
4412 F/39 GL	$\leq 0,5$	$n > n_G$	2	28	$n = n_G$	0	≤ 28	10	< 1	*	0	44
4412 F/39 M	$\leq 0,5$	$n > n_G$	2	28	$n = n_G$	0	≤ 28	10	< 1	*	0	44
4414 F/39	$\leq 0,5$	$n > n_G$	2	28	$n = n_G$	0	≤ 28	10	< 1	*	0	44
4414 FN/39 H	$\leq 0,4$	$n > n_G$	2	≤ 30	$n = n_G$	0	≤ 30	4	< 1	*	0	44

* after switching on U_B

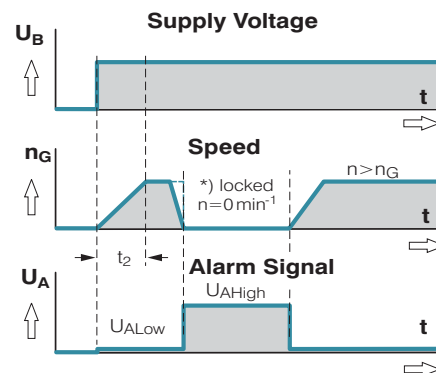
Attention:

With these fan specials, deviations as regards temperature range, voltage range and power consumption are possible compared with standard fans.

Electrical connection

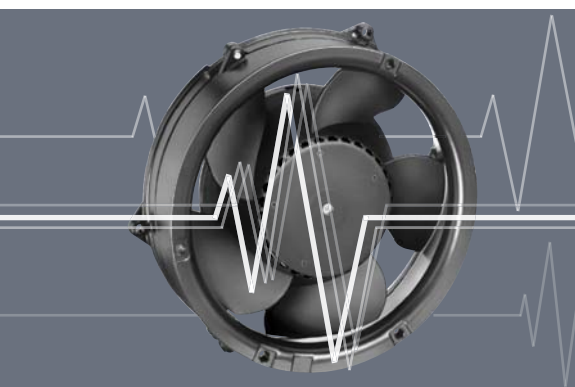


All voltages measured to ground
External load resistor R_a from U_A to U_{BA} required.



t_2 = Alarm signal suppression during start-up
* $n < n_G$ by braking or locking

Vario-Pro®



- "Software instead of hardware" – aptly describes the unique fan concept, equipped at the plant with tailor-made intelligence for cooling electronics.
- Flexible configuration using software, allows quicker availability, sampling from the factory and the ability to supply customer-specific solutions in any quantity.

Vario-Pro-Features

External Speed setting

- Speed setting via temperature, PWM or analogue control voltage. See page 120 (Speed setting).
- Description of speed curve with up to 14 selectable interpolation points. Linear interpolation between the points.
- Zero speed possible.
- Recognition of sensor failure: In case of loss of sensor, the fan operates at programmable (fail-safe) speed.

Alarm and tachometer functions

- Optional alarm and/or tachometer function
- Selectable alarm speed limit (with hysteresis) and alarm delay time
- Latching of alarm signal
- Delay only when starting or permanently active
- "High" or "Low" output signal in case of alarm
- Optional alarm if temperature sensor fails.
- Optional alarm in case of excess temperature.

Motor management

- High control accuracy due to digital motor management
- Higher operating efficiency due to optimum adaptation of motor hardware and software.

Fan series	Page
620	29
8400 N	36
8300	38
8200 J	39
3400 N	40
3300	42
3200 J	43
4400 FN	45
4300	40
4100 N	49
4100 NH	50
4100 NH 7-8	51

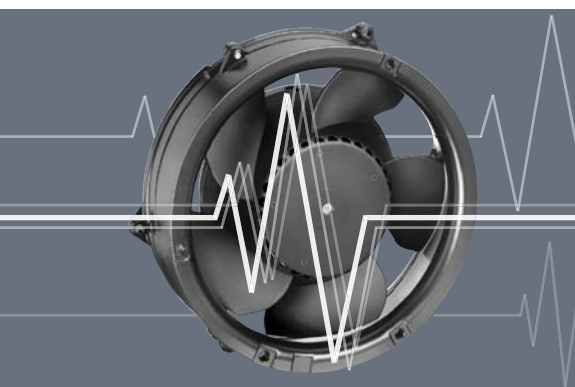
Fan series	Page
DV 4100	52
5200 N	53
DV 5200	54
5100 N	55
5300	56
7100 N	58
7200 N	59
6100	60
6300	61
DV 6200	64
6400	66
DV 6400	68

Fan series	Page
RL 90 N	83
RLF 100	84
RG 90 N	85
RG 125 N	86
RG 160 N	87
REF 100	93
RER 101	94
RER 125 N	96
RER 160 N	98

Speed setting via temperature sensor

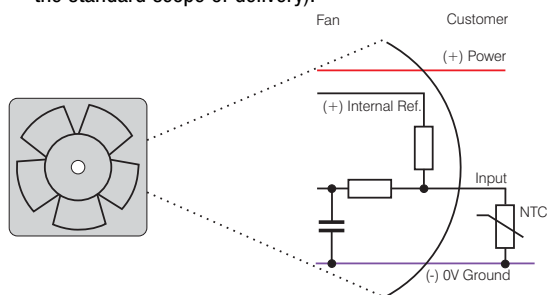


- The control variable is a temperature sensor that is either integrated into the fan or connected to an additional control wire.



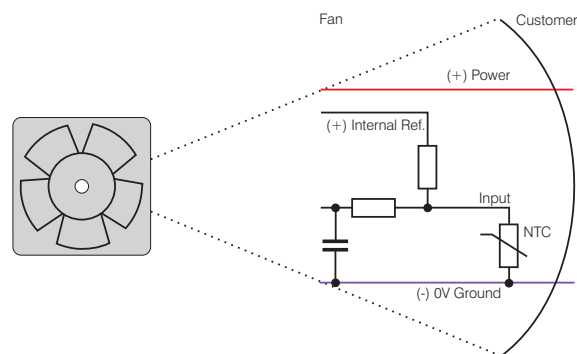
External temperature sensor Type T

- Ext. NTC type LZ370 is required (not included in the standard scope of delivery).

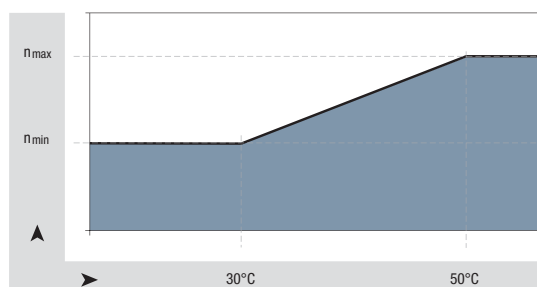


Internal temperature sensor Type I

- NTC integrated in fan hub.



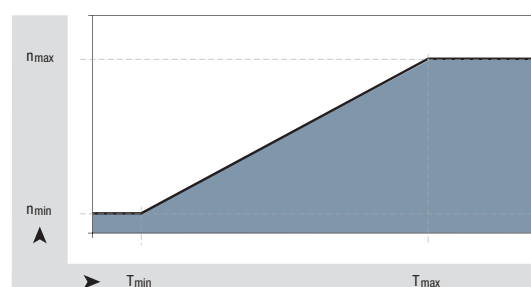
Standard speed-temperature curve for type T and type I



$$n_{\min} \approx \frac{1}{2} n_{\max}$$

$$T_{\min} \approx 30\text{ }^{\circ}\text{C}; T_{\max} = 50\text{ }^{\circ}\text{C}$$

Optionally available with user-selectable temperature-speed curve control



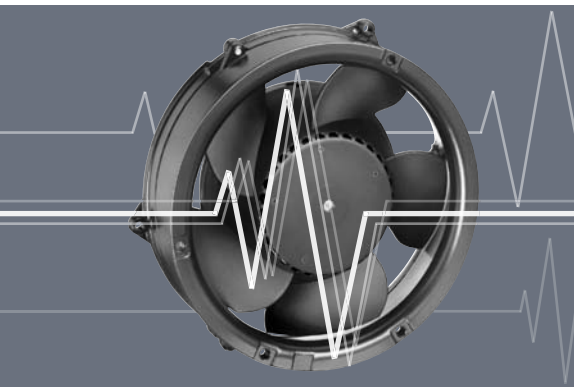
$$n_{\min} \approx 800\text{ } \frac{1}{\text{min}} \quad n_{\max} \text{ model-dependent}$$

$$T_{\min} \approx 5\text{ }^{\circ}\text{C} \quad T_{\max} \leq 85\text{ }^{\circ}\text{C, model-dependent}$$

Speed setting with control voltage or PWM

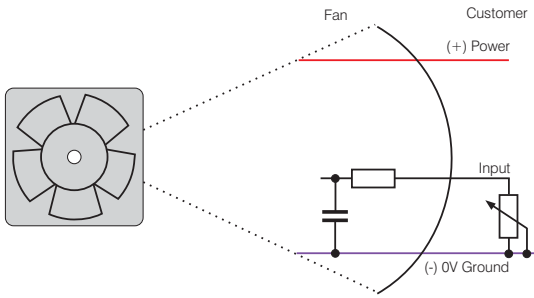


– The control variable is a PWM signal or analogue control voltage.

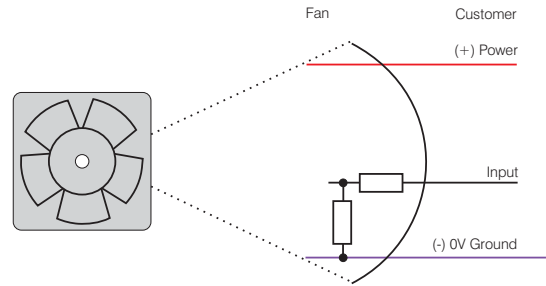


Speed setting via control voltage Type A

– Standard control range 0 ... 5 V.

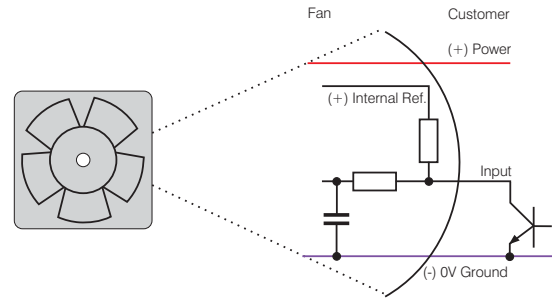


– Optional control range 0 ... 10 V.

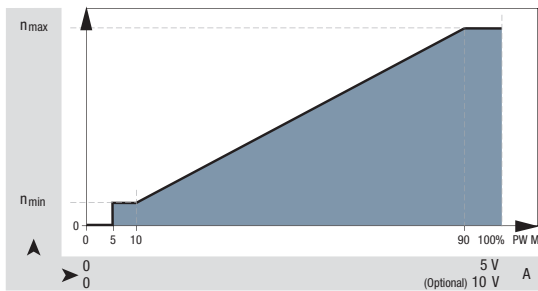


Speed setting via PWM Type P

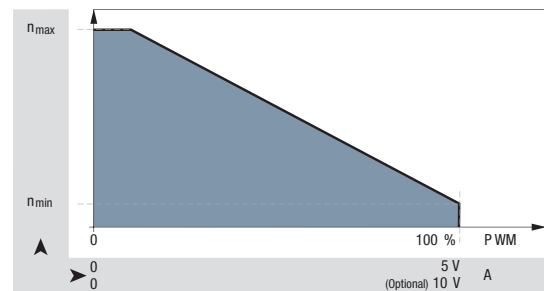
- Standard PWM signal in 2 versions
- a) PWM frequency 2kHz (0-100%), Open collector input
- b) 4-Wire interface to Intel specification for 12 VDC fan, PWM frequency 20 kHz, incl. speed signal /2



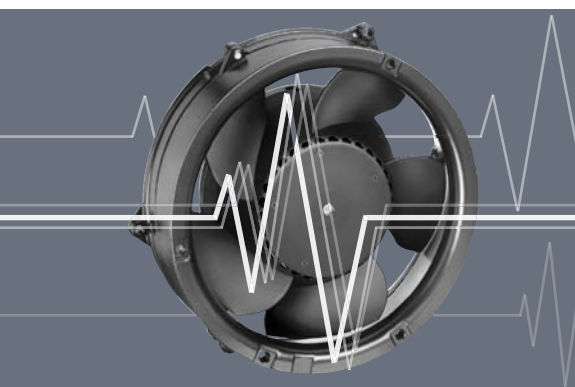
Standard curve P / A



Optional – selectable curve P / A

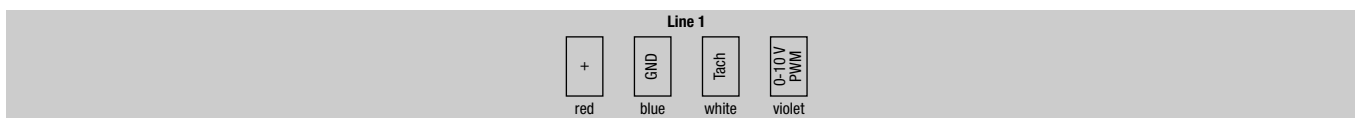
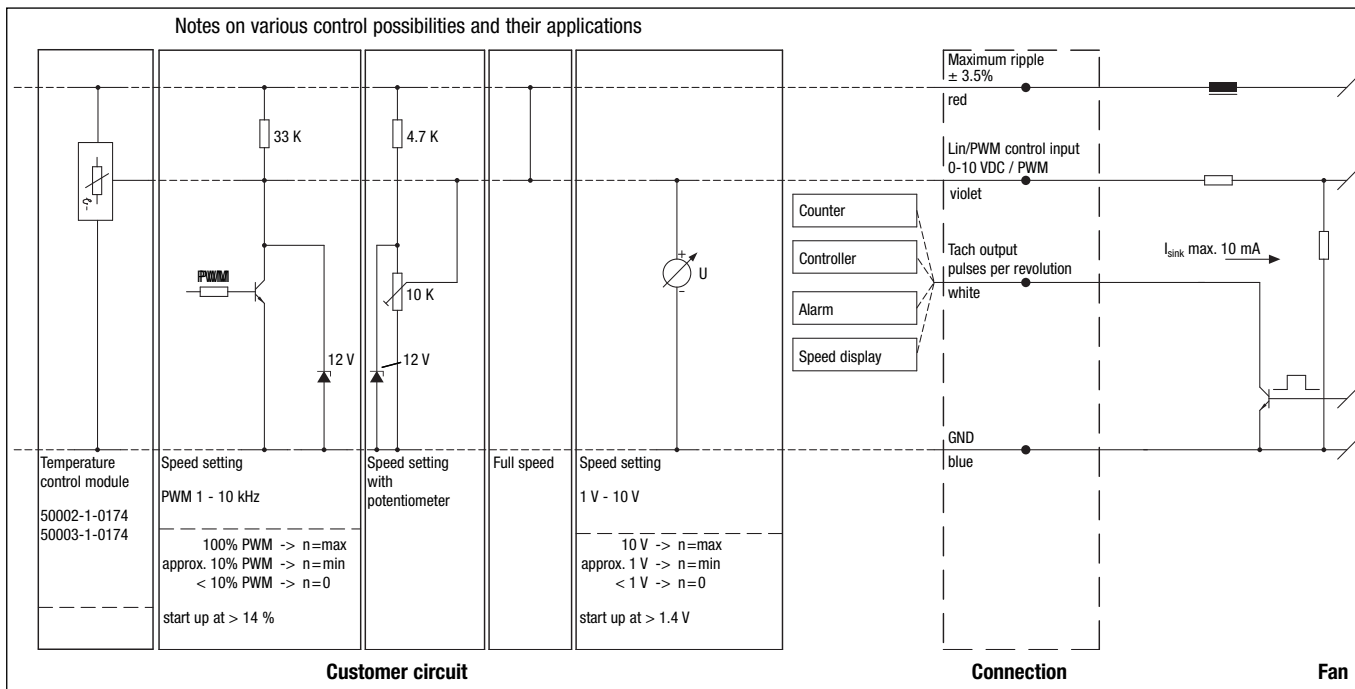


Speed setting via multi-option control input



- Customer can operate input either with PWM signal, analogue voltage, external temperature control module or resistor.
- The control signal-speed characteristics of the fan differ from the standard curve of the A and P inputs (see p. 121).
- To attain the maximum speed, the control wire must be switched against UB.
- The control input is usually combined with an open collector tachometer (Type /2, see page 110).

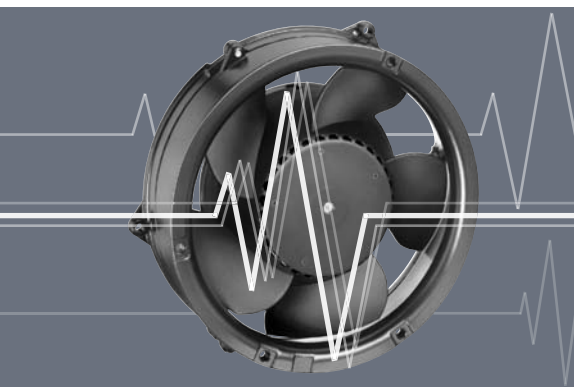
Speed setting via multi-option control input



Line	Connection	Colour	Assignment / function
1	+	red	Maximum ripple ± 3.5 %
	GND	blue	GND
1	Tach	white	Tach output: 3 pulses / revolution
	0-10 V / PWM	violet	Control input (Impedance 100 kΩ)

Protected fans

against environmental influences



- Meeting special requirements for a broad range of applications.
- Resistant to environmental influences, such as dust, splash water, humidity, spray water and salt spray fog.
- Highly competent solutions for adapting fans to environmental conditions.

Moisture protection

A coating on the motor and printed circuit board protects against humidity and condensation.

IP 54 protection

The motor and circuit board are coated to protect them against splash water and humidity. High protection classes up to IP 67 are available on request.

Salt spray fog protection

Salt spray fog is extremely demanding on the resistance of the product. ebm-papst makes use of technologies that protect fans and blowers from salt spray fog reliably and durably.

Stainless steel bearings

Special bearings made of stainless steel provide additional protection.

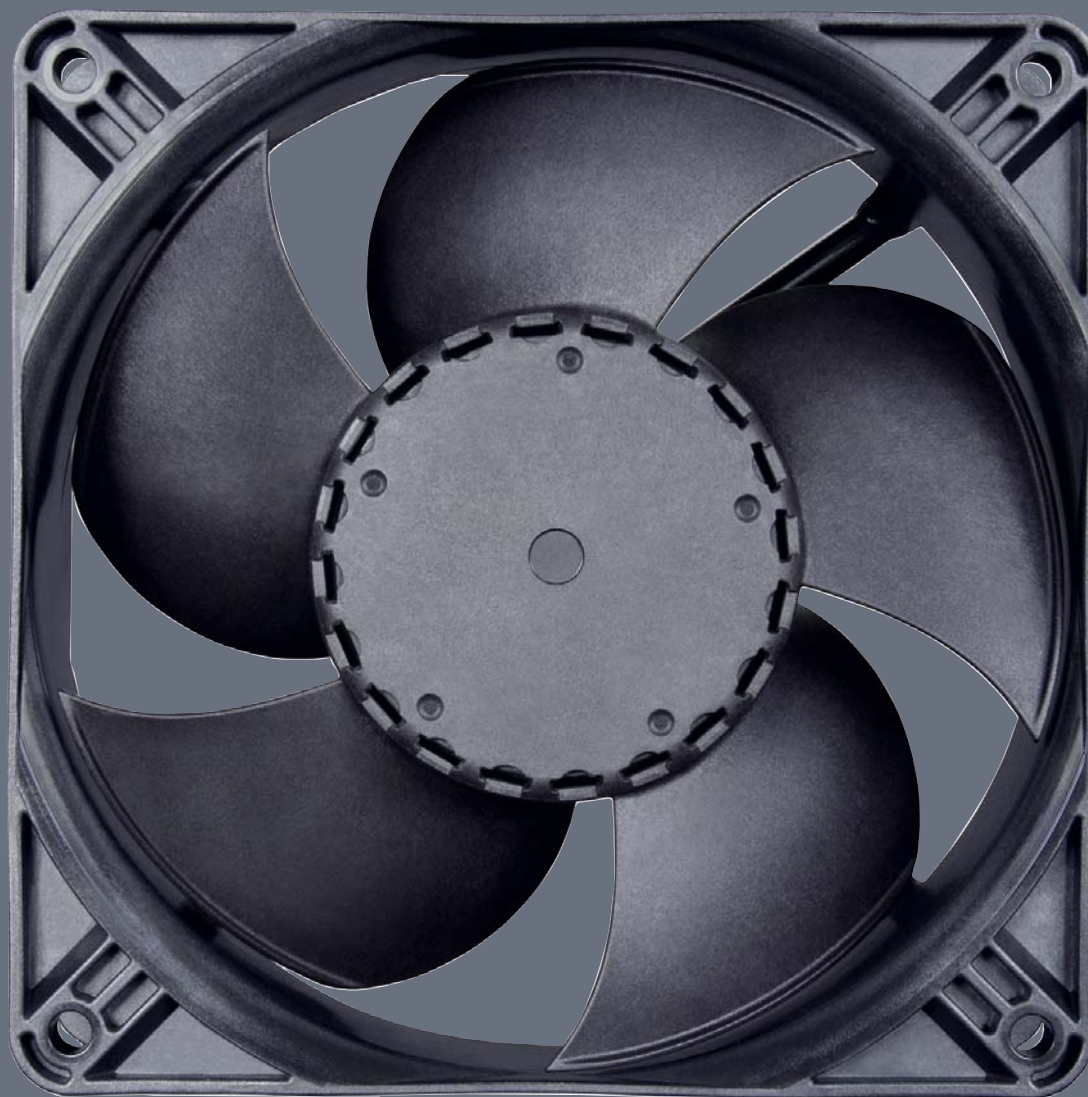
The solutions that are available and in use can differ depending on size. We would be glad to develop solutions tailored to the demands of your application.





ACmaxx / GreenTech EC-compact fans

ACmaxx / GreenTech EC-compact fans technical information	126
ACmaxx / GreenTech EC-compact fans overview	130
ACmaxx / GreenTech EC-compact fans axial fans	131



Information

DC axial fans

DC centrifugal fans

DC fans - specials

ACmaxx / GreenTech EC-compact fans

AC axial fans

AC centrifugal fans

Accessories

Representatives

ACmaxx / GreenTech EC-compact fans

Technical information

Progress made by ebm-papst

The best example: The ACmaxx fans from ebm-papst, which, thanks to an ingenious yet simple improvement over conventional AC fans, provide substantial benefits.

The aim in developing the new ACmaxx series was to raise the technology standard of the conventional AC fan significantly and, in the process, facilitate the transition to the new technology by retaining the overall mounting dimensions. In short, to ensure the fans can be replaced 1:1 without any peripheral changes or changes to the voltage situation.

ebm-papst offers two generations of ACmaxx products that meet different needs.



AC

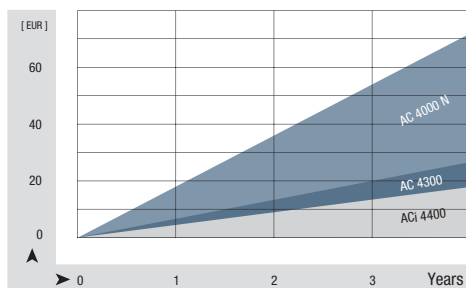
ACmaxx

GreenTech EC-compact fans

What ACmaxx and GreenTech EC-compact fan have in common:

Energy efficiency

The drive concept is based on state-of-the-art GreenTech EC technology with outstanding motor efficiency. Compared to AC fans of the same size, ACmaxx energy consumption is up to 77% lower—for higher cooling capacity! The energy balance alone means that the products pay for themselves after only a few months. The savings over the entire service life, especially in systems with multiple fans, is considerable.

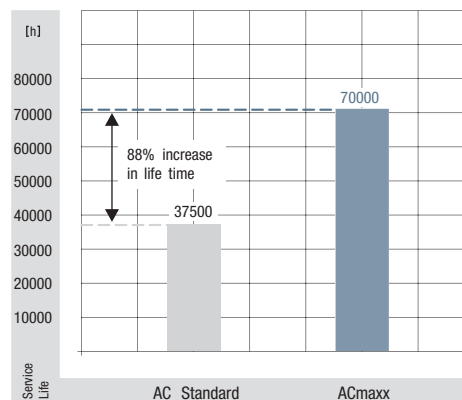


Independent of mains frequency and mains voltage

The ACmaxx and GreenTech EC-compact fans are prepared for direct connection to all AC voltages and frequencies. The speed, and thus important properties of the fan such as air flow and noise, are independent of the power frequency and do not change, even within the defined voltage range. Voltage fluctuations in the power system are automatically compensated for.

Long service life

The efficiency of ACmaxx and GreenTech EC-compact fan motors is up to 75% higher than that of conventional AC fan variants. This not only saves energy, it also means less intrinsic heating in the motor. The reduced heating has a direct, positive effect on the bearing system, which is why the fans have a service life that is up to 85% longer! This also lengthens the service and maintenance intervals significantly. The expense of replacement fans, and even more expensive downtimes, are kept to a manageable minimum.



ACmaxx / GreenTech EC-compact fans

Information

DC axial fans

DC centrifugal fans

DC fans - specials

ACmaxx / GreenTech EC-compact fans

AC axial fans

AC centrifugal fans

Accessories

Representatives

Safety

- Safety certifications: UL, CSA and VDE 0805 / EN60950. VDE 0700 / EN60335 on request.
- Our fans have the CE mark of conformity.
- EMC protection:
 - > EN61000-4-4 Level 1 (1 kV or 2 kV)B
 - > EN61000-4-2 Level 8 kV/15 kV or 4 kV/8 kV
 - > EN61000-4-3
 - > EN61000-4-6
 - > EN61000-4-8
 - > EN55022 Class B

Ambient influences

AC fans are extremely common and are used in a wide variety of applications. In control cabinet cooling, beer coolers, cooling cabinets, wood-burning stoves, medical devices – all have different requirements for resistance to ambient influences. ACmaxx and GreenTech EC-compact fans offer the same features for protection against moisture, splash water and rough ambient conditions.

Particular design features of the GreenTech EC-compact fans (ACi 4400):

GreenTech EC-compact fans is more compact!

As large as existing AC fans – and not a bit larger. This is the most outstanding feature of the new GreenTech EC-compact fans ACi 4400. Even in the hub area, the fan does not differ from typical 119x119x38 mm AC fans. Out with the AC, in with the GreenTech EC-compact fans ACi 4400 – it's that simple.

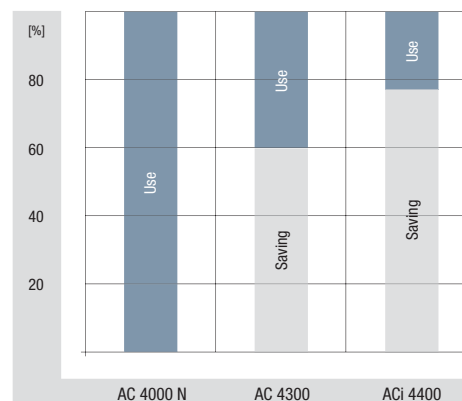


ACmaxx

GreenTech EC-compact fans

GreenTech EC-compact fans is more efficient!

ACmaxx saves energy, and the GreenTech EC-compact fans generation saves even more. While an AC fan at 50 Hz can barely reach an overall efficiency of 5-6%, the ACmaxx makes it to approx. 20-25%. With the new GreenTech EC-compact fans ACi 4400, a remarkable level of up to 30% is reached. This is the result of the optimisation of the entire package made up of drive, electronics, AC/DC conversion and aerodynamics. Thus the new GreenTech EC-compact fans series boasts energy savings of almost 75% compared to the corresponding AC fan, thus providing significantly higher savings than the 40% level of the old AC 4300 generation.



GreenTech EC-compact fan is quieter!

The GreenTech EC-compact fan ACi 4400 is quieter! Quieter than AC fans and quieter than the existing ACmaxx generation. The reason for this is the optimised aerodynamics and the drive, which is optimised for minimum structure-borne noise. Thus the fan is only half as loud at comparable air performance, and is up to 6 dB(A) quieter at some operating points.

Speed independent of voltage and frequency

For the GreenTech EC-compact fans ACi 4400, the speed, and thus the air flow and operating noise, are independent of the supply voltage and power frequency.

Versions are available for 115 VAC with a voltage range from 85 to 132 VAC and 230 VAC with a voltage range of 195 to 265 VAC. Voltage fluctuations and frequency differences in the power system are compensated for automatically.

ACmaxx / GreenTech EC-compact fans

Technical information

Particular design features of the ACmaxx:

Prepared for all AC voltages

These models have a very wide voltage range from 85 to 265 VAC – the global voltage range, so to speak. This enables the fan to be used around the world, opening up large savings potentials. In addition to reduced logistics effort and stock-keeping, worldwide availability is key. ACmaxx is compatible with every supply voltage—no switching needed. From 85 to 265 volts and mains frequencies of 50 and 60 hertz. Voltage fluctuations in the power system are automatically compensated for.

Higher performance

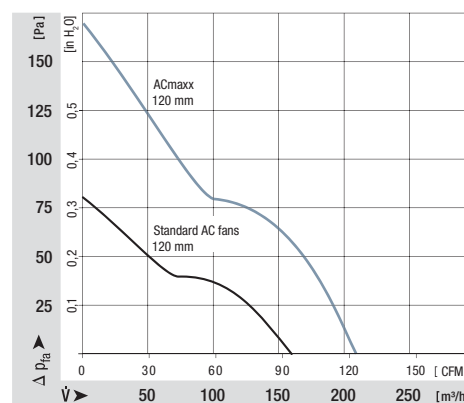
Unlike conventional AC technology, the state-of-the-art drive concept of this fan series is not linked to a fixed power frequency. This allows the motor speed to be increased over a wide range. Thus ACmaxx provides significantly higher air flow and significantly increased pressure.

Higher flexibility

The flexibility of ACmaxx is one-of-a-kind. With its intelligent features, ACmaxx can be individually adapted to the specific application: standby mode, overload mode at peak times or night reduction all the way to temperature-controlled quiet operation are all possible. From speed setting to alarm or speed signal outputs, ACmaxx offers optional interfaces with which you can quickly and easily implement operation monitoring.

You can find further information about these fan options in the "Specialised fans" chapter, starting on page 107.

Or you can simply contact our application engineers to discuss your ideal ACmaxx or GreenTech EC-compact fan.



Optional special versions

Information on pictograms

On the pages of the catalogue and on the following overview pages, the pictograms illustrated below provide information about technically possible special versions in the fan line presented.

Please note that these special versions are not possible for all voltages and speeds, and not in all combinations.

The special versions are designed for specific customers and projects and are not usually available off the shelf.



Speed signal

The fan uses a separate wire to output information about its speed, and thus about the speed of the rotor. For technical details, please refer to page 110.



Go / No-go alarm

The fan uses a separate wire to output a static signal when it is stationary, thus providing information about whether or not the rotor is turning. For technical details, please refer to page 117.



Alarm with limit speed

If the speed drops below a certain level defined in the fan's electronics, the fan will emit a static signal, thus providing information about whether or not the rotor is turning. For technical details, please refer to page 114.



External temperature sensor

An NTC is connected to the fan via a separate wire and the fan changes its speed depending on the temperature at the NTC. For technical details, please refer to page 120.



Internal temperature sensor

In this case, the NTC is integrated into the fan and the fan changes its speed depending on the temperature at the NTC. For technical details, please refer to page 120.



PWM control input

The speed of the fan can be changed via a pulse-width-modulated signal. This signal is applied to a specially provided wire. For technical details, please refer to page 121.



Analogue control input

The speed of the fan can be changed via a control voltage. This control voltage is applied to a specially provided wire. For technical details, please refer to page 121.



Multi-option control input

The fan has a control input that the user can trigger either using a PWM signal, an analogue signal or a resistor. For technical details, please refer to page 122.



Protection against moisture

Protection for the fan's electronics against moisture and condensation. For technical details, please refer to page 123.



IP 54

Protection of motor and PCB board against splashed water and humidity. For technical details, please refer to page 123.



Protection against salt spray fog

Protection of fan against the damaging effects of salt spray fog. For technical details, please refer to page 123.

Fans for AC operation

Overview of air performance

Dimension	Series	Air flow	Air flow (m³/h)																		Page
			10	20	30	40	50	60	70	80	90	100	200	300	400	500	600	700	800	900	
□ 80 x 32	AC 8300 H	80																			131
□ 92 x 38	AC 3200 J	144																			132
□ 119 x 25	AC 4400 FN	205																			133
□ 119 x 32	AC 4300 H	204																			134
NEW □ 119 x 38	ACi 4400	100..180																			135
172 Ø x 51	AC 6100 N	350																			136
172 Ø x 51	AC 6200 N	350																			137
NEW 98,5 Ø x 130	AC 100 NR	80..135																			138

Overview of technically feasible designs

Dimension	VDE, UL, CSA	Sinter sleeve bearings / ball bearings	Sensor	Go / No-go alarm Alarm with limit speed	External temperature sensor Internal temperature sensor	PWM control input Analogue control input	Multi-option control input	Humidity protection IP >= IP54	Salt spray fog protection	Page
Series	mm									P.
AC 8300 H	80 x 80 x 32	* ■	•	• •	• • • •	–	• • •	• • •	131	
AC 3200 J	92 x 92 x 38	* ■	•	• •	• • • •	–	• • •	• • •	132	
AC 4400 FN	119 x 119 x 25	* ■	•	• •	• • • •	–	• – –	• • •	133	
AC 4300	119 x 119 x 32	* ■	•	• •	• • • •	–	• • •	• • •	134	
NEW ACi 4400	119 x 119 x 38	■	–	– –	– – – –	–	• • •	• • •	135	
AC 6100 N	172 Ø x 51	* ■	•	• •	• • • •	–	• • •	• • •	136	
AC 6200 N	172 Ø x 51	* ■	•	• •	• • • •	–	• • •	• • •	137	
NEW AC 100	100 Ø x 130	■	–	– –	– – – –	–	• • –	• • –	138	

– not yet available □ Sleeve bearings
 • available ■ Ball bearings
 * Partially granted, partially in registration stage.

Please note that these special versions are not possible for all voltages and speeds, and not in all combinations. The special versions are designed for specific customers and projects. As a rule they are not available off the shelf and are tied to minimum volumes.

Please consult your customer support representative about the feasibility of your special variant.

max. 80 m³/h

ACmaxx axial fans

Series AC 8300 H 80 x 80 x 32 mm



Highlights:

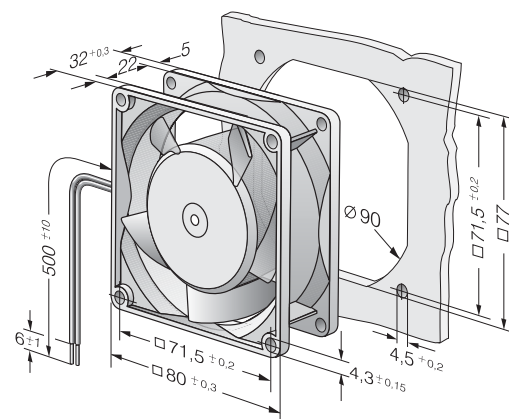
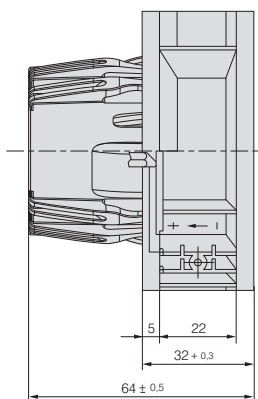
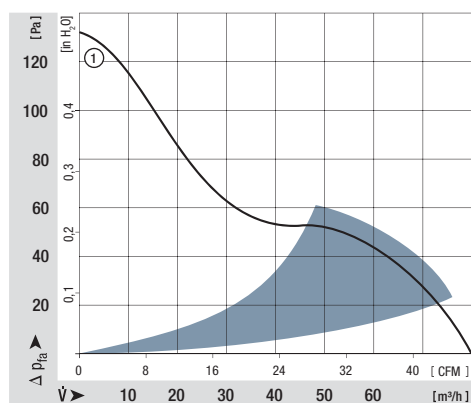
- Universally suitable for all AC voltages between 85 and 265 V.
- Fan speed not dependent on line frequency.
- Significantly reduced power consumption compared to conventional AC fans.
- Open loop speed control, sensor and alarm signal possible on request.

General attributes:

- Material: fiberglass-reinforced plastic. PA impeller, PBTP housing.
- Fully integrated electronic commutation.
- Protected against locking.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Air exhaust over struts. Direction of rotation clockwise, seen on rotor.
- Mass: 325 g.

Nominal data	Air flow		Nominal voltage	Frequency	Voltage range	Sound pressure level	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ at 40 °C	at T _{max}	Curve
	m ³ /h	CFM												
AC 8300 H	80	47,1	115 / 230	50 / 60	85 ... 265	48	6,2	■	7,5	5 000	-20...+75	55 000 / 25 000	1	

Speed variants available on request.



max. 144 m³/h

ACmaxx axial fans

Series AC 3200 J 92 x 92 x 38 mm



Highlights

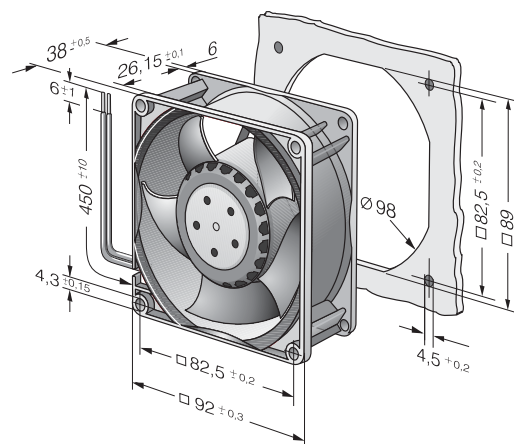
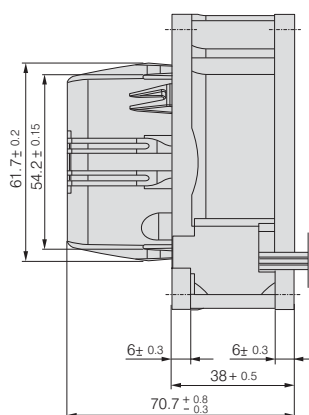
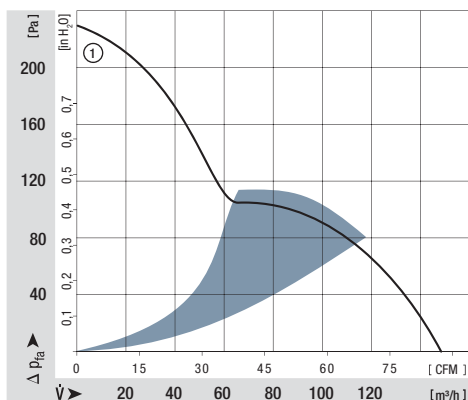
- Universally suitable for all AC voltages between 85 and 265 V.
- Fan speed independent of power frequency.
- Significantly reduced power consumption compared to conventional AC fans.
- Open loop speed control, sensor and alarm signal possible on request.
- Rigid compression curve for high air flow at high back pressure.
- Innovative impeller with winglets for low noise levels.

General attributes:

- Material: fibreglass-reinforced plastic. PA impeller, PBTP housing.
- Fully integrated electronic commutation. Protected against locking.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Air exhaust over struts. Direction of rotation clockwise, seen on rotor.
- Mass: 325 g.

Nominal data	Air flow		Nominal voltage	Frequency	Voltage range	Sound pressure level	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀		Curve
	m ³ /h	CFM										Hours	Hours	
AC 3200 JH	144	84,8	115 / 230	50 / 60	85 ... 265	55	6,4	■	11	6 800	-20...+70	70 000 / 35 000	1	

Speed variants available on request.



max. 205 m³/h

ACmaxx axial fans

Series AC 4400 FN 119 x 119 x 25 mm



Highlights:

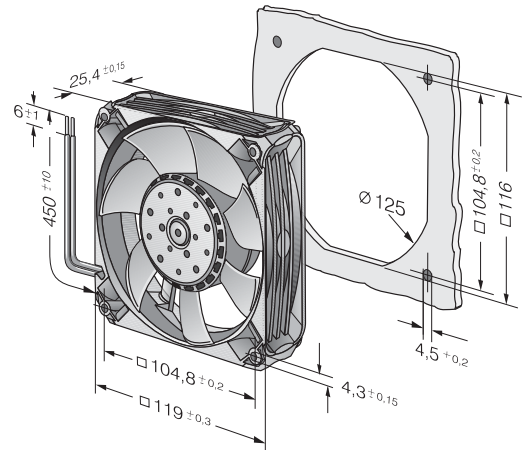
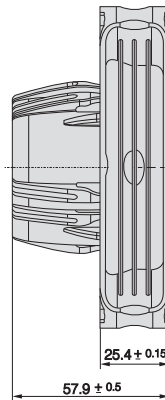
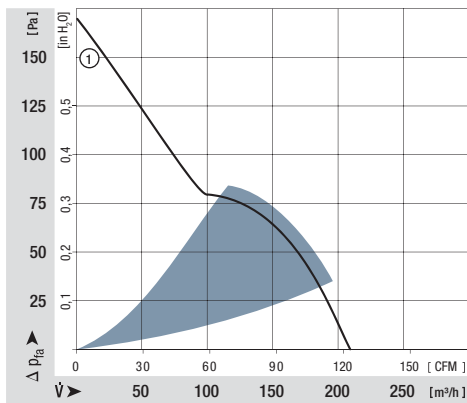
- Universally suitable for all AC voltages between 85 and 265 V.
- Fan speed independent of power frequency.
- Significantly reduced power consumption compared to conventional AC fans.
- Open loop speed control, sensor and alarm signal possible on request.
- Rigid compression curve for high air flow at high back pressure.
- Innovative impeller with winglets for low noise levels.

General attributes:

- Material: fibreglass-reinforced plastic. PA impeller, PBTP housing.
- Fully integrated electronic commutation. Protected against locking.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Air exhaust over struts. Direction of rotation counter-clockwise, seen on rotor.
- Mass: 370 g..

Nominal data	Air flow		Nominal voltage	Frequency	Voltage range	Sound pressure level	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀		Curve
	m ³ /h	CFM										Hours	Hours	
AC 4400 FNN	205	120,7	115 / 230	50 / 60	85 ... 265	53	6,2	■	12	4 850	-20...+70	60 000 / 30 000	1	

Speed variants available on request.



max. 204 m³/h

ACmaxx axial fans

Series AC 4300 119 x 119 x 32 mm



Highlights:

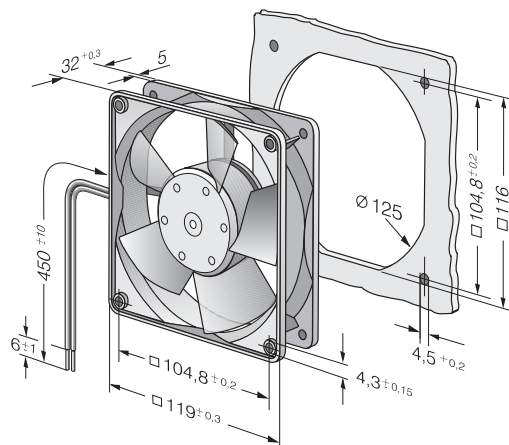
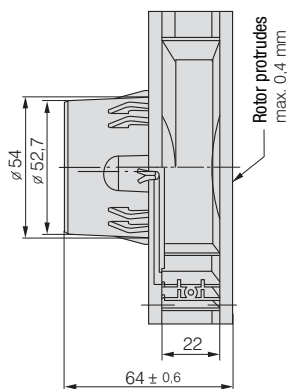
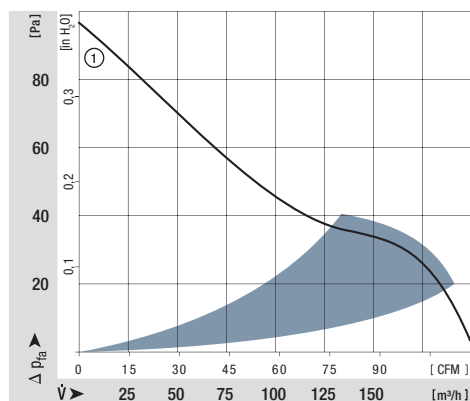
- Universally suitable for all AC voltages between 85 and 265 V.
- Fan speed independent of power frequency.
- Significantly reduced power consumption compared to conventional AC fans.
- Open loop speed control, sensor and alarm signal possible on request.

General attributes:

- Material: fibreglass-reinforced plastic. PA impeller, PBTP housing.
- Fully integrated electronic commutation.
- Protected against locking.
- Connection via single strands AWG 22, TR 64. Bared and tin-plated.
- Air exhaust over struts. Direction of rotation clockwise, seen on rotor.
- Mass: 325 g.

Nominal data	Air flow		Nominal voltage	Frequency	Voltage range	Sound pressure level	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀		Curve
	m ³ /h	CFM										Hours	Hours	
Type	m ³ /h	CFM	V	Hz	VAC	dB(A)	Bel(A)	□/■	Watts	RPM	°C	Hours	Hours	
AC 4300 H	204	120,1	115 / 230	50 / 60	85 ... 265	51	6,4	■	11	3 400	-20...+70	45 000 / 22 500	1	

Speed variants available on request.



max. 180 m³/h

GreenTech EC-compact fans axial fans

Series ACi 4400 119 x 119 x 38 mm



Highlights:

- Energy efficient AC fan with EC technology.
- Conversion and drive electronics fully integrated.
- Significant lower power consumption than **existing** AC fans.
- Significantly lower noise than existing AC fans.
- Significantly higher service life than existing AC fans.
- Fan speed not dependent on line frequency.

General characteristics:

- Material: fibreglass-reinforced plastic. Impeller PA, housing PBT.
- Electronic locked rotor protection.
- Electrical connection via 2 flat plugs 2,8 x 0,5 mm, flying leads optional.
- Air exhaust over struts, direction of rotation clockwise, seen on rotor.
- Mass: 250 g.

Nominal data		Air flow	Air flow	Nominal voltage	Voltage range	Sound pressure level	Sound power level	Sinter sleeve bearings Ball bearings	Power input	Nominal speed	Temperature range	Service life L ₁₀ (40 °C) ebm-papst Standard	Service life L ₁₀ (T _{max}) ebm-papst Standard	Life expectancy L ₁₀ Δ (40 °C)	Curve
Type		m ³ /h	CFM	VAC	VAC	dB(A)	Bel(A)	□/■	Watts	RPM	°C	Hours	Hours	Hours	
NEW ACi 4420 ML		100	58,8	230	195...265	25	4,1	■	1,4	1 850	-20...+75	80 000 / 30 000	160 000	160 000	1
NEW ACi 4420 H		160	94,1	230	195...265	39	5,1	■	3,3	3 000	-20...+75	70 000 / 30 000	140 000	140 000	2
NEW ACi 4420 HH		180	105,9	230	195...265	42	5,3	■	4,4	3 350	-20...+75	62 500 / 30 000	125 000	125 000	3
NEW ACi 4410 HH		180	105,9	115	85...132	42	5,3	■	4,4	3 350	-20...+75	62 500 / 30 000	125 000	125 000	3

