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EC centrifugal fans integrated electronics

backward curved, 3-D, Ø 560



- **Material:** stator and electronics housing made of die-cast aluminium, rotor made of steel sheet (black, KTL-coated), impeller made of sheet aluminium (laser welded)
- **Technical features:** integrated electronics, limiting of making of current, mains under-voltage detection, phase failure recognition, limitation of motor current, over-temperature protection of electronics and motor, locked-rotor protection, short-circuit protection
- **Bearings:** maintenance-free ball bearings
- **Balancing quality:** ≤ Q 6,3 according to DIN ISO 1940-1
- **Type of protection:** IP54 according to DIN VDE 0470, part 1 (EN 60 529) category 2
- **Approvals:** UL, CSA, VDE, CE, CCC and GOST are applied for
- **Mounting position / condensate discharges:** Norm is shaft horizontal or rotor down with 4 condensate discharges drilled into rotor. Mounting position rotor on top on request.

ebm-papst · Muldingen

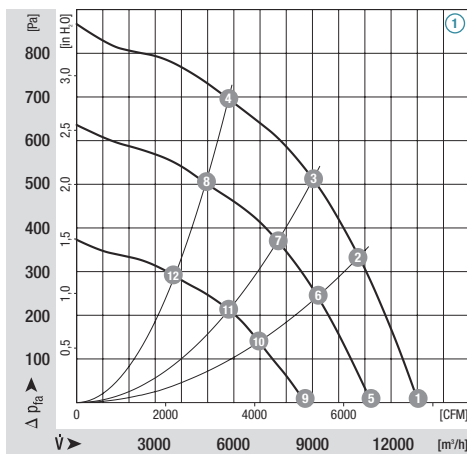
Nominal data		Characteristic	Voltage range	Frequency	Air flow	Speed/rpm	Power input	Current draw	Noise level	Perm. amb. temp.	Mass
Type	Motor	VAC	Hz	m³/h	min⁻¹	kW	A	dB(A)	°C	kg	
R3G 560-AB04 -01	M3G150-FF	①	380-480	50/60	13000	1400	1,80	3,00	79	-20..+60	23,0
R3G 560-AC02 -01	M3G150-IF	②	380-480	50/60	14600	1550	2,20	3,50	82	-20..+60	26,0

subject to alterations

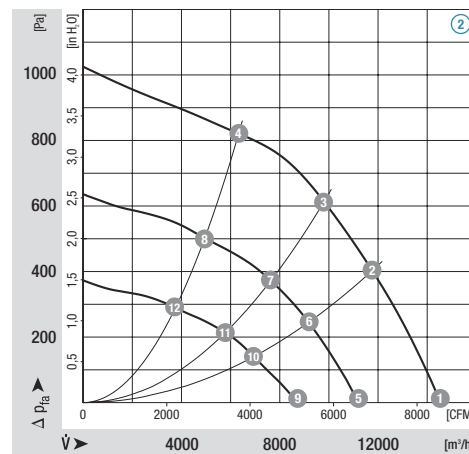
	n [min⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
① ①	1400	1,80	---	79	① ⑨	910	0,51	---	67
① ②	1400	2,38	66	78	① ⑩	910	0,62	65	66
① ③	1400	2,48	68	77	① ⑪	910	0,67	66	65
① ④	1400	2,29	67	77	① ⑫	910	0,60	66	65
① ⑤	1200	1,12	---	75					
① ⑥	1200	1,45	66	74					
① ⑦	1200	1,53	67	72					
① ⑧	1200	1,41	66	72					

	n [min⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
② ①	1550	2,20	---	82	② ⑨	910	0,51	---	67
② ②	1550	2,80	66	81	② ⑩	910	0,62	65	66
② ③	1550	3,05	68	80	② ⑪	910	0,67	66	65
② ④	1550	2,80	67	79	② ⑫	910	0,60	66	65
② ⑤	1200	1,12	---	75					
② ⑥	1200	1,45	66	74					
② ⑦	1200	1,53	67	72					
② ⑧	1200	1,51	66	72					

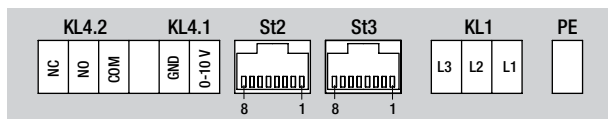
Characteristics



Characteristics



Electrical connection:

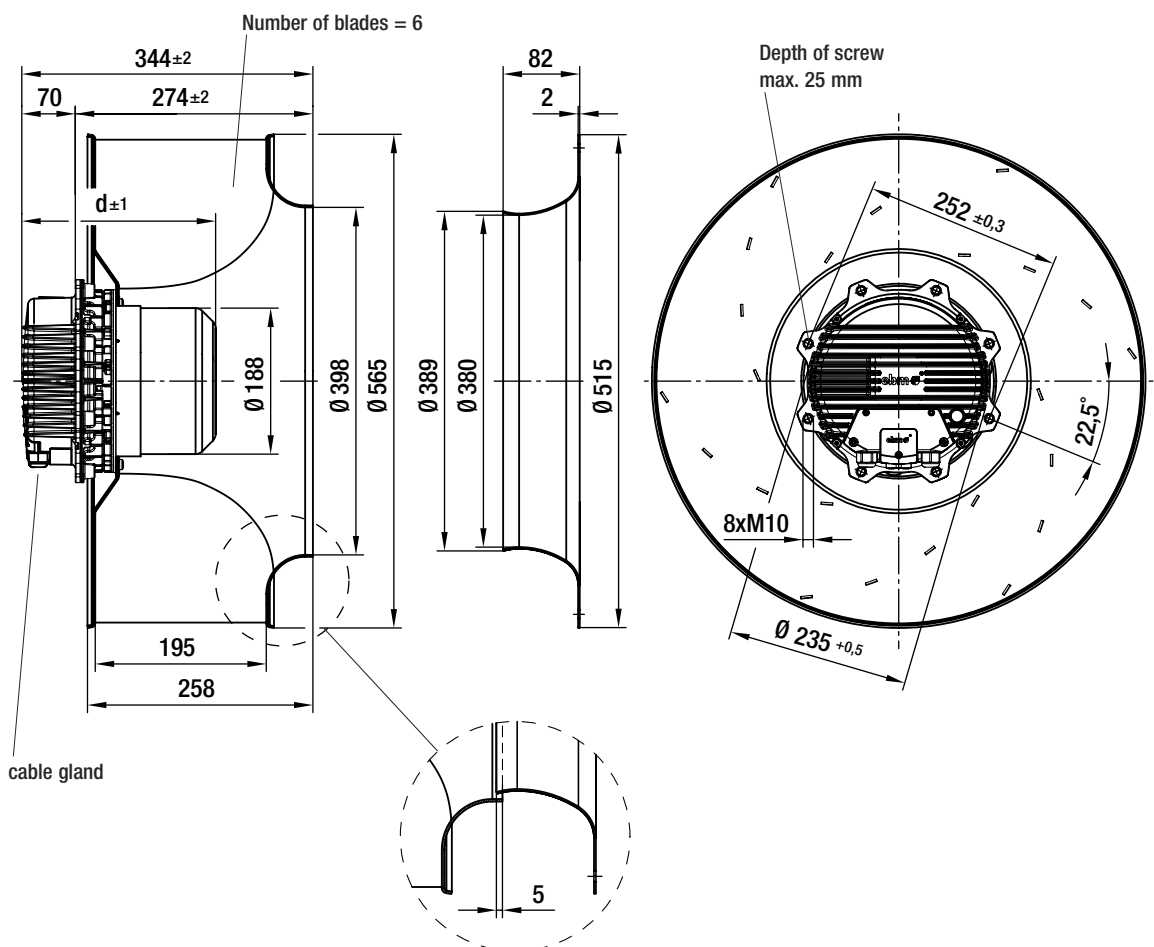


KL4.2	Alarm / status contact
KL4.1	Speed setting input
St2	RJ45-plugs for ebm BUS
St3	RJ45-plugs for ebm BUS
KL1	3-phase power supply
PE	PE (2x)

Pin	St2	St3
1	---	---
2	10 V	---
3	GND	---
4	0-10 V / PWM	---
5	ebm Bus (RS B)	ebm Bus (RS B)
6	ebm Bus (RS A)	ebm Bus (RS A)
7	---	---
8	---	---

Dimensions

Type	d	Inlet ring
R3G 560-AB04 -01	219,5	63071-2-4013
R3G 560-AC02 -01	249,5	63071-2-4013



EC centrifugal fans integrated electronics

backward curved, 3-D, Ø 630



- **Material:** stator and electronics housing made of die-cast aluminium, rotor made of steel sheet (black, KTL-coated), impeller made of sheet aluminium (laser welded)
- **Technical features:** integrated electronics, limiting of making of current, mains under-voltage detection, phase failure recognition, limitation of motor current, over-temperature protection of electronics and motor, locked-rotor protection, short-circuit protection
- **Bearings:** maintenance-free ball bearings
- **Balancing quality:** ≤ Q 6,3 according to DIN ISO 1940-1
- **Type of protection:** IP54 according to DIN VDE 0470, part 1 (EN 60 529) category 2
- **Approvals:** UL, CSA, VDE, CE, CCC and GOST are applied for
- **Mounting position / condensate discharges:** Norm is shaft horizontal or rotor down with 4 condensate discharges drilled into rotor. Mounting position rotor on top on request.

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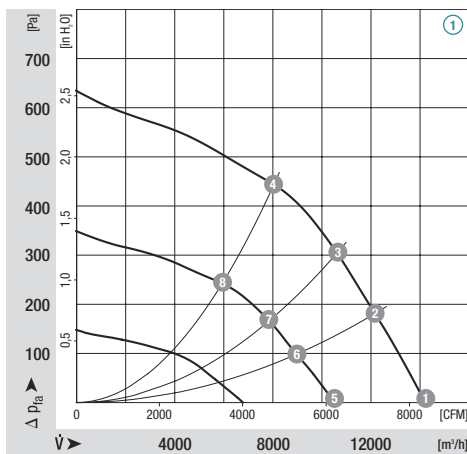
Nominal data		Characteristic	Voltage range	Frequency	Air flow	Speed/rpm	Power input	Current draw	Noise level	Perm. amb. temp.	Mass
Type	Motor	VAC	Hz	m³/h	min⁻¹	kW	A	dB(A)	°C	kg	
R3G 630-AA01 -01	M3G150-FF	①	380-480	50/60	14000	1050	1,25	2,30	74	-20..+60	25,0
R3G 630-AB01 -01	M3G150-IF	②	380-480	50/60	17500	1270	2,28	3,70	80	-20..+50	28,0

subject to alterations

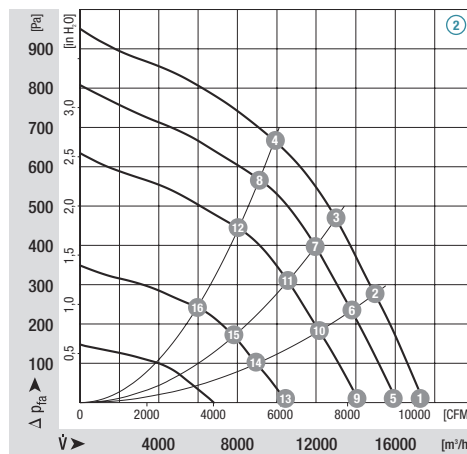
	n [min⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
① ①	1050	1,25	---	74
① ②	1050	1,55	53	73
① ③	1050	1,65	65	72
① ④	1050	1,71	64	71
① ⑤	770	0,52	---	64
① ⑥	770	0,60	55	64
① ⑦	770	0,65	63	63
① ⑧	770	0,70	64	63

	n [min⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
② ①	1270	2,28	---	80	② ⑨	1050	1,25	---	74
② ②	1270	2,80	54	78	② ⑩	1050	1,55	53	73
② ③	1270	3,10	65	77	② ⑪	1050	1,65	65	72
② ④	1270	3,08	65	77	② ⑫	1050	1,71	64	71
② ⑤	1170	1,79	---	76	② ⑬	770	0,52	---	64
② ⑥	1170	2,20	54	74	② ⑭	770	0,60	55	64
② ⑦	1170	2,42	65	74	② ⑮	770	0,65	63	63
② ⑧	1170	2,44	65	73	② ⑯	770	0,70	64	63

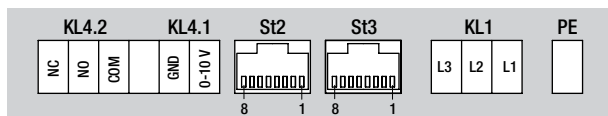
Characteristics



Characteristics



Electrical connection:

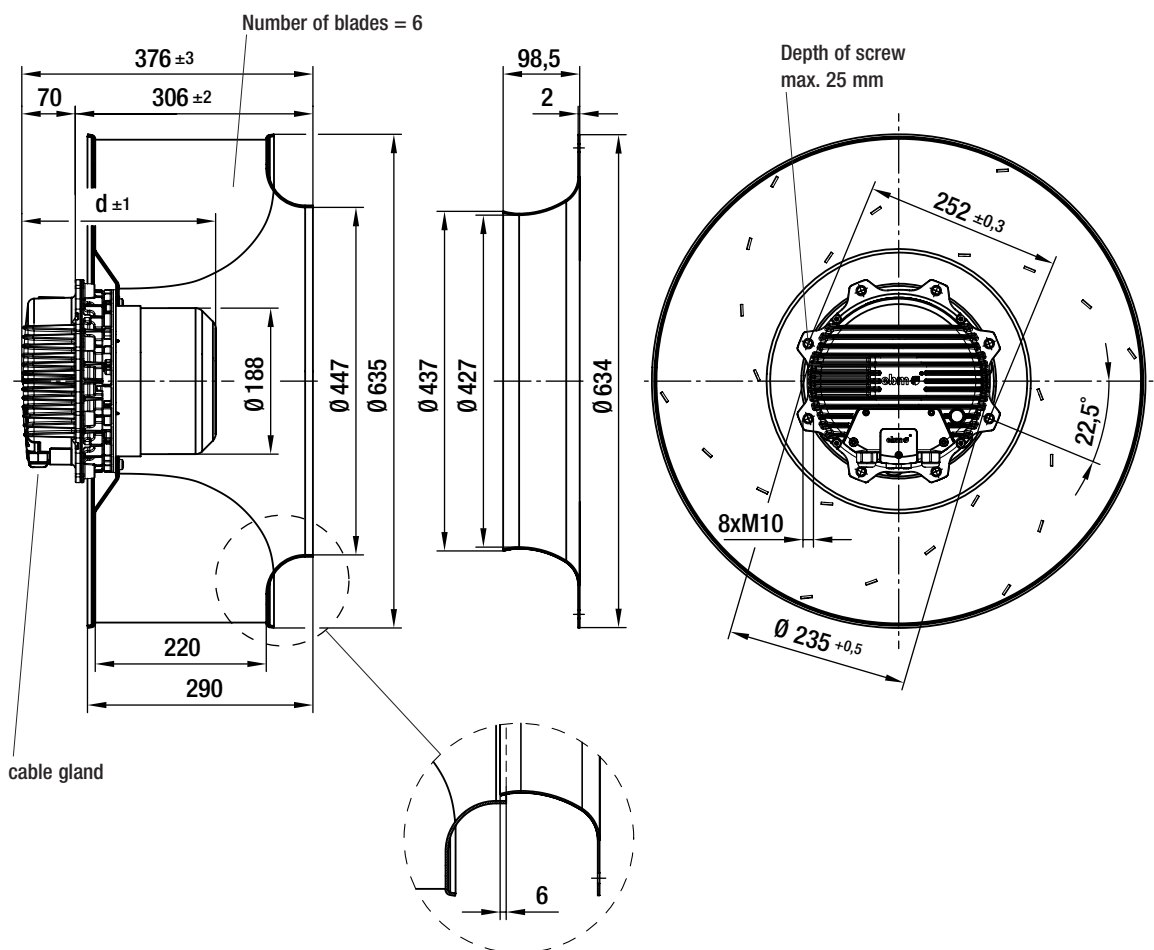


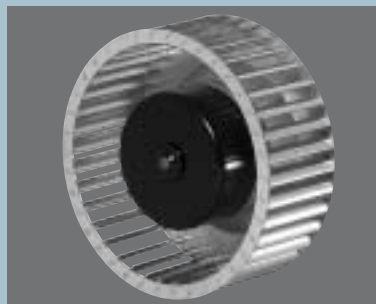
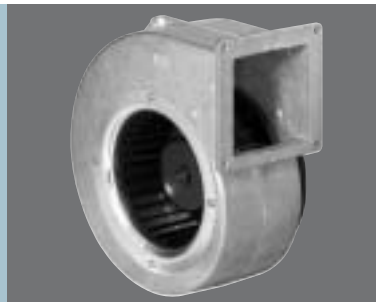
KL4.2	Alarm / status contact
KL4.1	Speed setting input
St2	RJ45-plugs for ebm BUS
St3	RJ45-plugs for ebm BUS
KL1	3-phase power supply
PE	PE (2x)

Pin	St2	St3
1	---	---
2	10 V	---
3	GND	---
4	0-10 V / PWM	---
5	ebm Bus (RS B)	ebm Bus (RS B)
6	ebm Bus (RS A)	ebm Bus (RS A)
7	---	---
8	---	---

Dimensions

Type	d	Inlet ring
R3G 630-AA01 -01	219,5	63070-2-4013
R3G 630-AB01 -01	249,5	63070-2-4013





EC centrifugal blowers and fans forward curved

Information

AC centrifugal

AC axial

EC centrifugal

EC axial

EC-SYSTEMS

Accessories

	Centrifugal blowers and fans, single inlet	230
	Centrifugal blowers, dual inlet	254



EC centrifugal blowers and fans forward curved

Technical information

Maximum power consumption of forward curved centrifugal fans is reached at free blowing. As the back pressure increases, the power consumption decreases.

Scroll housing

Designs:

- aluminium die-cast alloy, the two housing parts screwed together
- scroll and sideplates consist of galvanised sheet steel and are joined together by slots and tabs

Centrifugal fans without scroll housing

To obtain optimal performance we recommend the scroll dimensions as listed below.

The inlet nozzles required for this are listed in the accessories.

Impellers

The forward curved impellers are made of galvanised sheet steel and press-fitted onto the rotor of the external-rotor motor. The complete unit is dynamically balanced in two planes according to DIN ISO 1940.

Centrifugal fans, single inlet

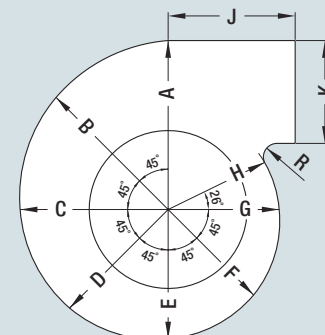
The external-rotor EC motor integrated in the impeller is mounted to the sidewall of the scroll housing.

Centrifugal fans, dual inlet

The blower sizes 133, 146 and 160 come with a support bearing. An integrated external-rotor motor with rotating shaft on rotor side is anti-vibration mounted via a third bearing and fixed on both sides of the scroll. Size 160 and upward feature an external-rotor motor with standing shaft (GW).

These blowers feature extremely low structure-borne noise values.

Size	A	B	C	D	E	F	G	H	J	K	R
085	60	57,0	55,0	53,0	52	51,0	48,0	47,0	60	42	6
097	75	71,5	68,0	65,5	62	58,5	57,5	56,5	75	48	5
108	93	83,0	77,0	73,0	68	67,0	64,0	60,0	79	50	12
120	91	91,0	89,0	85,0	79	73,0	69,0	67,0	82	50	6
133	91	88,0	81,5	79,0	77	76,5	73,5	73,0	87	71	4
140/146/160	137	128,5	120,0	113,0	105	98,0	90,0	87,0	103	92	11
180	156	146,0	137,0	128,0	119	111,0	104,0	102,0	120	110	8
200/225	217	197,0	179,0	163,0	149	137,0	127,0	118,0	136	146	13



Air performance characteristic

Air performance curves are determined with scroll housing and inlet ring.

For different operating points, parameters are listed in a table with the following key:

η_{IL} = Total efficiency of the impeller
(including dynamic pressure)

Air performance curves at U_N (nominal voltage) and U_R (rated voltage) are determined at 10 V control voltage.

$$U_R = 1.15 \times U_N$$

Example:

U_N	24 V	48 V
U_R	27.6 V	55.2 V

EC motors / fans 1-core or 3-core, with integrated commutation electronics

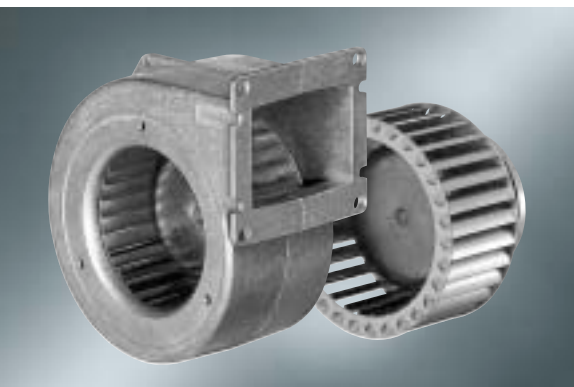
- nominal voltage 24 VDC, 48 VDC
- clockwise rotation
- integrated electronics
- PWM / linear input 0-10 VDC
- tach output
- soft start
- reverse polarity protection
- locked-rotor protection
- EMC - RFI suppression according to EN 55014 (up to 5A nom. current)
 - ESD according to EN 61000-4-2
 - Burst according to EN 61000-4-4

EC motors / fans 3-core, for external commutation electronics

- for external commutation electronics, nominal voltage 24 VDC, 48 VDC and 110 VDC for train applications (with special motor design)
- for external commutation electronics, nominal voltage 200-277 VAC, 50/60 Hz

EC centrifugal blowers and fans

single inlet, Ø 085



- **Material:** scroll housing made of die-cast aluminium, impeller made of galvanised sheet steel

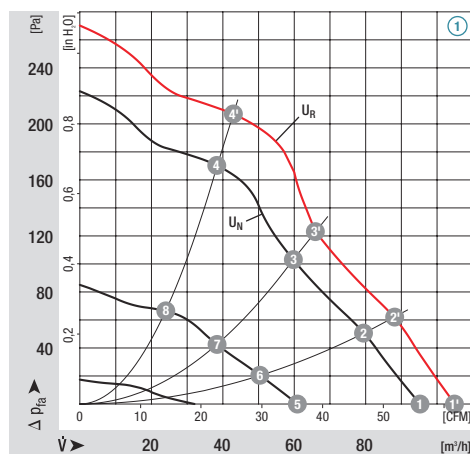
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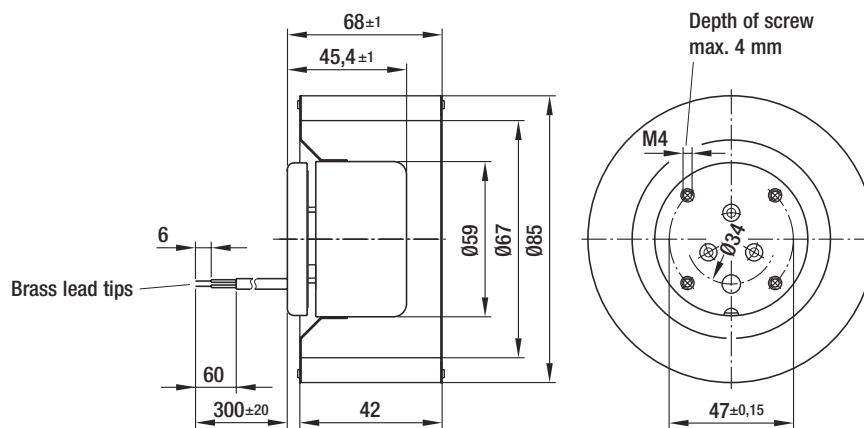
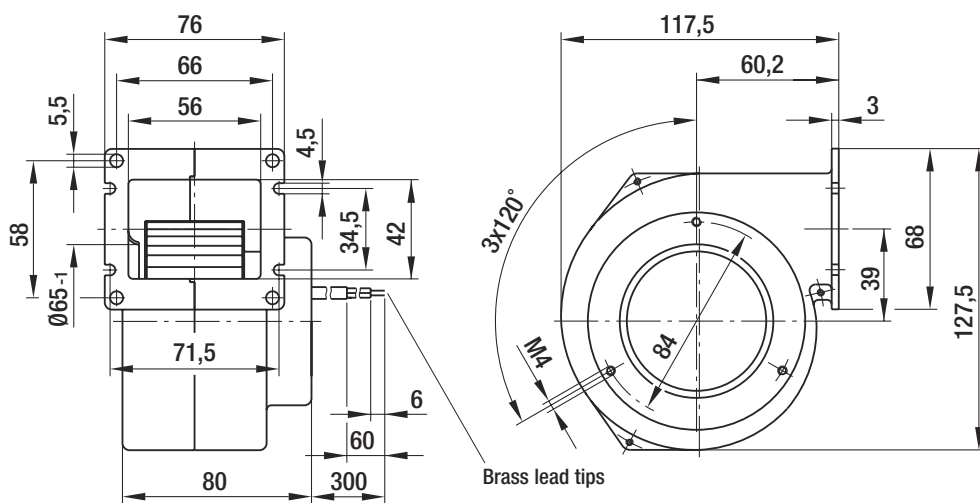
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
G1G 085-AB05 -01 R1G 085-AB05 -01	M1G045-BE	①	24	16-28	95	2850	14	0,64	57	0	60	0,8 0,5
G1G 085-AB07 -01 R1G 085-AB07 -01	M1G045-BE	①	48	36-57	95	2850	14	0,32	57	0	60	0,8 0,5

subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	3180	19	---	59	① ⑤	1890	5	---	46
① ②	3300	16	28	57	① ⑥	1970	4	25	44
① ③	3500	15	32	57	① ⑦	2070	4	30	44
① ④	3800	12	37	57	① ⑧	2170	3	33	42
① ①	2850	14	---	57					
① ②	3000	12	28	55					
① ③	3180	11	32	55					
① ④	3400	9	37	54					

Characteristics

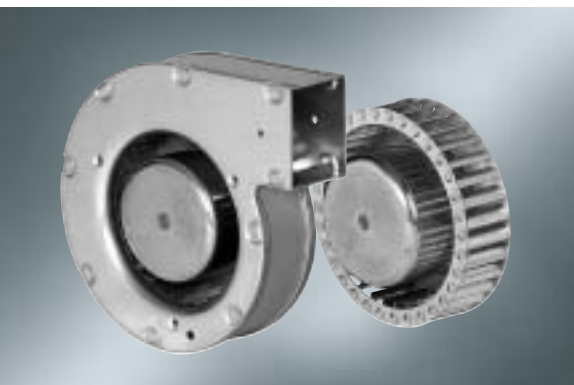




EC centrifugal blowers and fans

single inlet, Ø 097

- **Material:** scroll housing and impeller made of galvanised sheet steel



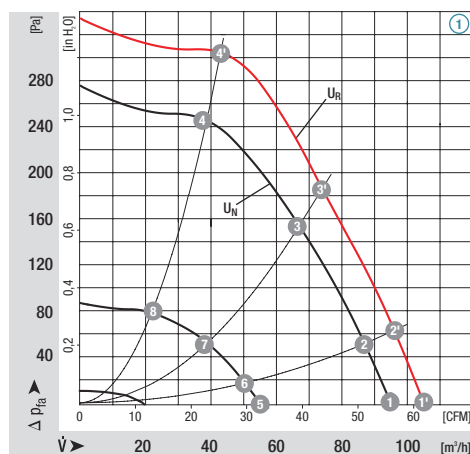
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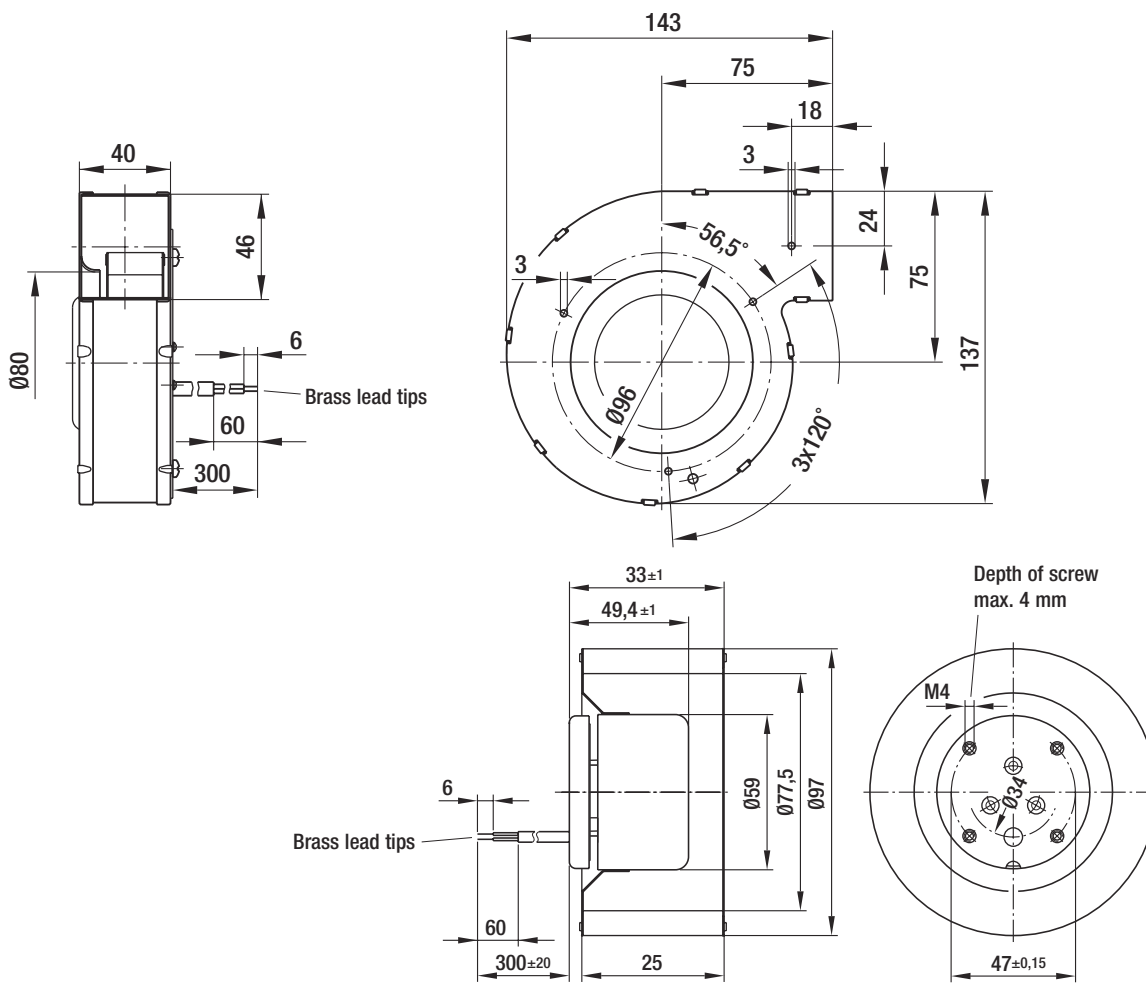
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
G1G 097-AA05 -01 R1G 097-AA05 -01	M1G045-BE	①	24	16-28	95	2650	16	0,75	59	0	60	0,8 0,5
G1G 097-AA07 -01 R1G 097-AA07 -01	M1G045-BE	①	48	36-57	95	2650	16	0,38	59	0	60	0,8 0,5

subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	2920	22	---	62	① ⑤	1615	4	---	45
① ②	3030	21	41	61	① ⑥	1650	4	38	45
① ③	3300	17	48	59	① ⑦	1745	4	46	43
① ④	3700	13	48	58	① ⑧	1880	3	47	42
① ①	2650	16	---	59					
① ②	2730	15	41	58					
① ③	2960	13	48	56					
① ④	3290	10	48	55					

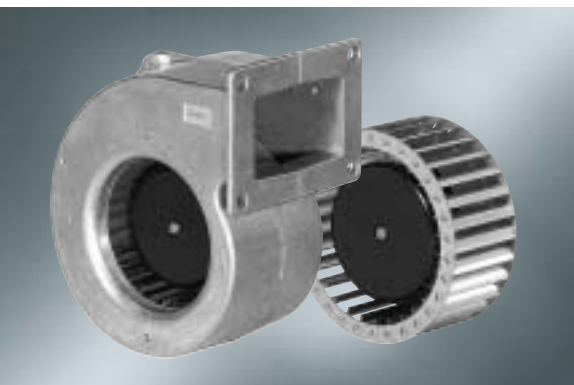
Characteristics





EC centrifugal blowers and fans

single inlet, Ø 108



- **Material:** scroll housing made of die-cast aluminium, impeller made of galvanised sheet steel

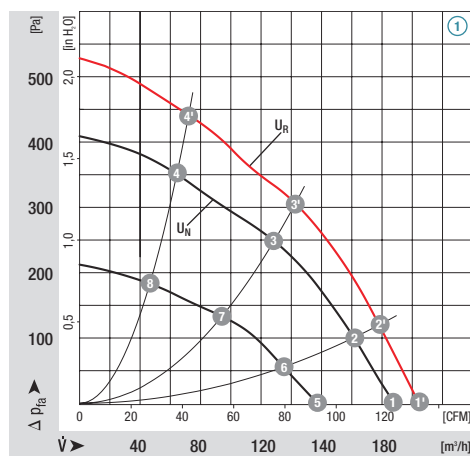
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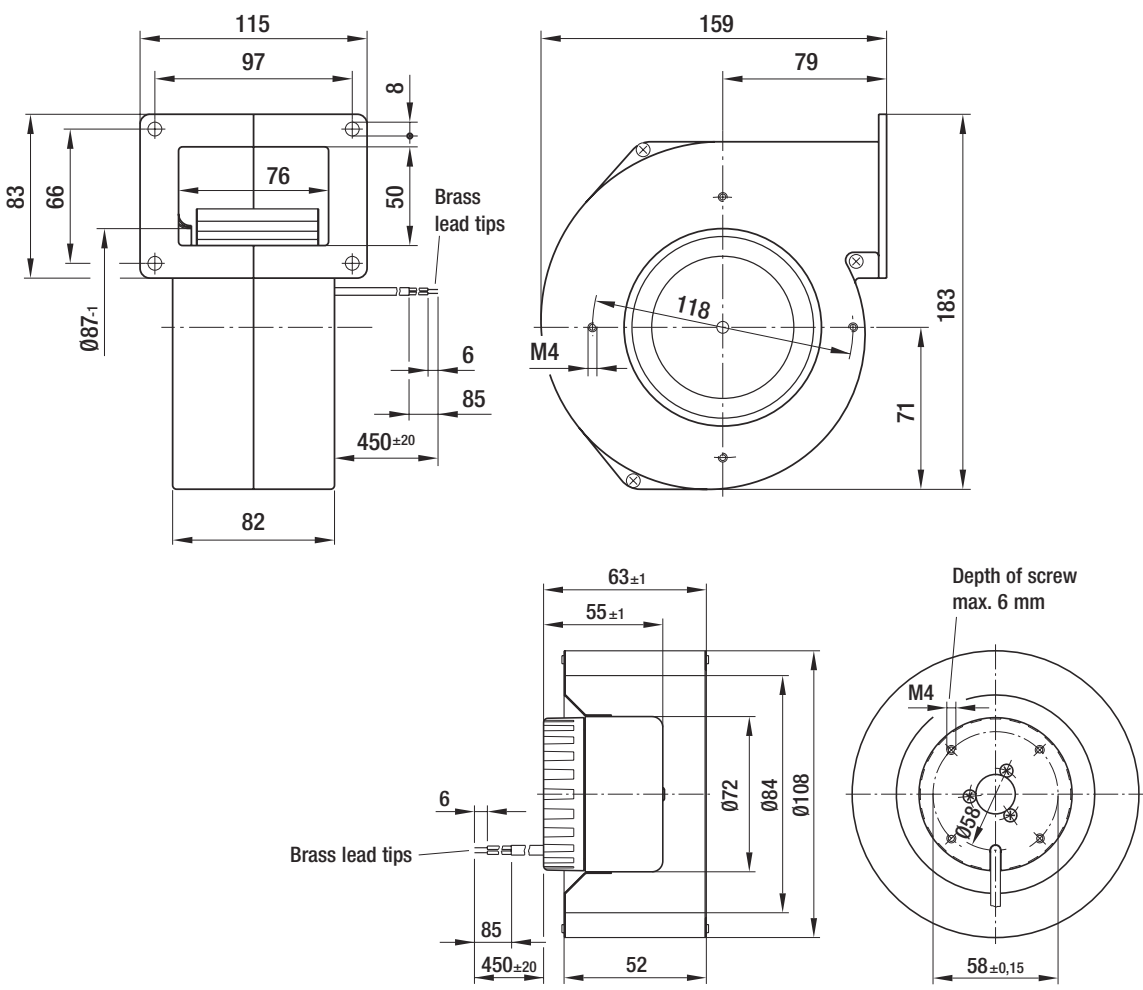
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
G1G 108-AB17 -02 R1G 108-AB17 -02	M1G055-BD	①	24	16-28	200	3000	42	2,00	65	0	60	1,4 0,7
G1G 108-AB41 -02 R1G 108-AB41 -02	M1G055-BD	①	48	36-57	200	3000	42	1,00	65	0	60	1,4 0,7

subject to alterations

	n [min⁻¹]	P _i [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P _i [W]	η _{HL} [%]	Lp _A [dBA]
① ①	3230	55	---	67	① ⑤	2300	20	---	61
① ②	3410	52	33	66	① ⑥	2380	17	33	58
① ③	3800	43	41	65	① ⑦	2550	14	41	55
① ④	4100	35	33	64	① ⑧	2720	11	33	55
① ①	3000	42	---	65					
① ②	3140	40	33	64					
① ③	3420	32	41	63					
① ④	3690	26	33	63					

Characteristics





EC centrifugal blowers and fans

single inlet, Ø 120



- **Material:** scroll housing made of die-cast aluminium, impeller made of galvanised sheet steel

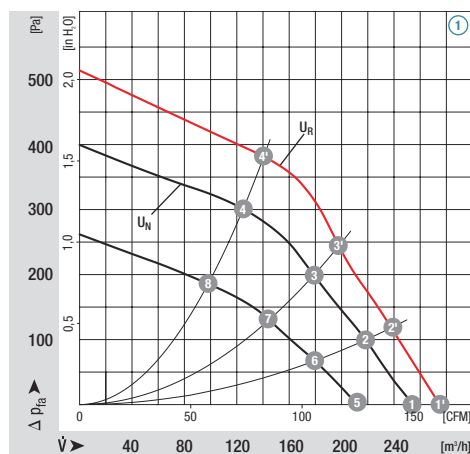
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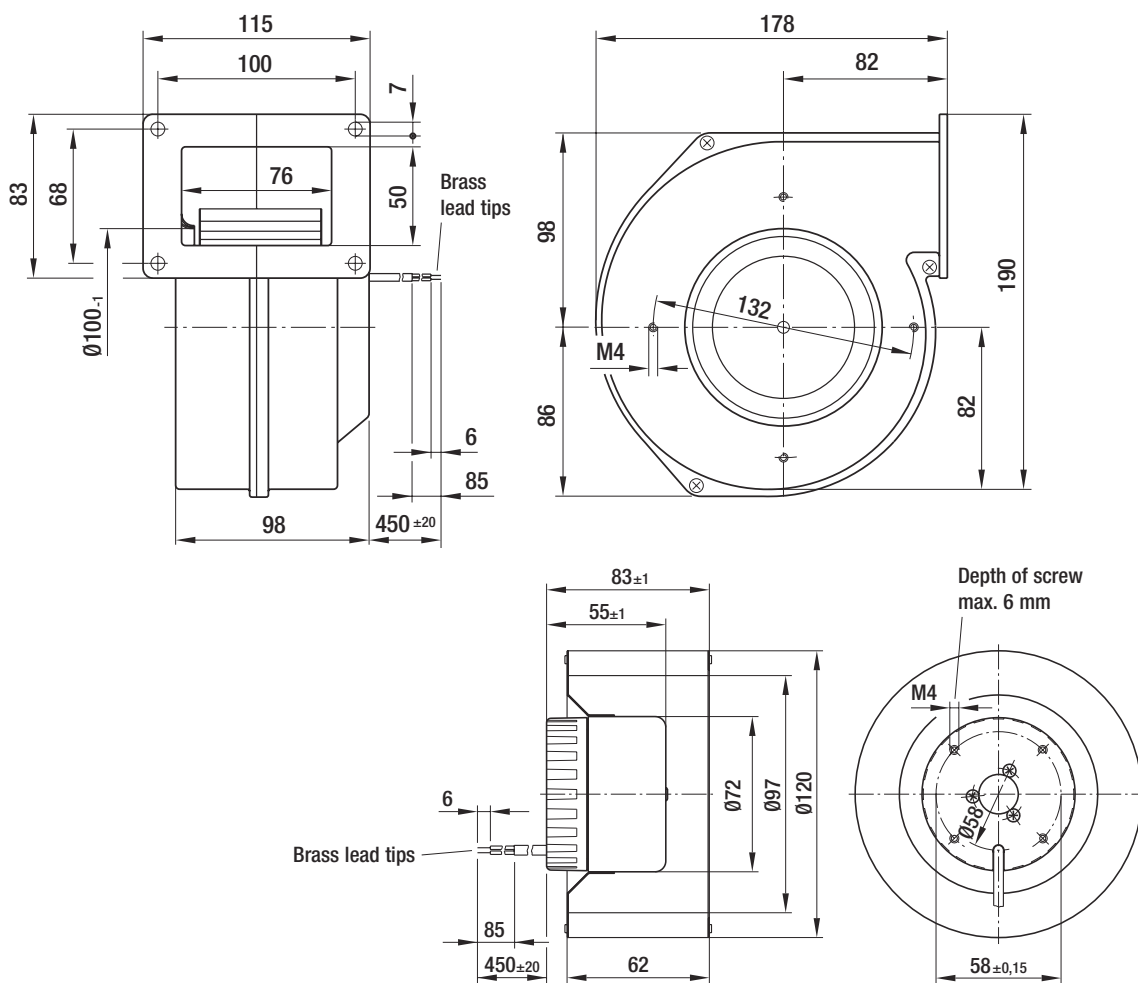
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
G1G 120-AB67 -02 R1G 120-AB67 -02	M1G055-BD	①	24	16-28	255	2200	40	1,90	62	0	60	1,6 0,8
G1G 120-AB71 -02 R1G 120-AB71 -02	M1G055-BD	①	48	36-57	255	2200	40	0,95	62	0	60	1,6 0,8

subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	2410	50	---	63	① ⑤	1870	24	---	55
① ②	2620	47	58	62	① ⑥	1990	21	58	54
① ③	2870	44	60	61	① ⑦	2100	18	61	53
① ④	3200	36	55	62	① ⑧	2310	14	54	54
① ①	2200	40	---	62					
① ②	2410	36	59	60					
① ③	2600	32	62	58					
① ④	2880	25	55	58					

Characteristics





EC centrifugal blowers and fans

single inlet, Ø 133

- **Material:** scroll housing and impeller made of galvanised sheet steel



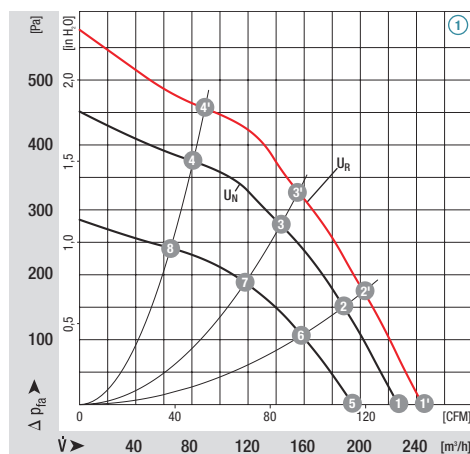
ebm-papst • Mulfingen

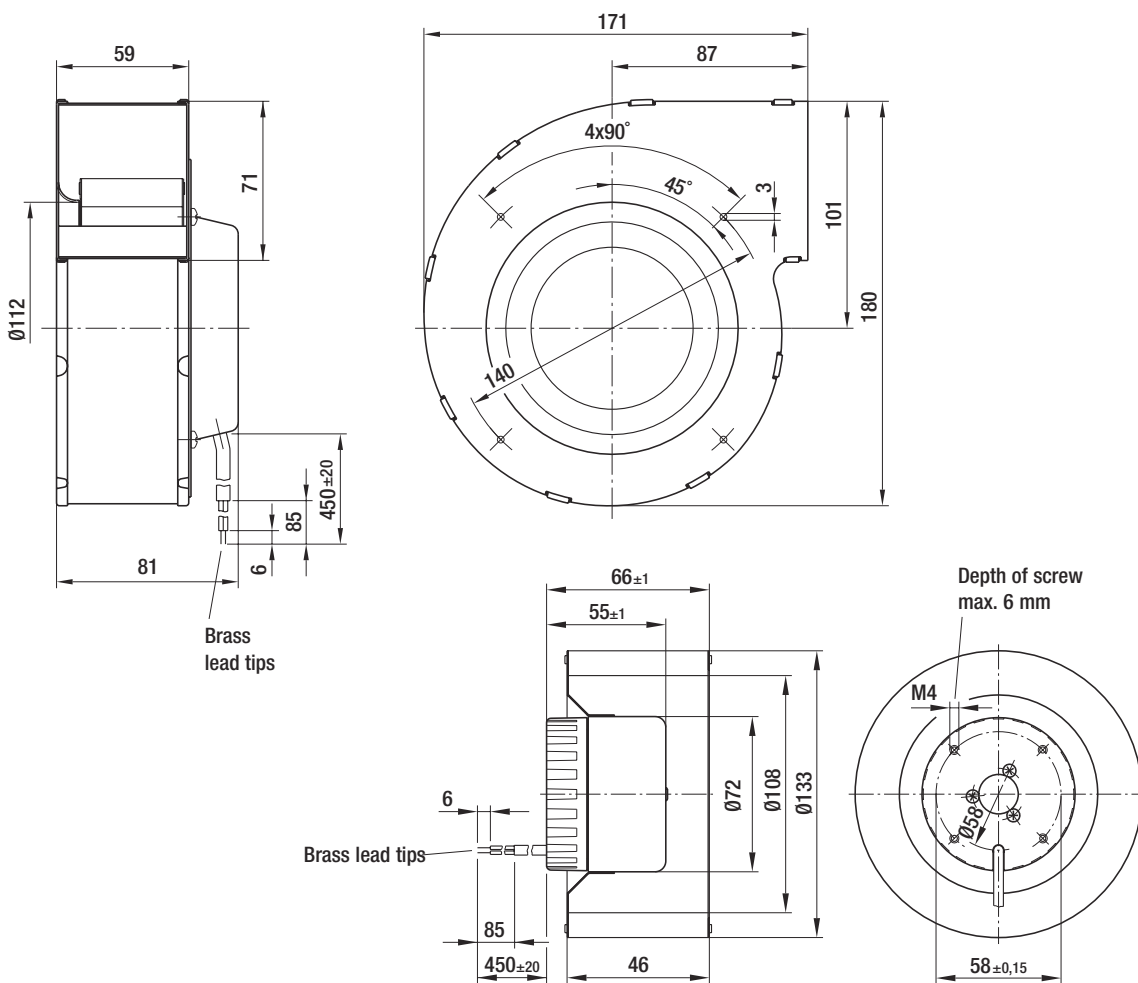
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
G1G 133-DE19 -02 R1G 133-AE19 -02	M1G055-BD	①	24	16-28	225	2000	40	2,20	64	0	60	1,3 0,7
G1G 133-DE03 -02 R1G 133-AE03 -02	M1G055-BD	①	48	36-57	225	2000	45	1,10	64	0	60	1,3 0,7

subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	2170	57	---	66	① ⑤	1750	28	---	60
① ②	2410	51	47	66	① ⑥	1910	24	50	59
① ③	2750	44	49	64	① ⑦	2120	20	53	58
① ④	3200	36	32	66	① ⑧	2370	15	35	59
① ①	2000	45	---	64					
① ②	2230	40	49	64					
① ③	2540	35	51	62					
① ④	2920	27	33	63					

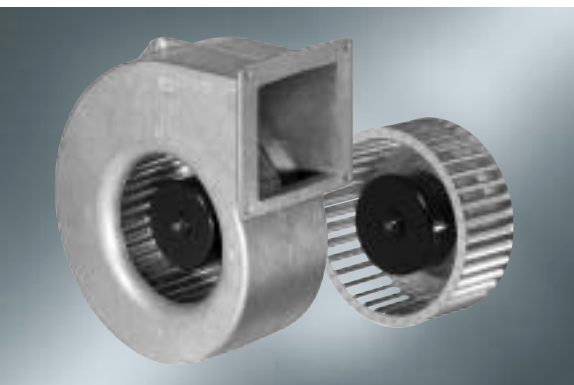
Characteristics





EC centrifugal blowers and fans

single inlet, Ø 140



- **Material:** scroll housing made of die-cast aluminium, impeller made of galvanised sheet steel

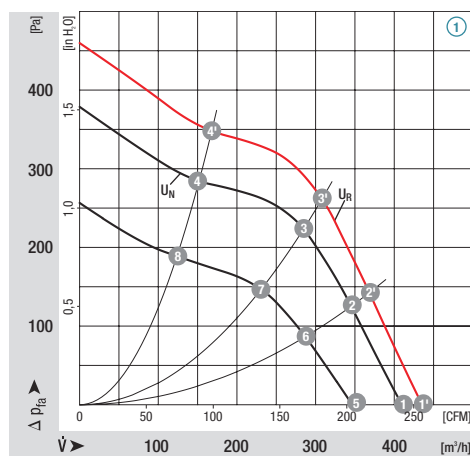
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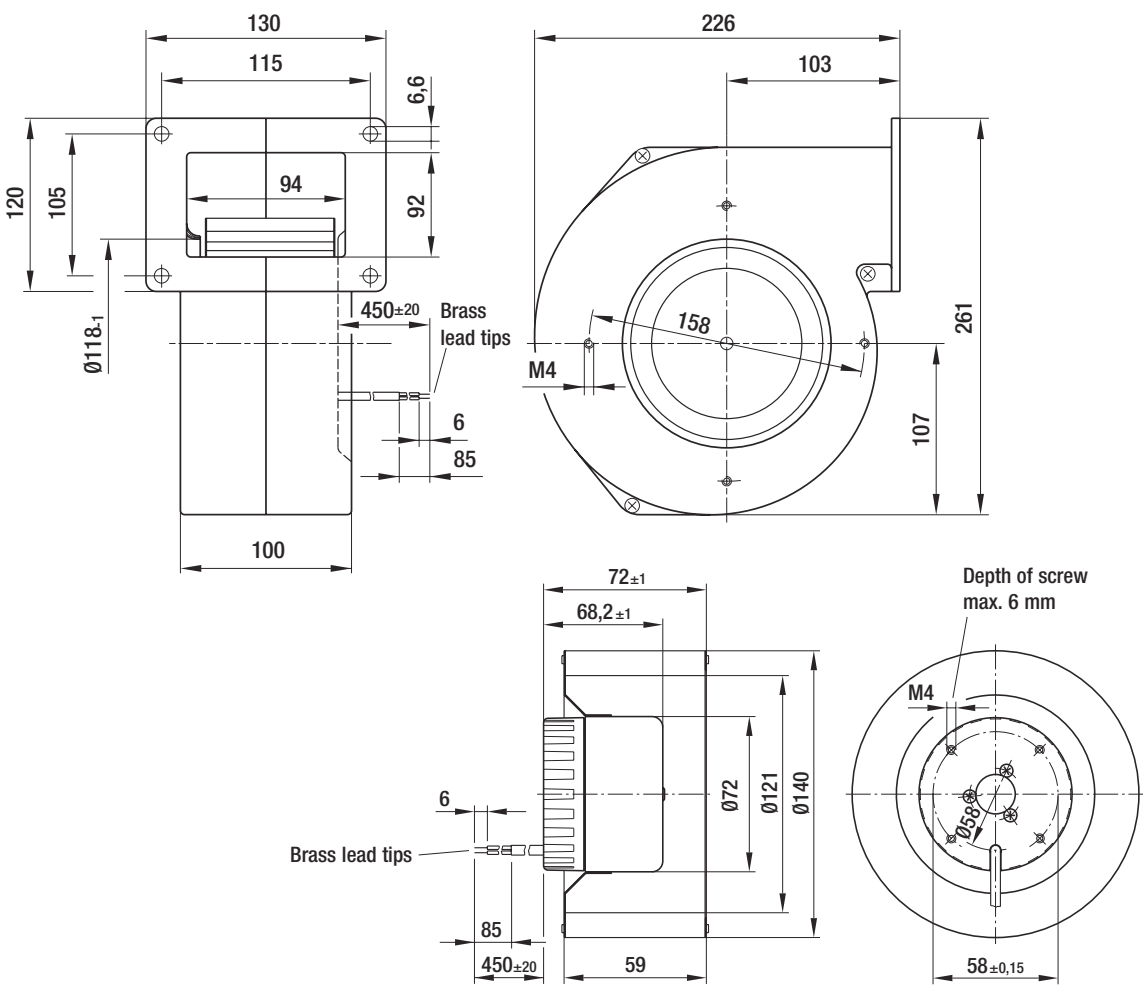
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
G1G 140-AV17 -02 R1G 140-AV17 -02	M1G055-CF	①	24	16-28	400	1750	54	2,50	63	0	60	2,3 1,0
G1G 140-AV21 -02 R1G 140-AV21 -02	M1G055-CF	①	48	36-57	410	1750	54	1,30	63	0	60	2,3 1,0

subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	1850	65	---	64	① ⑤	1500	34	---	60
① ②	2020	61	50	61	① ⑥	1580	29	50	56
① ③	2200	57	54	59	① ⑦	1670	25	53	54
① ④	2550	43	40	60	① ⑧	1880	19	41	53
① ①	1750	54	---	63					
① ②	1900	50	51	59					
① ③	2030	45	54	58					
① ④	2310	32	40	58					

Characteristics





EC centrifugal blowers and fans

single inlet, Ø 140



- **Material:** impeller made of PP40TV
- **Technical features** (e.g. variant -43, see table of options, right, for rest):
Electronics (anti-vibration) mounted on motor, selection switch (day, night, party), 4 constant air flows or constant pressures per switch setting, PWM / Lin input, speed output, internal I²C Bus start-up current limitation, locked-rotor protection
- **Direction of rotation:** clockwise
- **Class of protection:** I
- **Type of protection:** IP20 according to DIN EN 60335
- **Approvals:** VDE, CE
- **Mounting position:** variable

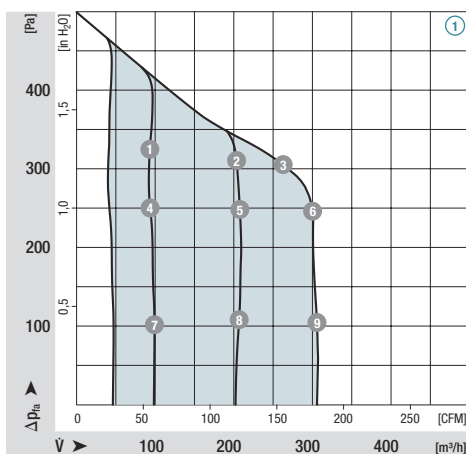
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Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Main Current	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VAC	VDC	m ³ /h	min ⁻¹	W	A	mA	dB(A)	Pa	°C	kg
G1G 140-AW31 -** R1G 140-AW31 -**	M1G055-CF	①	230	50/60	430	1950	70	0,50	500	60	---	60	2,4 1,0

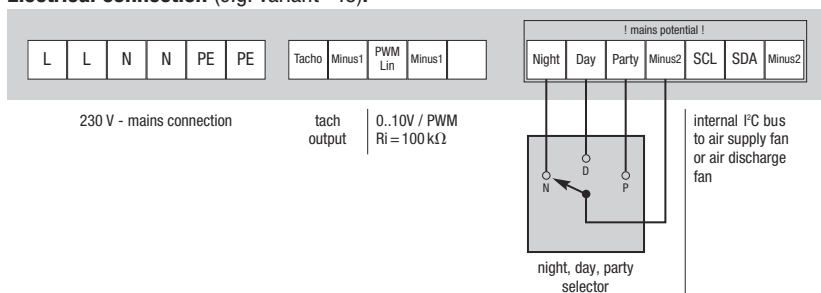
subject to alterations

	n [min ⁻¹]	P _i [W]	Lp _A [dBA]
① ①	2580	41	60
① ②	2560	60	59
① ③	2540	72	60
① ④	2280	33	57
① ⑤	2270	48	57
① ⑥	2420	75	60
① ⑦	1500	16	46
① ⑧	1600	27	51
① ⑨	1840	49	57

Characteristics (constant air flow)



- **EMC:** RFI immunity acc. to EN 61000-6-2, RFI emission acc. to EN 50081-1, harmonics acc. to DIN EN 61000-3-2, insulation current 3000 V (EN 60950)
- **Electrical connection** (e.g. variant -43):

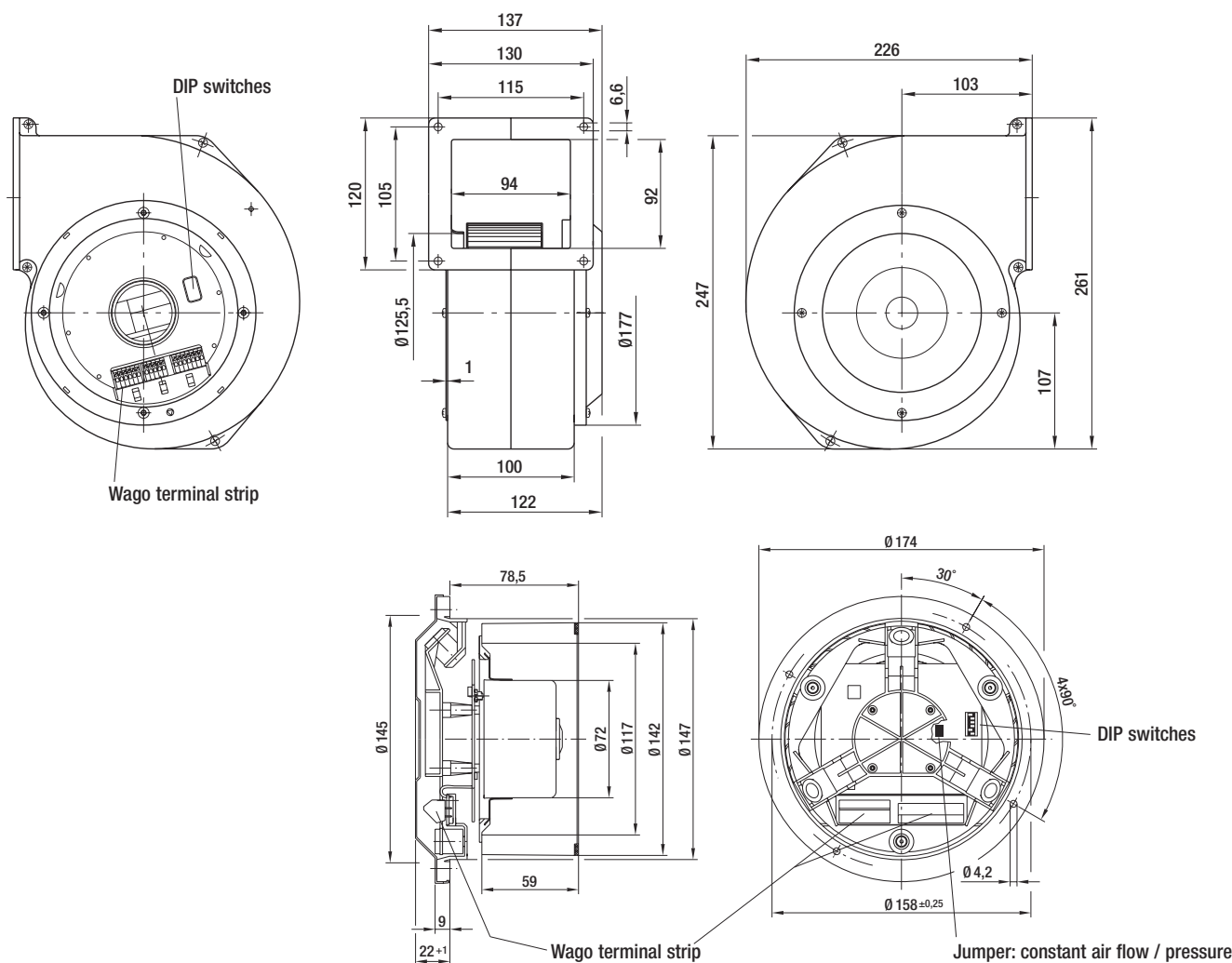


		X	X	X	Constant air flows
X (2)		X (4)	X (4)	X (4)	DIP switches
			X	X	PWM / Lin input and tach output
X		X	X	X	Selector connection night, day, party
		X		X	Internal I²C bus

Selection

Type					
------	--	--	--	--	--

G1G 140-AW31 -**	G1G140-AW31-31	G1G140-AW31-41	G1G 140-AW31-42	G1G140-AW31-43
R1G 140-AW31 -**	R1G140-AW31-31	R1G140-AW31-41	R1G 140-AW31-42	R1G140-AW31-43



EC centrifugal blowers and fans

single inlet, Ø 146



- **Material:** scroll housing made of die-cast aluminium, impeller made of galvanised sheet steel
- **Performance curve:** determined at 24 VDC

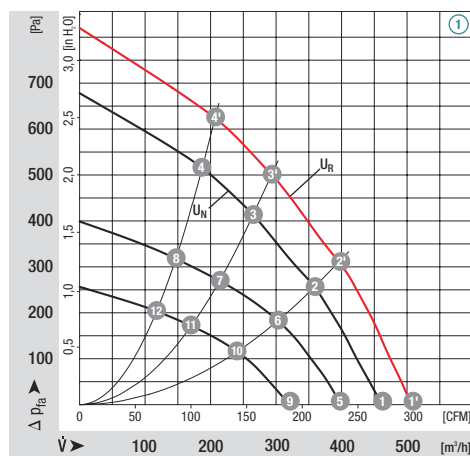
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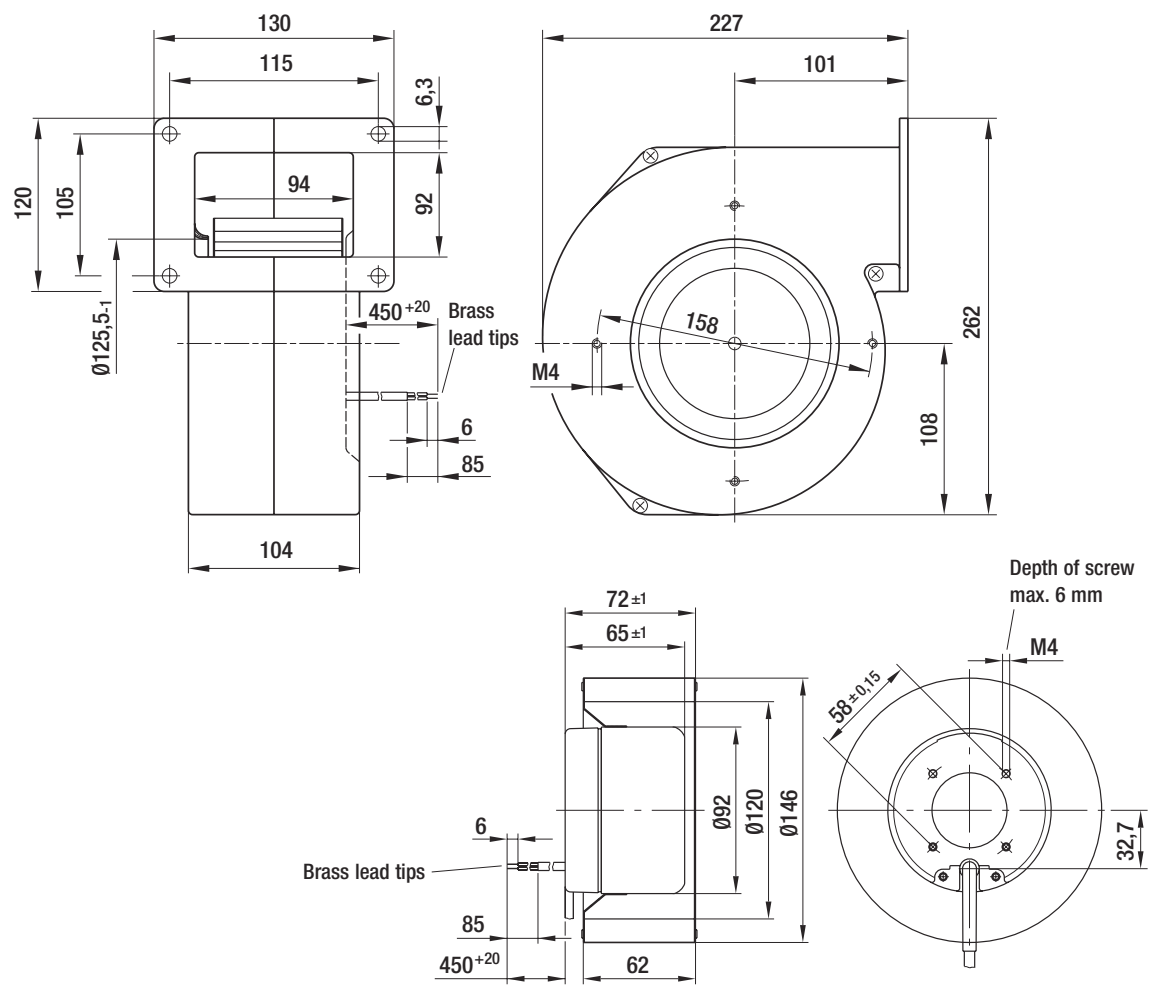
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
G1G 146-BA07 -52 R1G 146-AA07 -52	M1G074-BF	①	24	16-28	470	2200	100	5,00	68	0	60	2,8 1,4
G1G 146-BA11 -52 R1G 146-AA11 -52	M1G074-BF	①	48	36-57	465	2150	100	2,60	67	0	60	2,8 1,4

subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	2400	140	---	70	① ⑤	1890	68	---	63
① ②	2650	130	45	67	① ⑥	2075	57	46	60
① ③	3000	110	49	66	① ⑦	2250	48	49	61
① ④	3300	100	45	67	① ⑧	2335	41	45	61
① ①	2200	100	---	68	① ⑨	1520	37	---	59
① ②	2445	90	46	65	① ⑩	1670	32	46	55
① ③	2750	84	49	64	① ⑪	1815	27	49	55
① ④	3025	77	45	65	① ⑫	1920	23	45	55

Characteristics





EC centrifugal blowers and fans

single inlet, Ø 160



- **Material:** scroll housing made of die-cast aluminium, impeller made of galvanised sheet steel

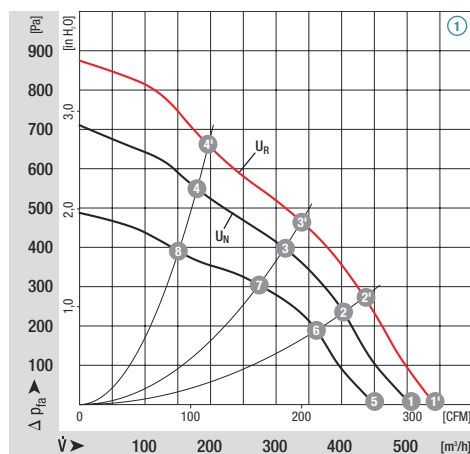
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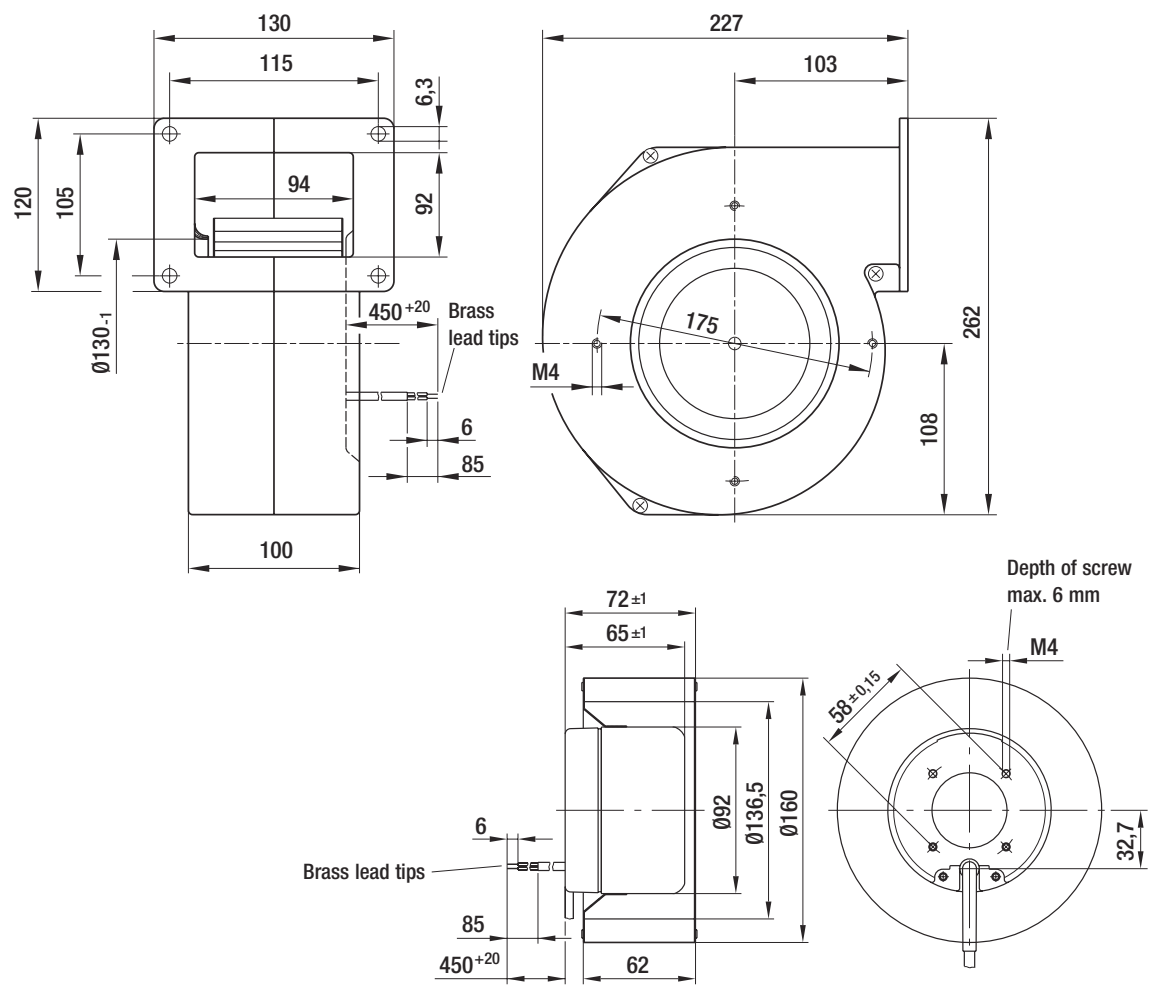
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
G1G 160-BH29 -52 R1G 160-AH29 -52	M1G074-BF	①	24	16-28	505	1750	105	5,80	67	0	60	2,8 1,4
G1G 160-BH39 -52 R1G 160-AH39 -52	M1G074-BF	①	48	36-57	505	1750	105	2,90	67	0	60	2,8 1,4

subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	1890	134	---	68	① ⑤	1580	72	---	62
① ②	2200	118	52	67	① ⑥	1810	66	52	62
① ③	2500	110	57	67	① ⑦	2000	58	57	62
① ④	2900	102	52	69	① ⑧	2200	48	54	63
① ①	1750	105	---	67					
① ②	2030	95	52	66					
① ③	2270	90	57	65					
① ④	2550	81	44	67					

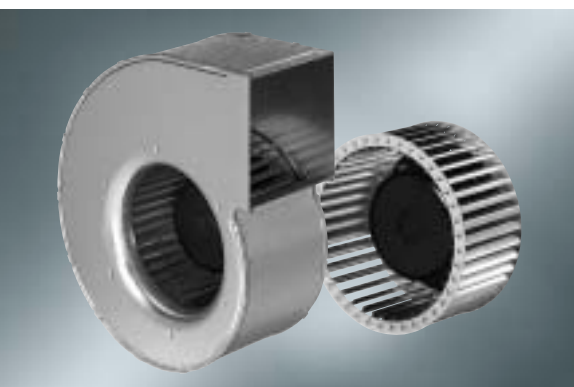
Characteristics





EC centrifugal blowers and fans

single inlet, Ø 180



- **Material:** scroll housing and impeller made of galvanised sheet steel
- **Option:** also available with discharge flange
- **Note:** Nominal data established with external electronics (CHW050-AA)!
 For commutation and open respectively closed loop control, external electronics are needed. Designs for electronics with nominal voltage 24 VDC, 48 VDC or 110 VDC on request.

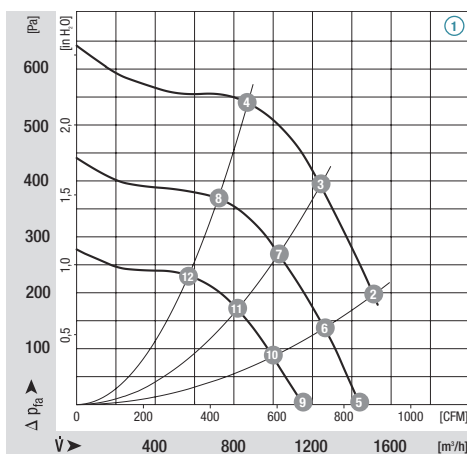
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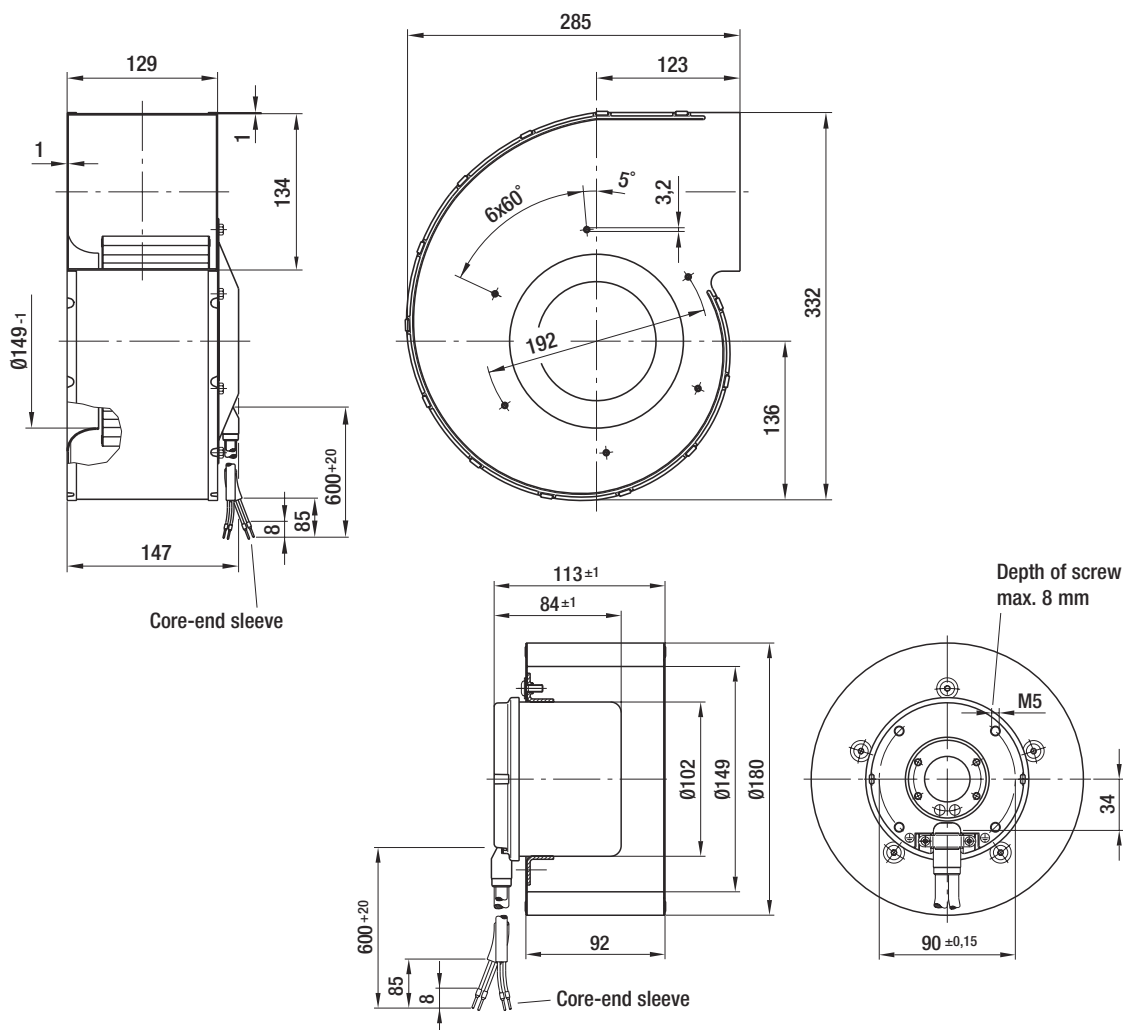
Nominal data		Characteristic	Voltage range external electronics	Frequency	Air flow	Speed/rpm	Power input	Mains current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor	VAC	Hz	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg	
G3G 180-AA18 -01 R3G 180-AA18 -01	M3G084-DF	①	200-277	50/60	1600	2400	650	2,80	78	175	60	5,6 3,2

subject to alterations Type only to be connected to mains with external electronics (CHW050-AA)!

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	---	---	---	---	① ⑨	1600	218	---	70
① ②	2400	650	47	78	① ⑩	1600	180	46	67
① ③	2400	400	59	75	① ⑪	1600	140	54	65
① ④	2400	340	60	71	① ⑫	1600	130	55	60
① ⑤	2000	417	---	75					
① ⑥	2000	340	49	73					
① ⑦	2000	270	59	71					
① ⑧	2000	150	61	66					

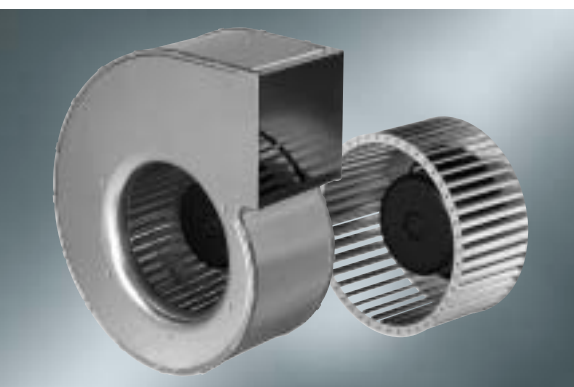
Characteristics





EC centrifugal blowers and fans

single inlet, Ø 200



- **Material:** scroll housing and impeller made of galvanised sheet steel
- **Option:** also available with discharge flange
- **Note:** Nominal data established with external electronics (CHW050-AA)!
For commutation and open respectively closed loop control, external electronics are needed. Designs for electronics with nominal voltage 24 VDC, 48 VDC or 110 VDC on request.

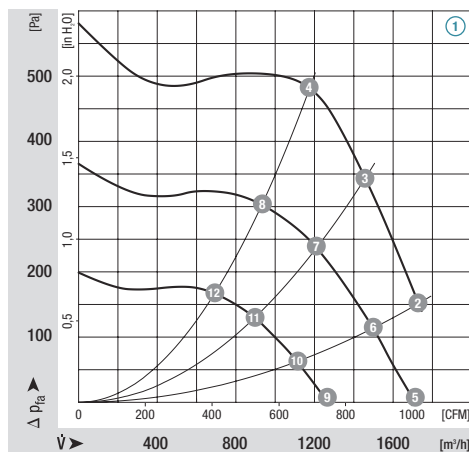
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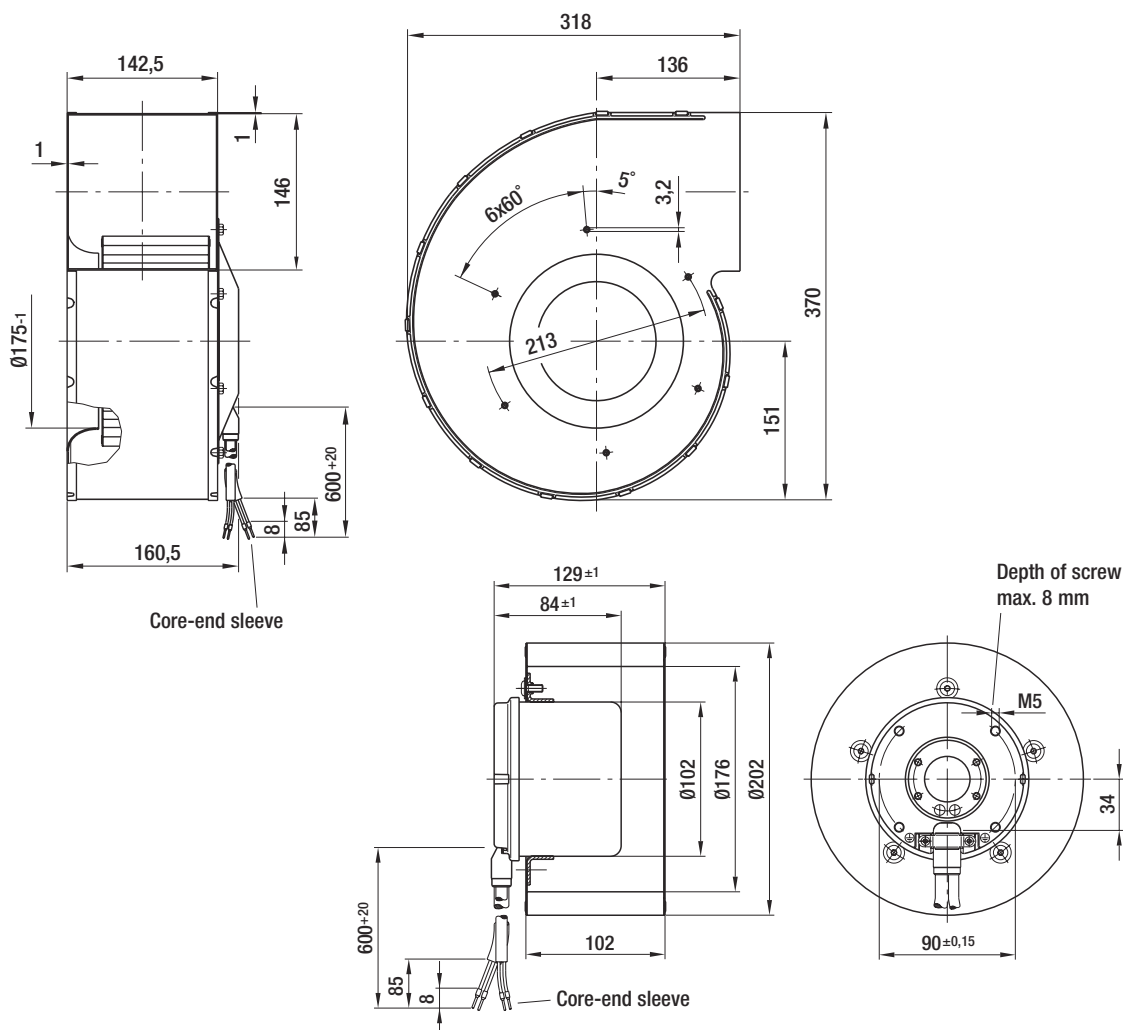
Nominal data		Characteristic	Voltage range external electronics	Frequency	Air flow	Speed/rpm	Power input	Mains current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor	VAC	Hz	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg	
G3G 200-AA14 -01 R3G 200-AA14 -01	M3G084-DF	①	200-277	50/60	1700	1850	525	2,25	75	150	60	6,1 3,3

subject to alterations Type only to be connected to mains with external electronics (CHW050-AA)!

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	---	---	---	---	① ⑨	1200	175	---	66
① ②	1850	525	52	75	① ⑩	1200	140	52	63
① ③	1940	445	58	72	① ⑪	1200	115	58	59
① ④	2000	310	61	70	① ⑫	1200	80	61	56
① ⑤	1600	410	---	71					
① ⑥	1600	340	52	70					
① ⑦	1600	255	58	67					
① ⑧	1600	170	61	64					

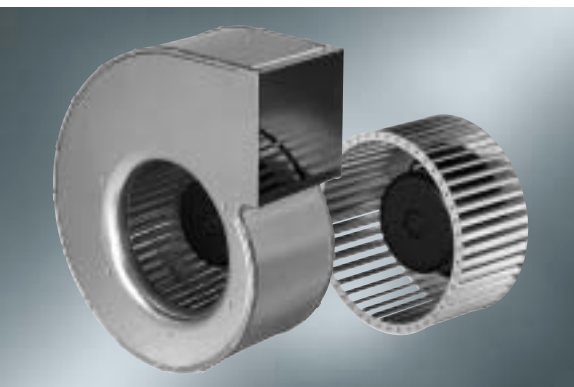
Characteristics





EC centrifugal blowers and fans

single inlet, Ø 225



- **Material:** scroll housing and impeller made of galvanised sheet steel
- **Option:** also available with discharge flange
- **Note:** Nominal data established with external electronics (CHW050-AA)!
 For commutation and open respectively closed loop control, external electronics are needed. Designs for electronics with nominal voltage 24 VDC, 48 VDC or 110 VDC on request.

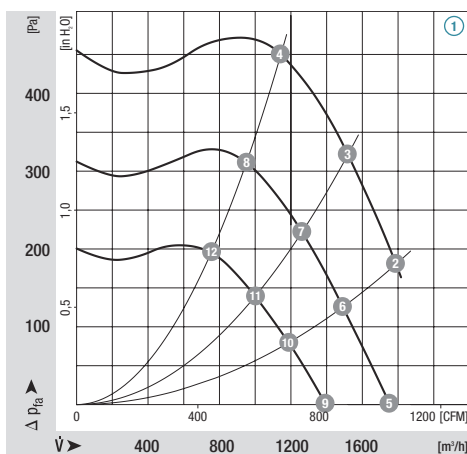
ebm-papst • Mulfingen

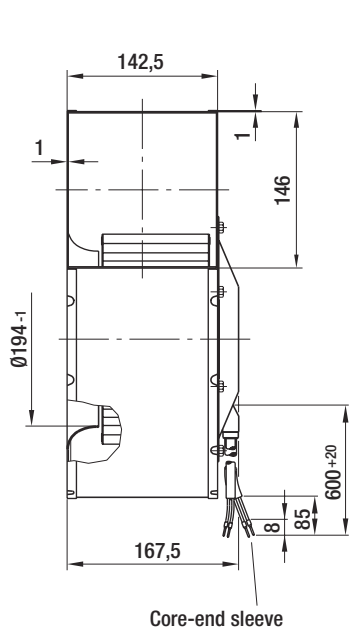
Nominal data		Characteristic	Voltage range external electronics	Frequency	Air flow	Speed/rpm	Power input	Mains current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor	VAC	Hz	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg	
G3G 225-AD05 -01 R3G 225-AD05 -01	M3G084-FA	①	200-277	50/60	1780	1800	590	2,70	77	175	60	7,2 4,1

subject to alterations Type only to be connected to mains with external electronics (CHW050-AA)!

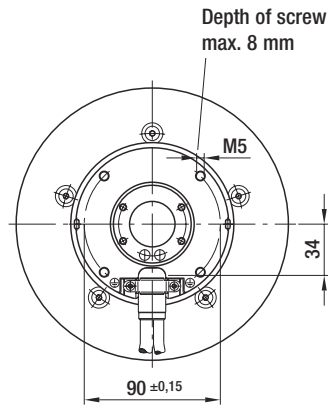
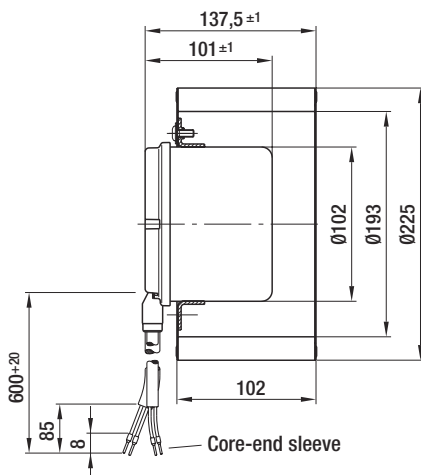
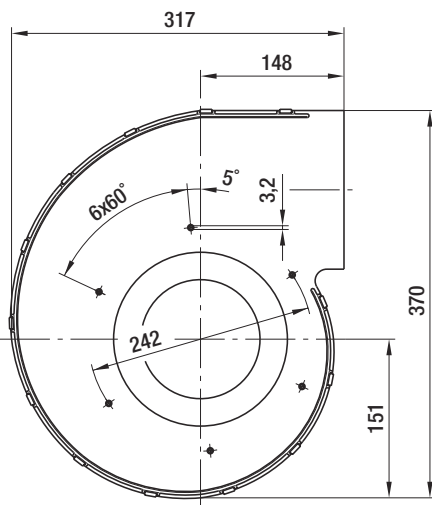
	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	---	---	---	---	① ⑨	1200	230	---	69
① ②	1800	590	51	77	① ⑩	1200	180	49	66
① ③	1800	430	58	73	① ⑪	1200	135	55	62
① ④	1800	265	54	69	① ⑫	1200	90	50	59
① ⑤	1500	435	---	75					
① ⑥	1500	350	49	72					
① ⑦	1500	260	57	68					
① ⑧	1500	165	51	65					

Characteristics





Core-end sleeve



EC centrifugal blowers

dual inlet, Ø 133



- **Material:** scroll housing and impeller made of galvanised sheet steel
- **Design:** integrated SAL external-rotor motor with shaft on rotor side, anti-vibration mounted on both sides
- **Bearings:** support bearing
- **Direction of rotation:** clockwise, seen on rotor
- **Option:** also available with discharge flange

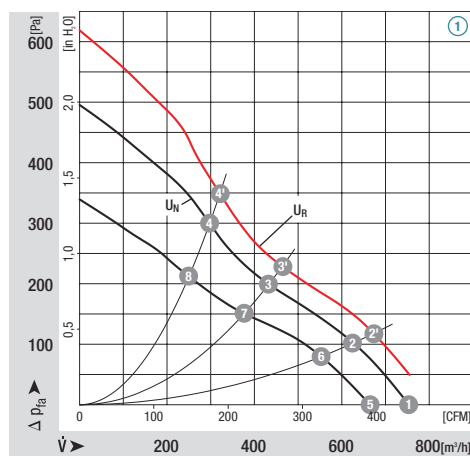
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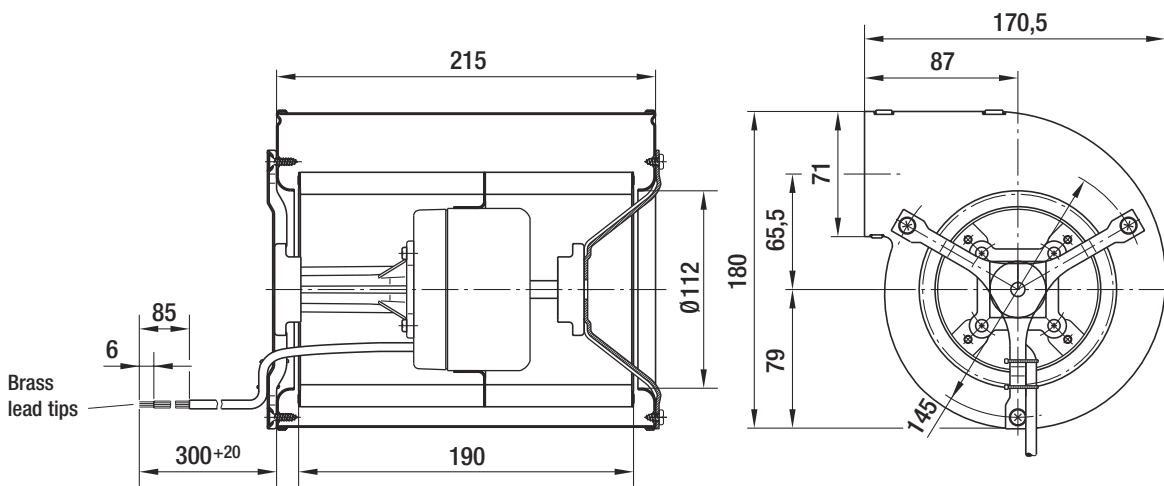
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
D1G 133-AB29 -52	M1G074-BF	①	24	16-28	700	1780	105	5,60	62	50	60	3,3
D1G 133-AB39 -52	M1G074-BF	①	48	36-57	700	1780	105	2,80	62	50	60	3,3

subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	---	---	---	---	① ⑤	1500	73	---	59
① ②	2050	121	49	63	① ⑥	1720	67	49	57
① ③	2490	106	41	62	① ⑦	2020	58	41	56
① ④	2820	100	37	62	① ⑧	2230	49	37	56
① ①	1780	105	---	62					
① ②	1900	97	49	61					
① ③	2310	86	41	59					
① ④	2630	80	37	60					

Characteristics





EC centrifugal blowers

dual inlet, Ø 133



- **Material:** scroll housing and impeller made of galvanised sheet steel
- **Design:** integrated SAL external-rotor motor with shaft on rotor side, anti-vibration mounted on both sides
- **Bearings:** support bearing
- **Direction of rotation:** clockwise, seen on rotor
- **Option:** also available with discharge flange

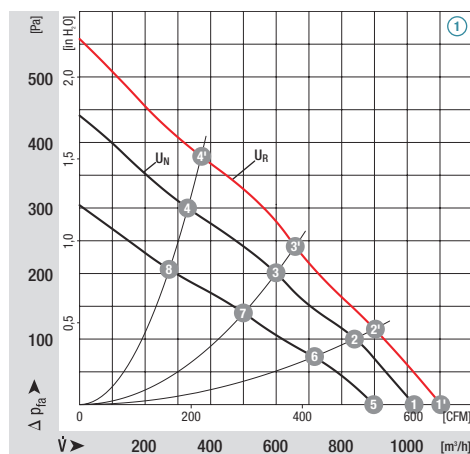
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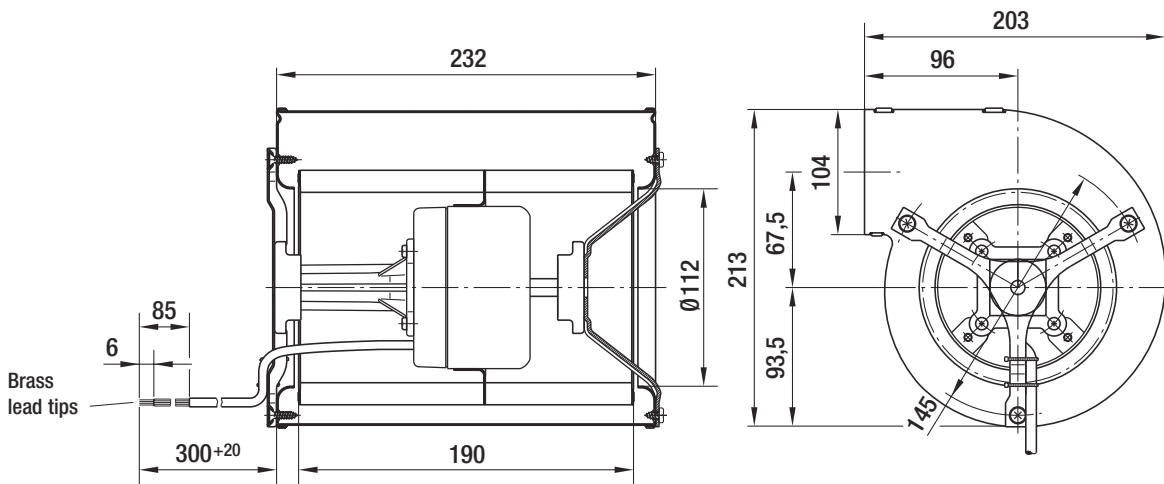
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
D1G 133-DC13 -52	M1G074-CF	①	24	16-28	1020	1580	118	6,00	64	0	60	3,4
D1G 133-DC17 -52	M1G074-CF	①	48	36-57	1020	1580	118	3,00	64	0	60	3,4

subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	1700	145	---	65	① ⑤	1400	78	---	60
① ②	1930	133	38	62	① ⑥	1580	70	38	56
① ③	2290	122	41	59	① ⑦	1760	56	41	53
① ④	2700	99	32	61	① ⑧	2000	44	32	53
① ①	1580	118	---	64					
① ②	1790	107	38	61					
① ③	2100	95	41	57					
① ④	2410	73	32	58					

Characteristics





EC centrifugal blowers

dual inlet, Ø 146



- **Material:** scroll housing and impeller made of galvanised sheet steel
- **Design:** integrated SAL external-rotor motor with shaft on rotor side, anti-vibration mounted on both sides
- **Bearings:** support bearing
- **Direction of rotation:** clockwise, seen on rotor
- **Option:** also available with discharge flange

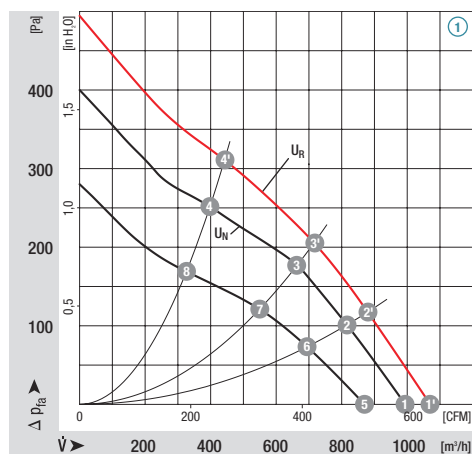
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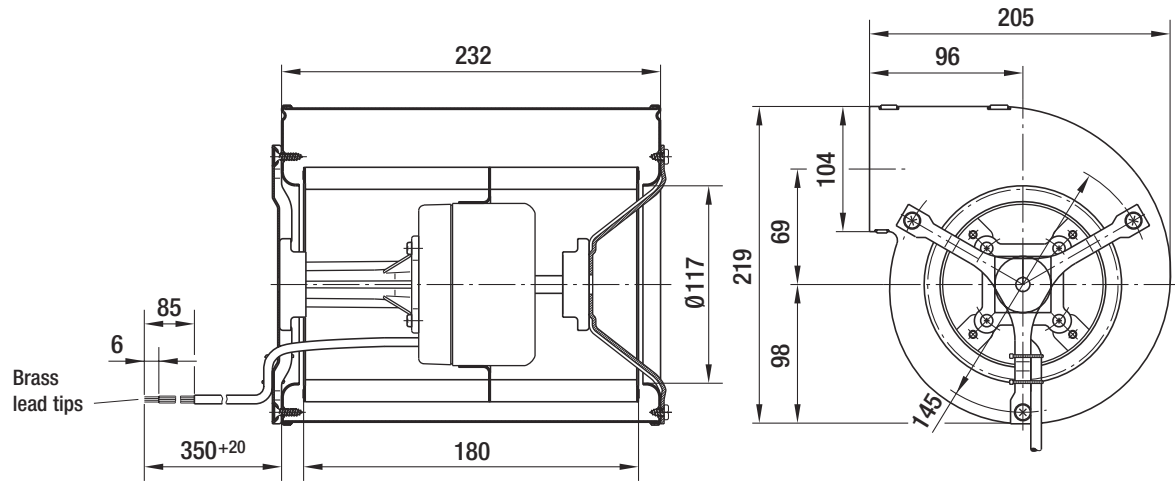
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
D1G 146-AA19 -52	M1G074-CF	①	24	16-28	1000	1350	105	5,10	61	0	60	3,5
D1G 146-AA33 -52	M1G074-CF	①	48	36-57	1000	1350	105	2,60	61	0	60	3,5

subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	1460	129	---	63	① ⑤	1210	70	---	56
① ②	1680	119	53	60	① ⑥	1360	60	53	54
① ③	1890	111	61	58	① ⑦	1460	53	61	52
① ④	2240	95	55	59	① ⑧	1670	42	55	51
① ①	1350	105	---	61					
① ②	1570	95	53	58					
① ③	1750	88	61	56					
① ④	2010	70	55	57					

Characteristics





EC centrifugal blowers

dual inlet, Ø 160



- **Material:** scroll housing and impeller made of galvanised sheet steel
- **Design:** integrated SAL external-rotor motor with shaft on rotor side, anti-vibration mounted on both sides
- **Bearings:** support bearing
- **Direction of rotation:** counter-clockwise, seen on rotor
- **Option:** also available with discharge flange

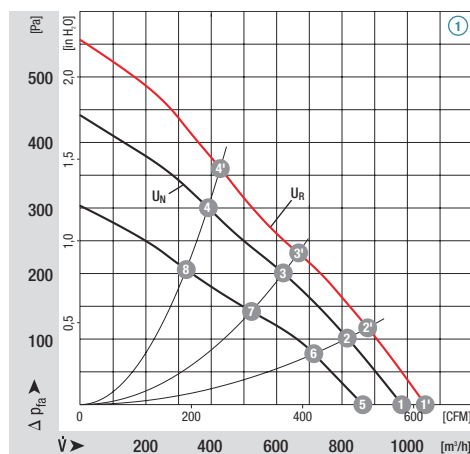
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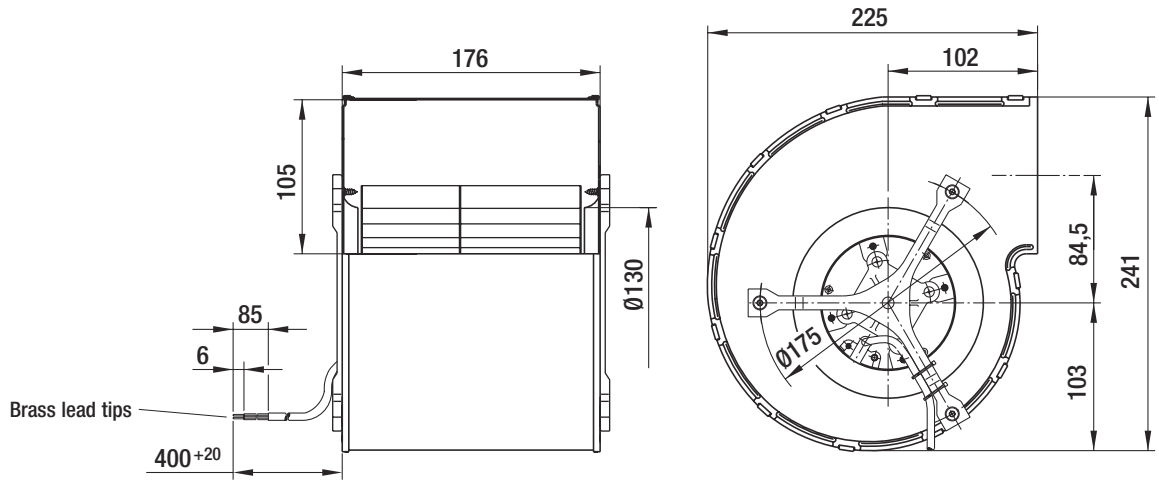
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
D1G 160-DA19 -52	M1G074-CF	①	24	16-28	980	1250	112	5,60	60	0	60	3,6
D1G 160-DA33 -52	M1G074-CF	①	48	36-57	980	1250	112	2,90	60	0	60	3,6

subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	1330	142	---	63	① ⑤	1100	75	---	58
① ②	1520	128	64	61	① ⑥	1250	69	64	56
① ③	1790	115	66	59	① ⑦	1420	58	66	54
① ④	2090	105	60	60	① ⑧	1580	47	60	53
① ①	1250	112	---	60					
① ②	1420	102	64	59					
① ③	1660	92	66	58					
① ④	1900	80	60	58					

Characteristics





EC centrifugal blowers

dual inlet, Ø 180



- **Material:** scroll housing and impeller made of galvanised sheet steel
- **Design:** GW motor, anti-vibration mounted on both sides
- **Direction of rotation:** clockwise, seen on rotor
- **Option:** also available with discharge flange
- **Note:** Nominal data established with external electronics (CHW050-AA)!
 For commutation and open respectively closed loop control, external electronics are needed. Designs for electronics with nominal voltage 24 VDC, 48 VDC or 110 VDC on request.

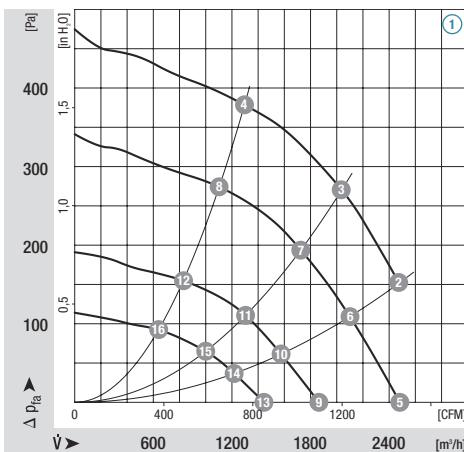
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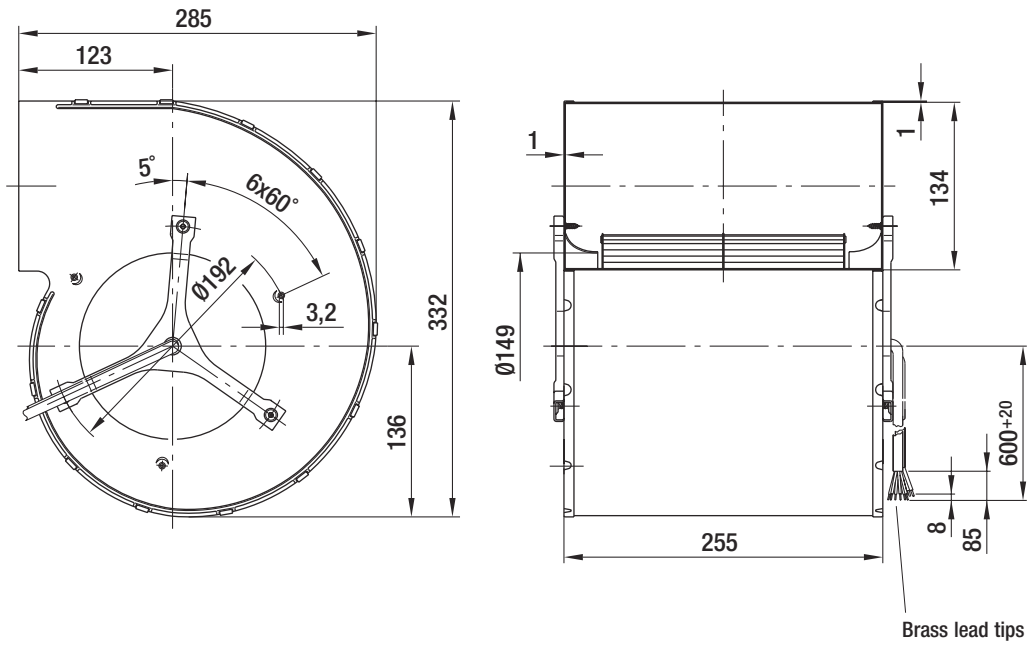
Nominal data		Characteristic	Voltage range external electronics	Frequency	Air flow	Speed/rpm	Power input	Mains current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor	VAC	Hz	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg	
D3G 180-AA17 -01	M3G084-FA	① 200-277	50/60	2470	2000	700	3,10	75	150	60	8,1	

subject to alterations Type only to be connected to mains with external electronics (CHW050-AA)!

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	---	---	---	---	① ⑨	1300	240	---	67
① ②	2000	700	46	75	① ⑩	1300	193	48	63
① ③	2000	528	53	72	① ⑪	1300	157	53	60
① ④	2000	307	56	66	① ⑫	1300	100	49	55
① ⑤	1700	552	---	74	① ⑬	1000	120	---	60
① ⑥	1700	427	46	71	① ⑭	1000	97	50	57
① ⑦	1700	326	53	67	① ⑮	1000	83	56	53
① ⑧	1700	206	56	63	① ⑯	1000	57	45	49

Characteristics





EC centrifugal blowers

dual inlet, Ø 200



- **Material:** scroll housing and impeller made of galvanised sheet steel
- **Design:** GW motor, anti-vibration mounted on both sides
- **Direction of rotation:** clockwise, seen on rotor
- **Option:** also available with discharge flange
- **Note:** Nominal data established with external electronics (CHW050-AA)!
 For commutation and open respectively closed loop control, external electronics are needed. Designs for electronics with nominal voltage 24 VDC, 48 VDC or 110 VDC on request.

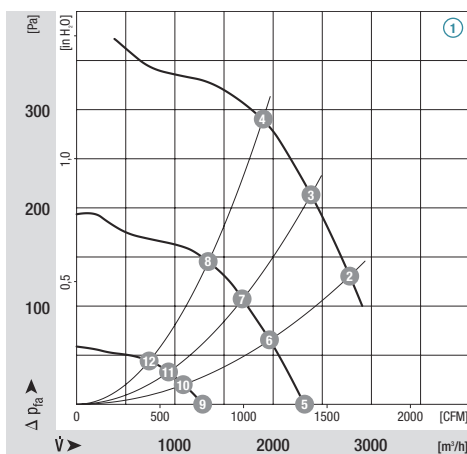
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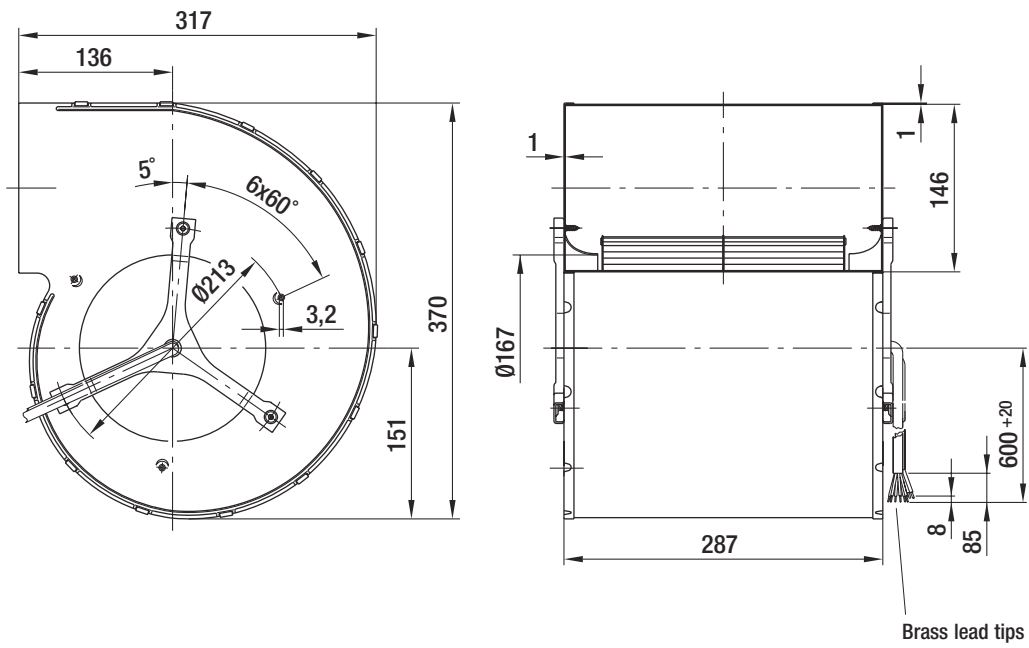
Nominal data		Characteristic	Voltage range external electronics	Frequency	Air flow	Speed/rpm	Power input	Mains current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor	VAC	Hz	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg	
D3G 200-AA02 -01	M3G084-IA	① 200-277	50/60	2900	1600	650	2,60	71	100	60	10,4	

subject to alterations Type only to be connected to mains with external electronics (CHW050-AA)!

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	---	---	---	---	① ⑨	650	62	---	51
① ②	1600	605	53	71	① ⑩	650	57	56	47
① ③	1600	499	60	68	① ⑪	650	50	60	44
① ④	1600	369	65	65	① ⑫	650	41	65	41
① ⑤	1150	278	---	66					
① ⑥	1150	233	53	62					
① ⑦	1150	197	61	60					
① ⑧	1150	149	64	56					

Characteristics





EC centrifugal blowers

dual inlet, Ø 225



- **Material:** scroll housing and impeller made of galvanised sheet steel
- **Design:** GW motor, anti-vibration mounted on both sides
- **Direction of rotation:** clockwise, seen on rotor
- **Option:** also available with discharge flange
- **Note:** Nominal data established with external electronics (CHW050-AA)!
 For commutation and open respectively closed loop control, external electronics are needed. Designs for electronics with nominal voltage 24 VDC, 48 VDC or 110 VDC on request.

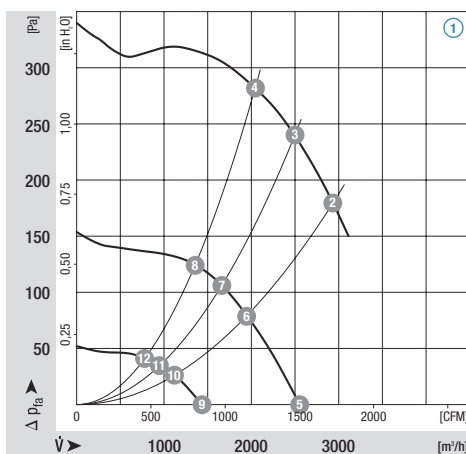
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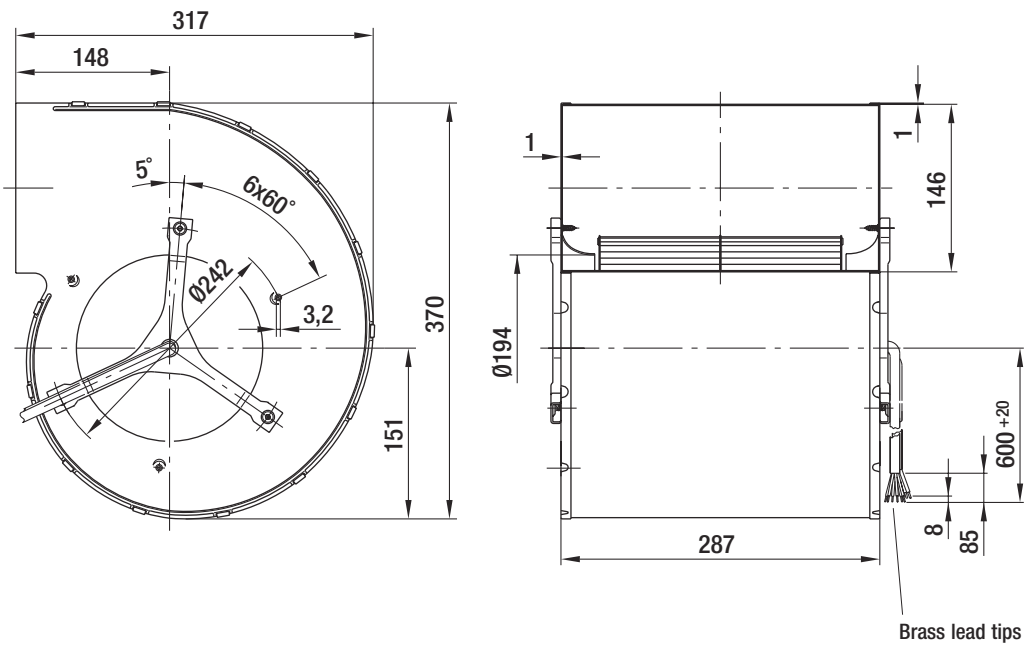
Nominal data		Characteristic	Voltage range external electronics	Frequency	Air flow	Speed/rpm	Power input	Mains current draw	Noise level	Min. back pressure	Perm. amb. temp.	Mass
Type	Motor	VAC	Hz	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg	
D3G 225-AA01 -01	M3G084-IA	① 200-277	50/60	3090	1350	670	3,30	74	150	60	10,5	

subject to alterations Type only to be connected to mains with external electronics (CHW050-AA)!

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① 1	---	---	---	---	① 9	530	65	---	52
① 2	1350	605	61	71	① 10	530	50	56	46
① 3	1350	470	64	68	① 11	530	44	59	43
① 4	1350	350	64	64	① 12	530	37	59	41
① 5	900	284	---	68					
① 6	900	191	59	60					
① 7	900	154	63	58					
① 8	900	119	63	54					

Characteristics







EC axial fans

	Axial fans	Ø 200 - Ø 250	274
	S-Range	Ø 200 - Ø 990	276
	K-Range	Ø 250 - Ø 360	294



Information

AC centrifugal

AC axial

EC centrifugal

EC axial

EC-SYSTEMS

Accessories

EC axial fans

Technical information

Axial fans have least power consumption blowing at free air. As the back pressure increases, the power consumption increases.

Impellers

Designs:

- S-Range:** Individual sickle blades made of sheet steel are welded onto the rotor of the EC external-rotor motor, dynamically balanced in two planes according to DIN ISO 1940.
- K-Range:** Impellers are injection-moulded of high quality plastic. A metal ring is moulded into the hub area so that the impeller can be press-fitted onto the rotor and dynamically balanced in two planes according to DIN ISO 1940.

The combination of impeller and external-rotor motor provides an optimal aerodynamic solution in each range.

Bearings

Maintenance-free ball bearings

Air performance characteristic

Air performance of all axial fans is determined in the wall ring. Air performance of the K-Range was measured in flow direction "A" free sucking over inlet ring. Air performance of the S-Range was measured in flow direction "V" without supporting / basket grille guard. Without the inlet ring or when using the supporting / protective / basket grille guard, the performance is slightly lower at a higher noise level.

For different operating points, parameters are listed in a table with the following key:

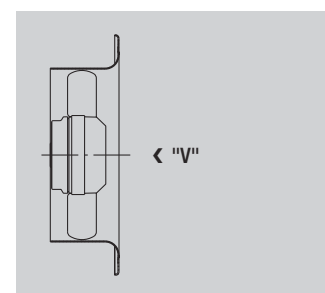
η_{tL} = Total efficiency of the impeller
(including dynamic pressure)

Air performance curves at U_N (nominal voltage) and U_R (rated voltage) are determined at 10 V control voltage.

$$U_R = 1.15 \times U_N$$

Example:

U_N	24 V	48 V
U_R	27.6 V	55.2 V



**EC motors / fans 1-core or 3-core,
with integrated commutation electronics**

- nominal voltage 24 VDC, 48 VDC
- clockwise rotation
- integrated electronics
- PWM / linear input 0-10 VDC
- tach output
- soft start
- reverse polarity protection
- locked-rotor protection
- EMC - RFI suppression according to
 - EN 55014 (up to 5A nom. current)
 - ESD according to EN 61000-4-2
 - Burst according to EN 61000-4-4

**EC motors / fans 3-core,
for external commutation electronics**

- for external commutation electronics,
nominal voltage 24 VDC, 48 VDC and 110
VDC for train applications (with special
motor design)
- for external commutation electronics,
nominal voltage 200-277 VAC, 50/60 Hz

Wall rings

The wall rings are optimized inlet rings, made of galvanised sheet steel and varnished black.

The motors are mounted via guard grilles, chromated in yellow for the K-Range, and coated in black plastic for the S-Range.

For some types, wall rings made of die-cast aluminium are available.

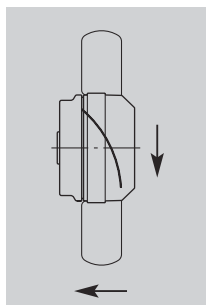
Cable exit

Lateral (S), front side (A), possible in both ways (B). Versions with guard grille and wall ring have the connection cable brought out through the guard grille.

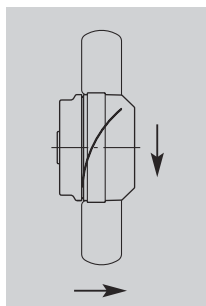
EC axial fans

Possible mounting configurations of the S-Range

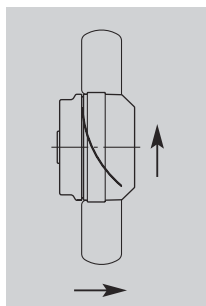
Direction of rotation and air flow



Direction of air flow "V"
Direction of rotation:
counter-clockwise seen
from rotor side



Direction of air flow "A"
Direction of rotation with
Ø 200 / Ø 250: counter-
clockwise



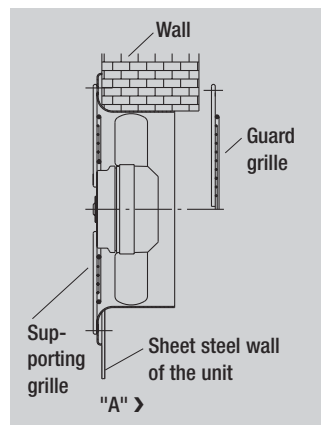
Direction of air flow "A"
Direction of rotation as of
Ø 300: clockwise

Possible mounting configurations

Air performance and noise of a fan are strongly influenced by the mounting conditions.

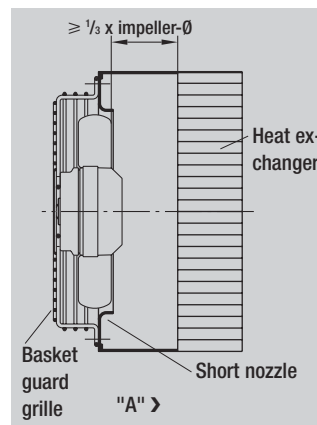
- **Wall ring unit**

sucking via supporting grille,
blowing at free air



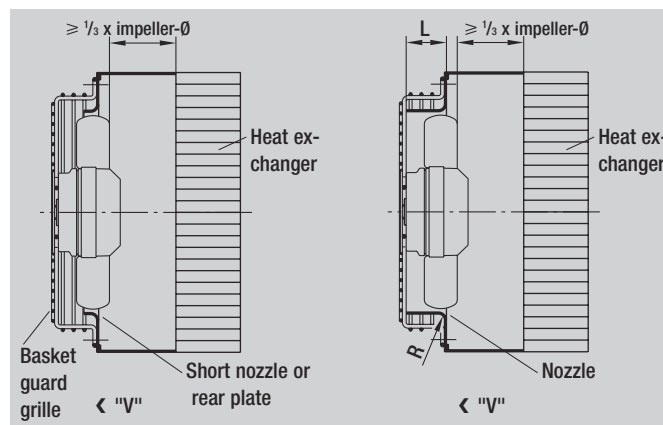
- **Basket grille unit**

pressing via heat exchanger
(connection pressure side)



- **Basket grille unit**

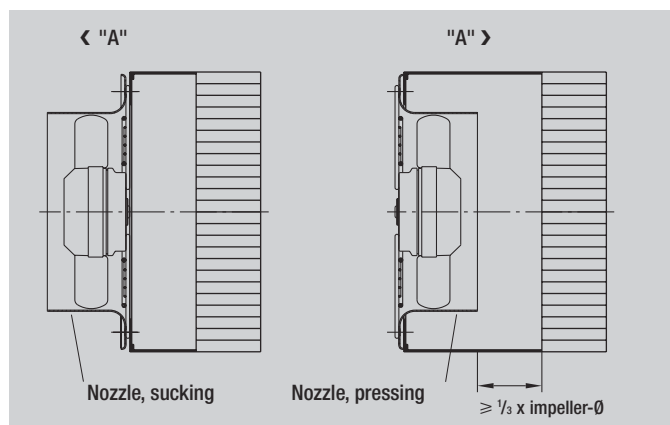
sucking via heat exchanger. This mounting configuration results in favourable noise levels.



Impeller-Ø	R	L
200	15	35
250	20	35
300	20	35
315	20	70
330	20	70
350	22	70
400	22	70
420	40	70
450	40	70

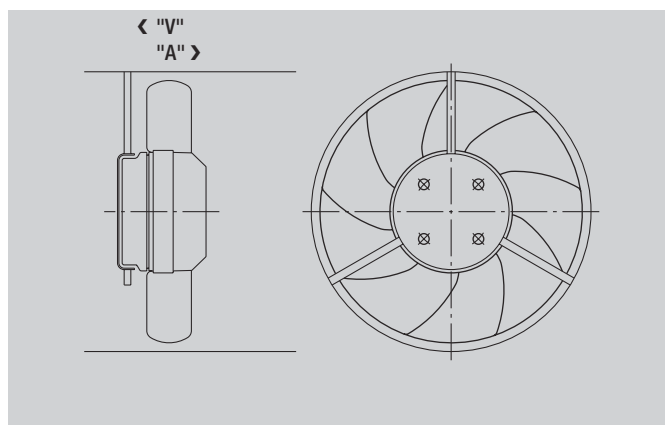
• **Wall ring unit**

N.B.: With full nozzles, an increase of performance by up to 10% can be achieved when compared to installation in wall openings and short nozzles.



• **Duct mounting**

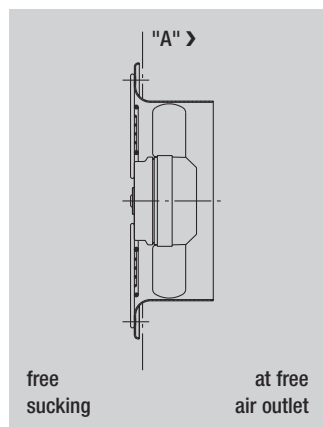
e.g. mounting flange with struts or supporting grille



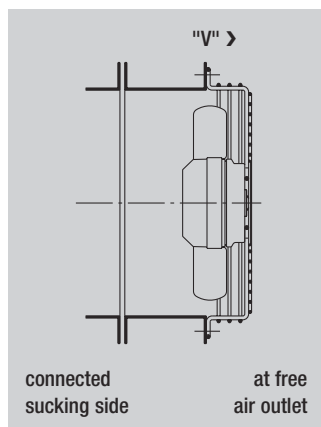
• **Mounting versions**

As per DIN 24163 part 1, the following mounting versions are defined:

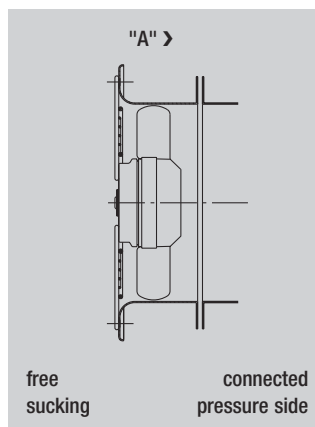
Version A



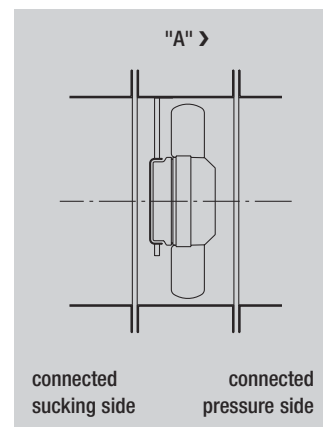
Version B



Version C



Version D



EC axial fans

Ø 200



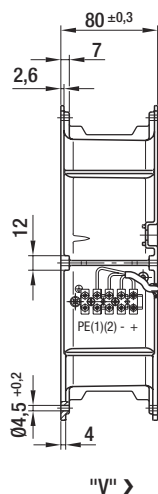
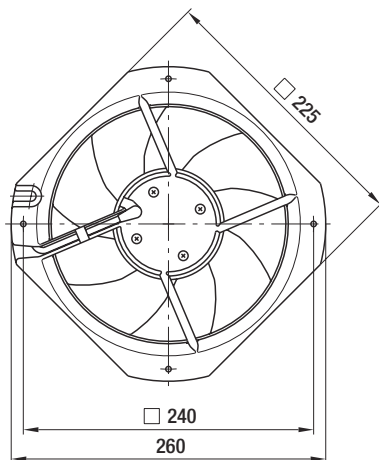
- **Material:** housing made of die-cast aluminium, impeller made of sheet steel (directly welded onto rotor and stove-enamelled in black)
- **Bearings:** maintenance-free ball bearings
- **Direction of rotation:** counter-clockwise, seen on rotor
- **Direction of air flow:** "V", blowing over struts
- **Connection leads:** terminal strip
- **Approvals:** UL, VDE, CSA
- **Performance curve:** determined at 24 VDC

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Nominal data

Type	Motor	Characteristic	Voltage VDC	Voltage range VDC	Air flow m³/h	Speed/rpm min ⁻¹	Power input W	Current draw A	Noise level dB(A)	Max. back pressure Pa	Perm. amb. temp. °C	Mass kg	Direction of air flow
W1G200-HH77 -52	M1G074-BF	①	24	16-28	1090	2950	55	2,60	60	---	60	2,1	"V"
W1G200-HH01 -52	M1G074-BF	①	48	36-57	1005	2750	45	1,10	60	---	60	2,1	"V"

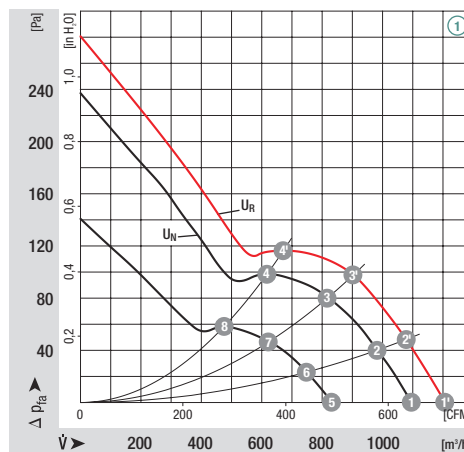
subject to alterations



(1) Control input
(2) Tach output

	n [min ⁻¹]	P _i [W]	η _{HL} [%]	Lp _A [dBA]		n [min ⁻¹]	P _i [W]	η _{HL} [%]	Lp _A [dBA]
① ①	2300	73	---	63	① ⑤	2270	27	---	55
① ②	2970	77	67	62	① ⑥	2230	28	67	54
① ③	3100	80	64	63	① ⑦	2170	29	64	54
① ④	2970	80	54	66	① ⑧	2130	30	54	57
① ①	2950	55	---	60					
① ②	2890	58	67	60					
① ③	2800	61	64	61					
① ④	2780	63	54	64					

Characteristics



EC axial fans

Ø 250



- **Material:** housing made of die-cast aluminium, impeller made of sheet steel (directly welded onto rotor and stove-enamelled in black)
- **Bearings:** maintenance-free ball bearings
- **Direction of rotation:** counter-clockwise, seen on rotor
- **Direction of air flow:** "V", blowing over struts
- **Connection leads:** terminal strip
- **Approvals:** UL, VDE, CSA

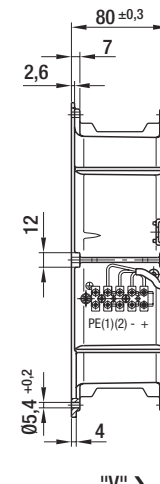
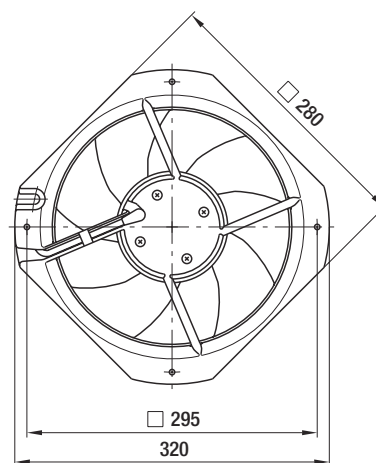
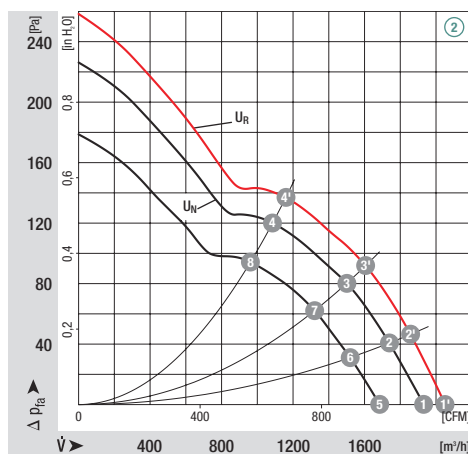
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Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure	Perm. amb. temp.	Mass	Direction of air flow
Type	Motor	VDC	VDC	m³/h	min ⁻¹	W	A	dB(A)	Pa	°C	kg		
W1G250-HH37 -52	M1G074-BF	②	24	16-28	1920	2750	105	5,00	70	---	60	2,5	"V"
W1G250-HH67 -52	M1G074-BF	②	48	36-57	1920	2750	105	2,60	70	---	60	2,5	"V"

subject to alterations

	n [min ⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min ⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
② ①	2920	129	---	71	② ⑤	2610	73	---	66
② ②	2800	132	63	72	② ⑥	2320	75	63	67
② ③	2680	135	60	71	② ⑦	2230	78	60	67
② ④	2600	139	45	72	② ⑧	2170	80	45	68
② ①	2750	105	---	70					
② ②	2630	110	63	69					
② ③	2520	111	60	69					
② ④	2440	114	45	70					

Characteristics



(1) Control input
(2) Tach output

EC axial fans

S-Range, Ø 200



- **Material:** sheet steel (stove-enamelled in black)
- **Direction of rotation:** counter-clockwise
- **Performance curve:** determined at 24 VDC

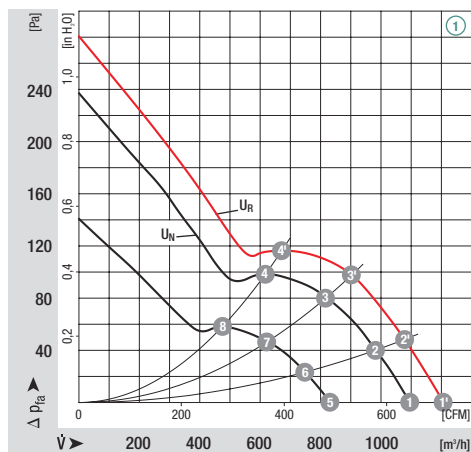
ebm-papst • Mulfingen

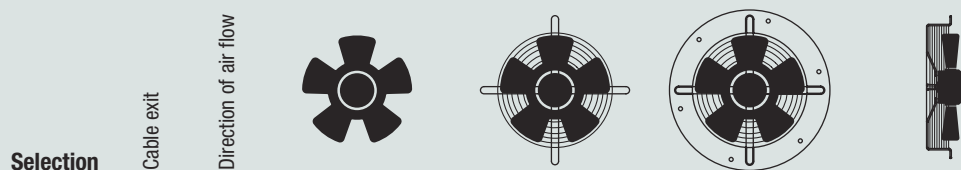
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
*1G 200	M1G074-BF	①	24	16-28	1090	2950	55	2,60	60	---	60	1,5
	M1G074-BF	①	48	36-57	1005	2750	45	1,10	60	---	60	1,5

subject to alterations

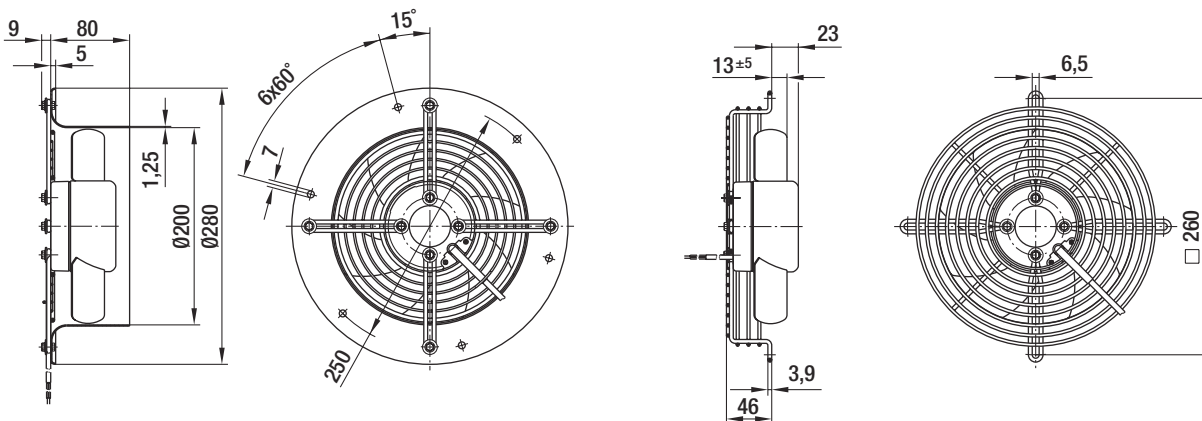
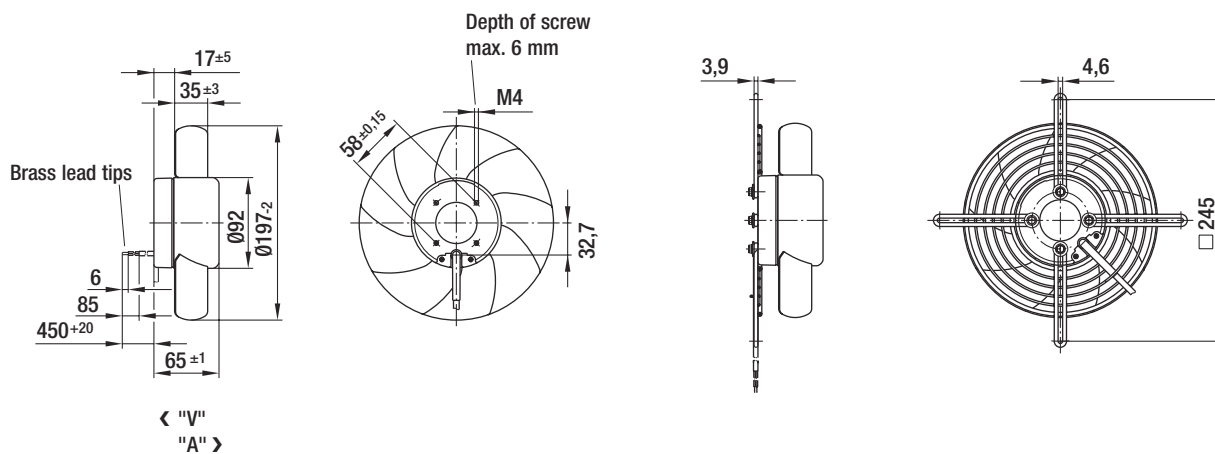
	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	2300	73	---	63	① ⑤	2270	27	---	55
① ②	2970	77	67	62	① ⑥	2230	28	67	54
① ③	3100	80	64	63	① ⑦	2170	29	64	54
① ④	2970	80	54	66	① ⑧	2130	30	54	57
① ①	2950	55	---	60					
① ②	2890	58	67	60					
① ③	2800	61	64	61					
① ④	2780	63	54	64					

Characteristics





Type	S/A/B					
*1G 200	B	"V"	A1G200-AH77 -52	S1G200-BH77 -52	W1G200-CH77 -52	S1G200-AH77 -52
		"A"	A1G200-AI77 -52	S1G200-BI77 -52	W1G200-CI77 -52	S1G200-AI77 -52
	B	"V"	A1G200-AH01 -52	S1G200-BH01 -52	W1G200-CH01 -52	S1G200-AH01 -52
		"A"	A1G200-AI01 -52	S1G200-BI01 -52	W1G200-CI01 -52	S1G200-AI01 -52



EC axial fans

S-Range, Ø 250



- **Material:** sheet steel (stove-enamelled in black)
- **Direction of rotation:** counter-clockwise

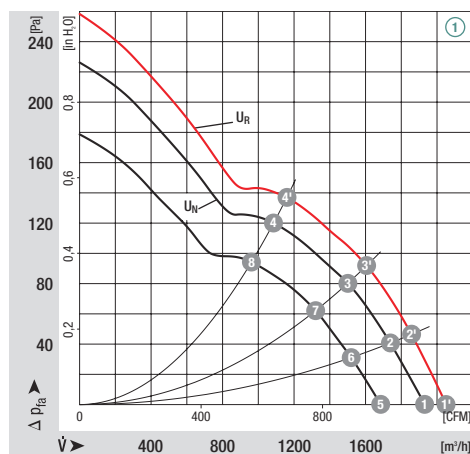
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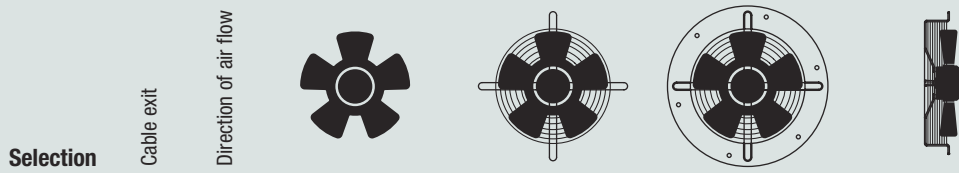
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
*1G 250	M1G074-BF	①	24	16-28	1920	2750	105	5,00	70	---	60	1,6
	M1G074-BF	①	48	36-57	1920	2750	105	2,60	70	---	60	1,6

subject to alterations

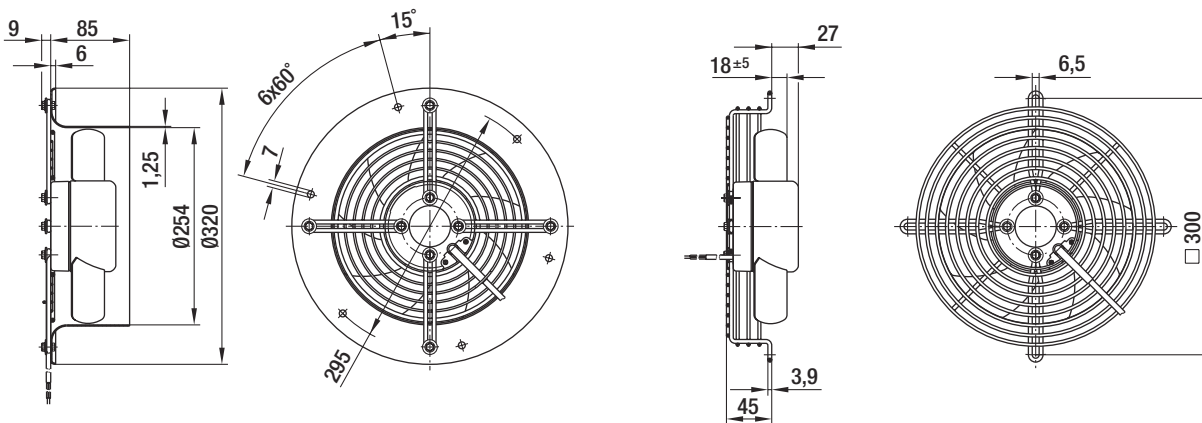
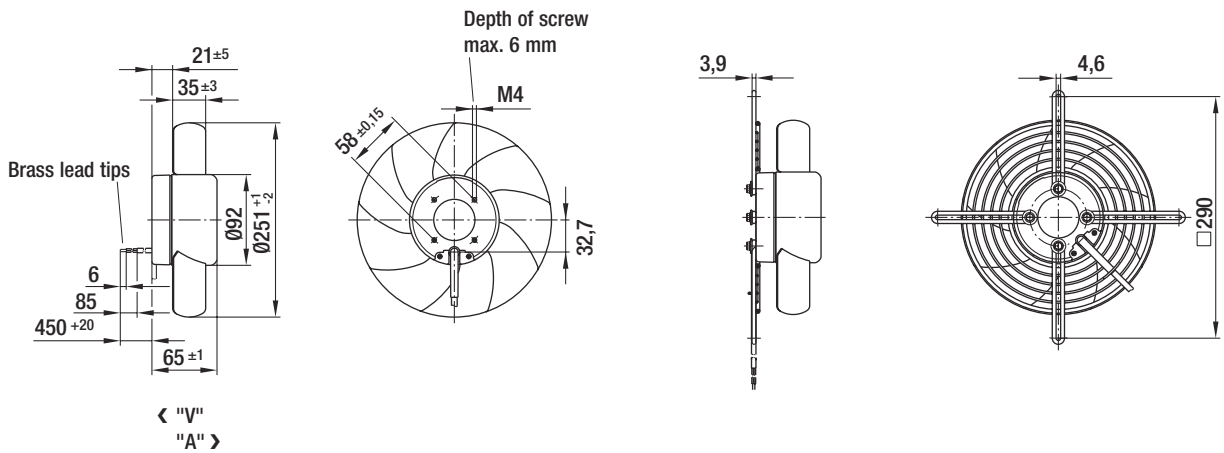
	n	P ₁	η _{HL}	Lp _A		n	P ₁	η _{HL}	Lp _A
	[min⁻¹]	[W]	[%]	[dBA]		[min⁻¹]	[W]	[%]	[dBA]
① ①	2920	129	---	71	① ⑤	2610	73	---	66
① ②	2800	132	63	72	① ⑥	2320	75	63	67
① ③	2680	135	60	71	① ⑦	2230	78	60	67
① ④	2600	139	45	73	① ⑧	2170	80	45	68
① ①	2750	105	---	70					
① ②	2630	110	63	69					
① ③	2520	111	60	69					
① ④	2440	114	45	71					

Characteristics





Type	S/A/B					
*1G 250	B	"V"	A1G250-AH37 -52	S1G250-BH37 -52	W1G250-CH37 -52	S1G250-AH37 -52
		"A"	A1G250-AI37 -52	S1G250-BI37 -52	W1G250-CI37 -52	S1G250-AI37 -52
	B	"V"	A1G250-AH67 -52	S1G250-BH67 -52	W1G250-CH67 -52	S1G250-AH67 -52
		"A"	A1G250-AI67 -52	S1G250-BI67 -52	W1G250-CI67 -52	S1G250-AI67 -52



EC axial fans

S-Range, Ø 300



- **Material:** sheet steel (stove-enamelled in black)
- **Direction of rotation:** direction of air flow "V" counter-clockwise, direction of air flow "A" clockwise

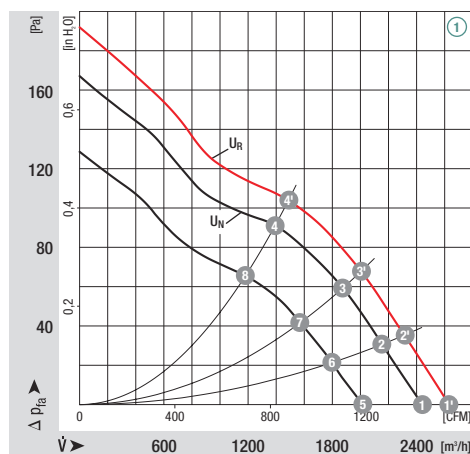
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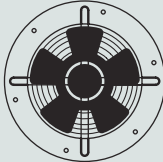

Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
*1G 300	M1G074-CF	①	24	16-28	2450	1800	90	4,00	65	---	60	2,2
	M1G074-CF	①	48	36-57	2450	1800	90	2,00	65	---	60	2,2

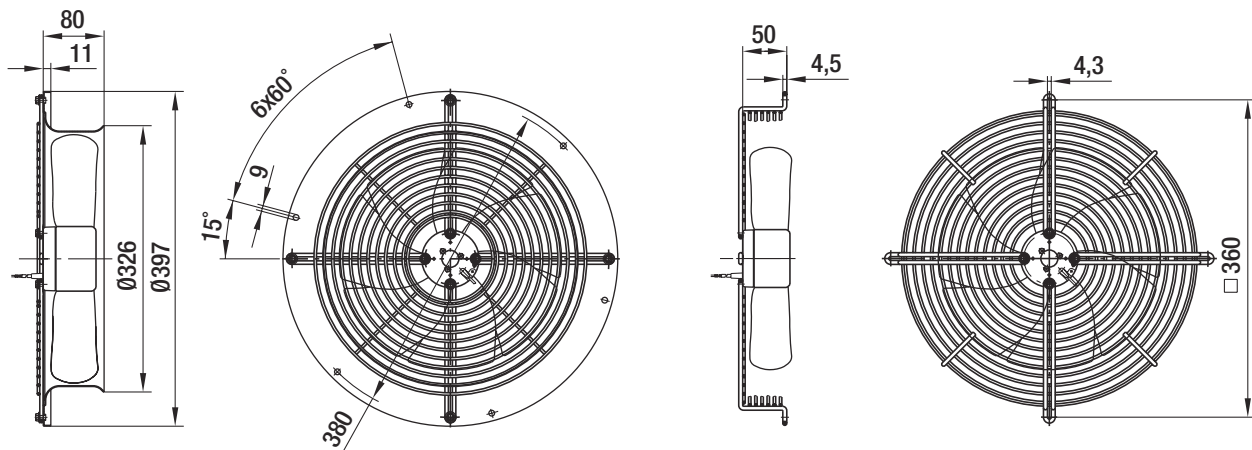
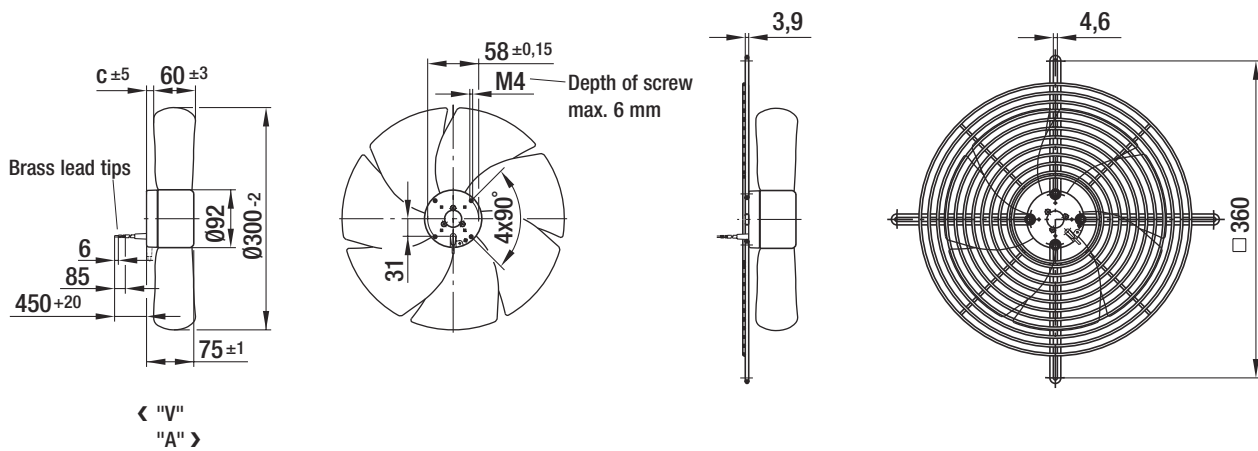
subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	1940	108	---	67	① ⑤	1480	49	---	61
① ②	1850	111	71	66	① ⑥	1440	52	71	62
① ③	1790	113	71	66	① ⑦	1400	55	71	61
① ④	1720	116	60	66	① ⑧	1350	58	60	59
① ①	1800	90	---	65					
① ②	1720	89	71	65					
① ③	1670	91	71	65					
① ④	1600	93	60	64					

Characteristics



Selection		Cable exit	Direction of air flow				Dimensions
Type	S/A/B						c
*1G 300	B	"V"	A1G300-AE19 -54	S1G300-BE19 -54	W1G300-CE19 -54	S1G300-AE19 -54	19,7
		"A"	A1G300-AE19 -52	S1G300-BE19 -52	W1G300-CE19 -52	S1G300-AE19 -52	19,2
	B	"V"	A1G300-AE33 -54	S1G300-BE33 -54	W1G300-CE33 -54	S1G300-AE33 -54	19,7
		"A"	A1G300-AE33 -52	S1G300-BE33 -52	W1G300-CE33 -52	S1G300-AE33 -52	19,2



EC axial fans

S-Range, Ø 400



- **Material:** sheet steel (stove-enamelled in black)
- **Direction of rotation:** direction of air flow "V" counter-clockwise, direction of air flow "A" clockwise
- **Note:** Nominal data established with external electronics (CHW050-AA)!
For commutation and open respectively closed loop control, external electronics are needed. Designs for electronics with nominal voltage 24 VDC, 48 VDC or 110 VDC on request.

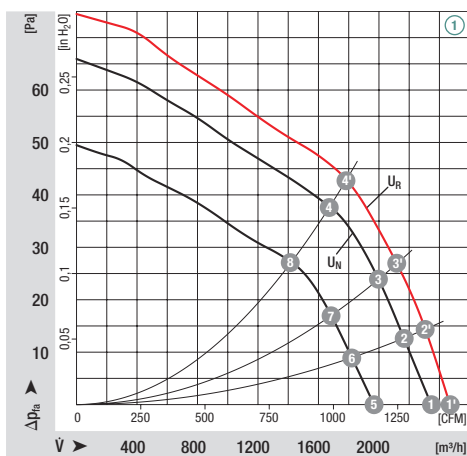
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Nominal data		Characteristic	Voltage range external electronics	Frequency	Air flow	Speed/rpm	Power input	Mains current draw	Noise level	Max. back pressure	Perm. amb. temp.	Mass
Type	Motor	VAC	Hz	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg	
*3G 400	M3G084-FA	① 200-277	50/60	5660	1600	280	1,20	72	145	60	4,3	

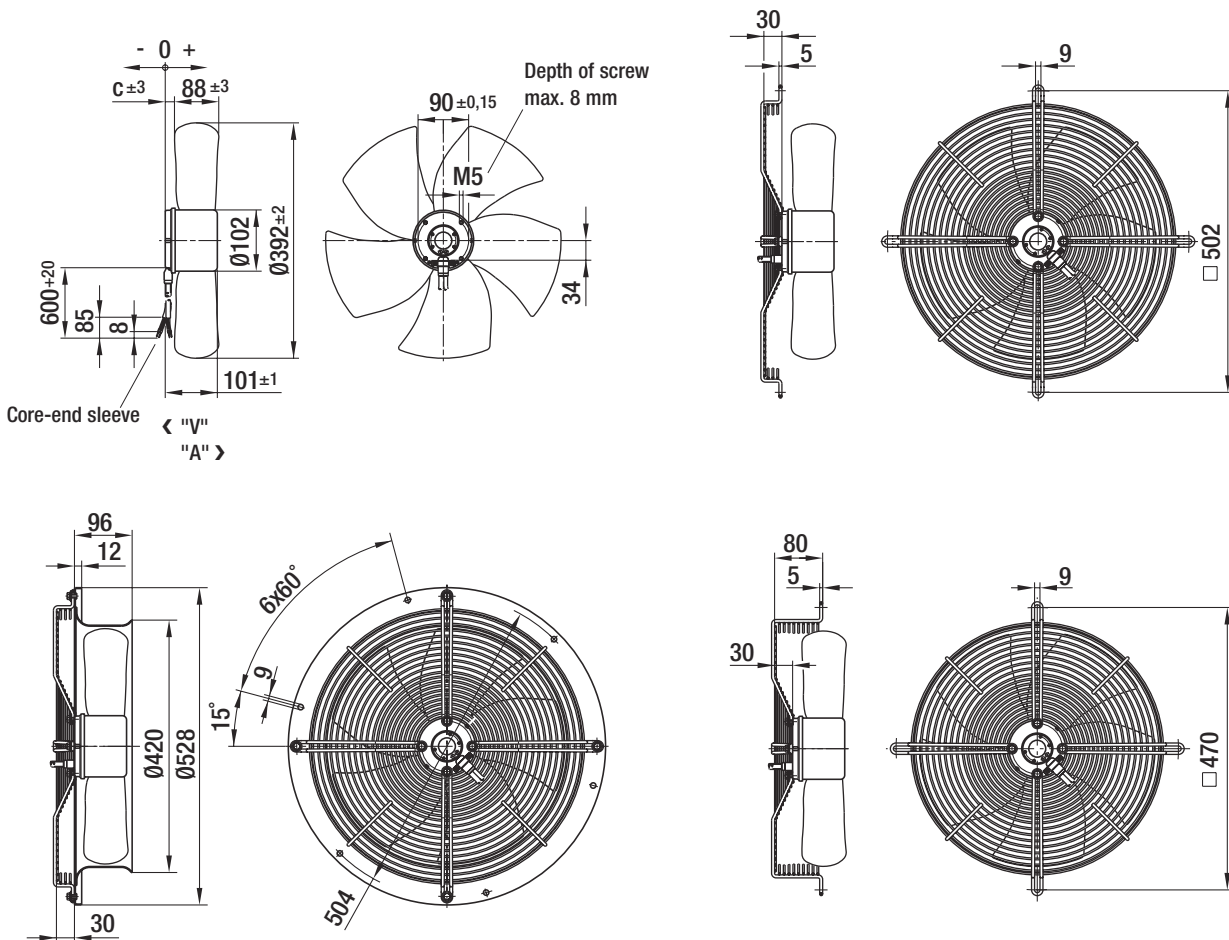
subject to alterations Type only to be connected to mains with external electronics (CHW050-AA)!

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	1600	280	---	72	① ⑨	1000	78	---	62
① ②	1600	351	72	70	① ⑩	1000	93	70	60
① ③	1600	385	64	68	① ⑪	1000	102	62	58
① ④	---	---	---	---	① ⑫	1000	115	48	59
① ⑤	1300	157	---	67					
① ⑥	1300	192	72	65					
① ⑦	1300	216	61	63					
① ⑧	1300	252	47	64					

Characteristics



Selection	Cable exit	Direction of air flow					Dimensions
Type	S/A/B						c
*3G 400	B	"V" "A"	A3G400-AA06 -01 A3G400-AA06 -02	S3G400-BA06 -01 S3G400-BA06 -02	W3G400-CA06 -01 W3G400-CA06 -02	S3G400-AA06 -01 S3G400-AA06 -02	1,5 12,5



EC axial fans

S-Range, Ø 450



- **Material:** sheet steel (stove-enamelled in black)
- **Direction of rotation:** direction of air flow "V" counter-clockwise, direction of air flow "A" clockwise
- **Note:** Nominal data established with external electronics (CHW050-AA)!
For commutation and open respectively closed loop control, external electronics are needed. Designs for electronics with nominal voltage 24 VDC, 48 VDC or 110 VDC on request.

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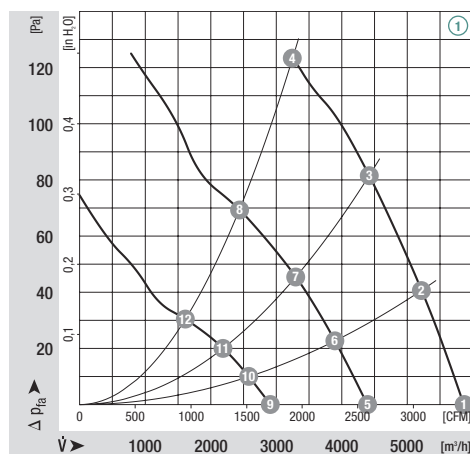
Nominal data		Characteristic	Voltage range external electronics	Frequency	Air flow	Speed/rpm	Power input	Mains current draw	Noise level	Max. back pressure	Perm. amb. temp.	Mass
Type	Motor	VAC	Hz	m ³ /h	min ⁻¹	W	A	dB(A)	Pa	°C	kg	
*3G 450	M3G084-FA	① 200-277	50/60	5860	1200	202	0,90	69	125	60	3,8	

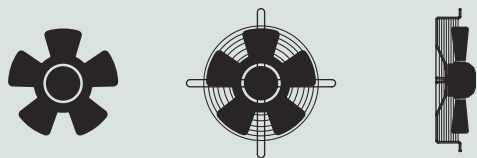
subject to alterations

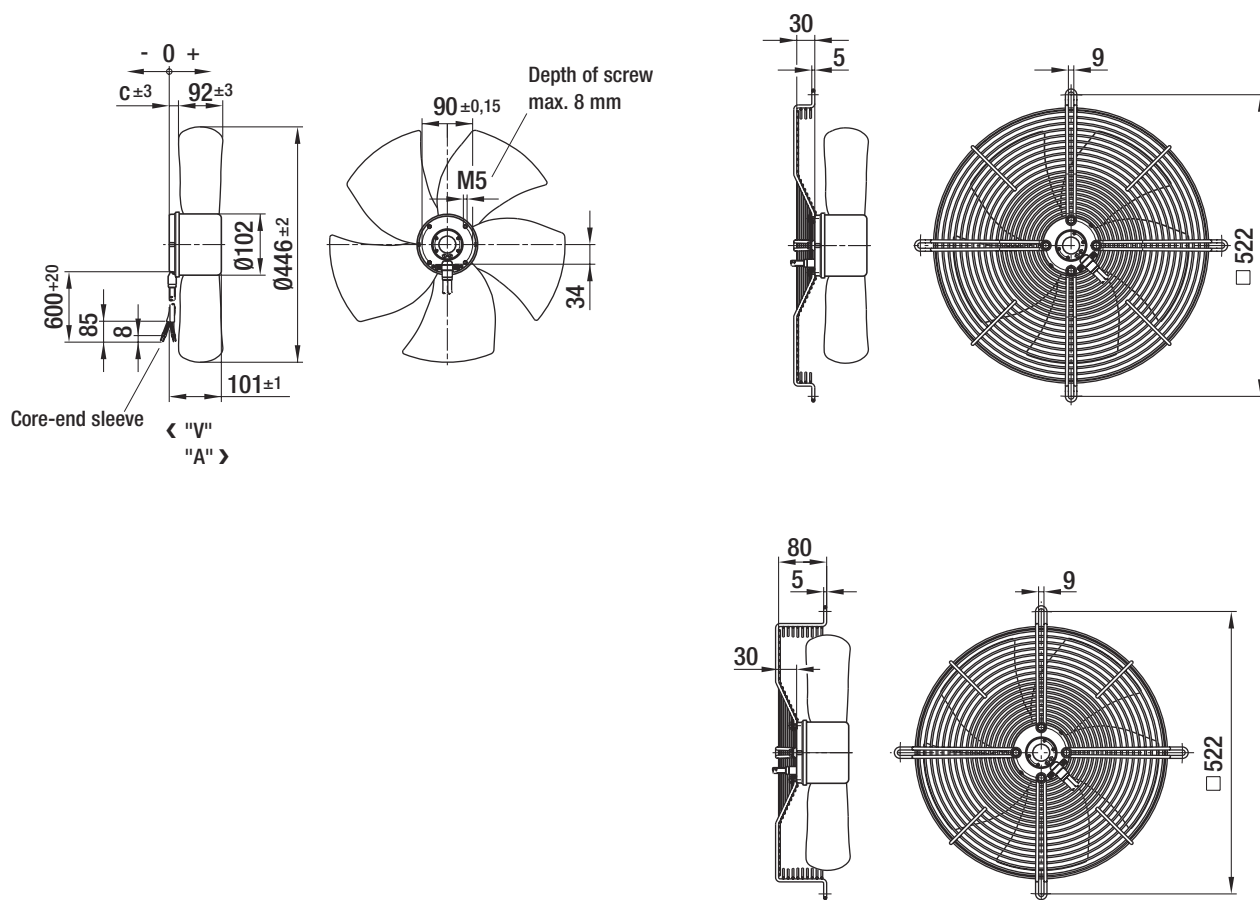
Type only to be connected to mains with external electronics (CHW050-AA)!

	n [min ⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min ⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	1200	202	---	69	① ⑨	600	36	---	55
① ②	1200	239	71	66	① ⑩	600	40	72	55
① ③	1200	270	68	66	① ⑪	600	43	70	55
① ④	1200	314	53	65	① ⑫	600	48	55	55
① ⑤	900	91	---	62					
① ⑥	900	105	72	61					
① ⑦	900	118	69	59					
① ⑧	900	136	53	59					

Characteristics



Selection	Cable exit	Direction of air flow				Dimensions
*3G 450	B	"V" "A"	A3G450-AA03 -01 A3G450-AA03 -02	S3G450-BA03 -01 S3G450-BA03 -02	S3G 450-AA03 -01 S3G 450-AA03 -02	1,5 12,5



EC axial fans integrated electronics

S-Range, Ø 710



- **Material:** stator and electronics housing made of die-cast aluminium, rotor made of steel sheet (black, KTL-coated), fan blades made of die-cast aluminium
- **Technical features:** integrated electronics, limiting of making of current, mains under-voltage detection, phase failure recognition, limitation of motor current, over-temperature protection of electronics and motor, locked-rotor protection, short-circuit protection
- **Bearings:** maintenance-free ball bearings
- **Balancing quality:** ≤ Q 6,3 according to DIN ISO 1940-1
- **Type of protection:** IP54 according to DIN VDE 0470, part 1 (EN 60 529) category 2
- **Approvals:** UL, CSA, VDE, CE, CCC and GOST are applied for
- **Mounting position / condensate discharges:** Norm is shaft horizontal or rotor down with 4 condensate discharges drilled into rotor. Mounting position rotor on top on request.

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Nominal data		Characteristic	Voltage range	Frequency	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure at 60 °C	Max. back pressure at 50 °C	Perm. amb. temp.	Mass ⁽¹⁾
Type	Motor	VAC	Hz	m ³ /h	min ⁻¹	kW	A	dB(A)	Pa	Pa	°C	kg	
*3G 710	M3G150-FF	①	380-480	50/60	20700	1080	1,44	2,40	77	135	205	-20..+60	23,0
	M3G150-IF	②	380-480	50/60	24750	1290	2,39	3,70	81	190	290	-20..+60	26,0

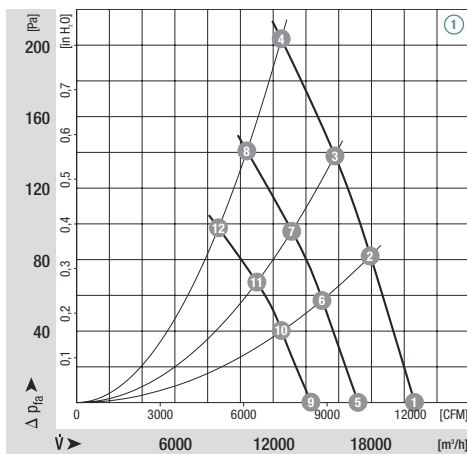
subject to alterations

⁽¹⁾ Mass without guard grille and wall ring

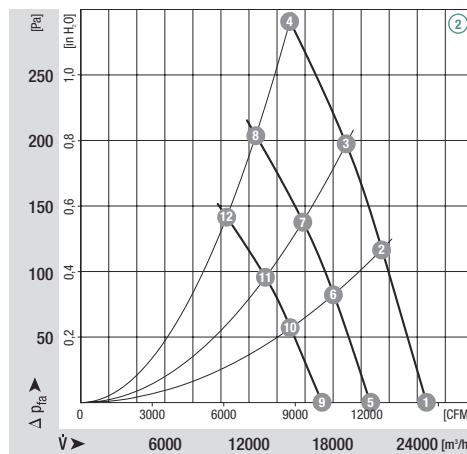
n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]	n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
① ① 1080	1,44	75	77	① ⑨ 750	0,49	75	69
① ② 1080	1,60	74	77	① ⑩ 750	0,55	74	70
① ③ 1080	1,73	69	77	① ⑪ 750	0,59	69	70
① ④ 1080	1,82	59	78	① ⑫ 750	0,63	59	70
① ⑤ 900	0,84	75	73				
① ⑥ 900	0,94	74	73				
① ⑦ 900	1,01	69	73				
① ⑧ 900	1,07	59	74				

n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]	n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
② ① 1290	2,39	75	81	② ⑨ 900	0,83	75	73
② ② 1290	2,67	74	81	② ⑩ 900	0,93	74	73
② ③ 1290	2,89	69	81	② ⑪ 900	1,00	69	73
② ④ 1290	3,04	59	83	② ⑫ 900	1,06	59	74
② ⑤ 1080	1,42	75	77				
② ⑥ 1080	1,58	74	77				
② ⑦ 1080	1,71	69	77				
② ⑧ 1080	1,80	59	79				

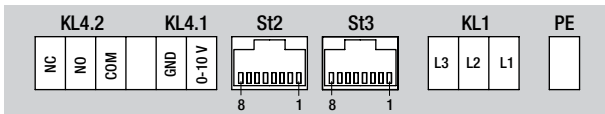
Characteristics



Characteristics

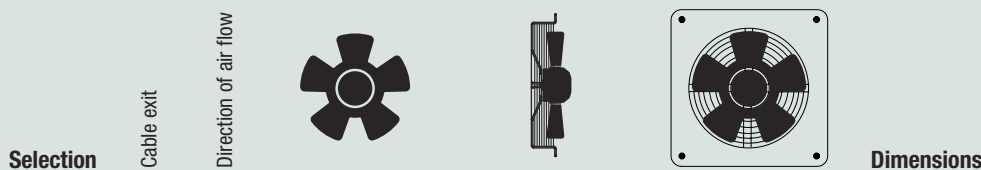


- **Direction of rotation:** dir. of air flow "V" counter-clockwise, dir. of air flow "A" clockwise
- **Electrical connection:**

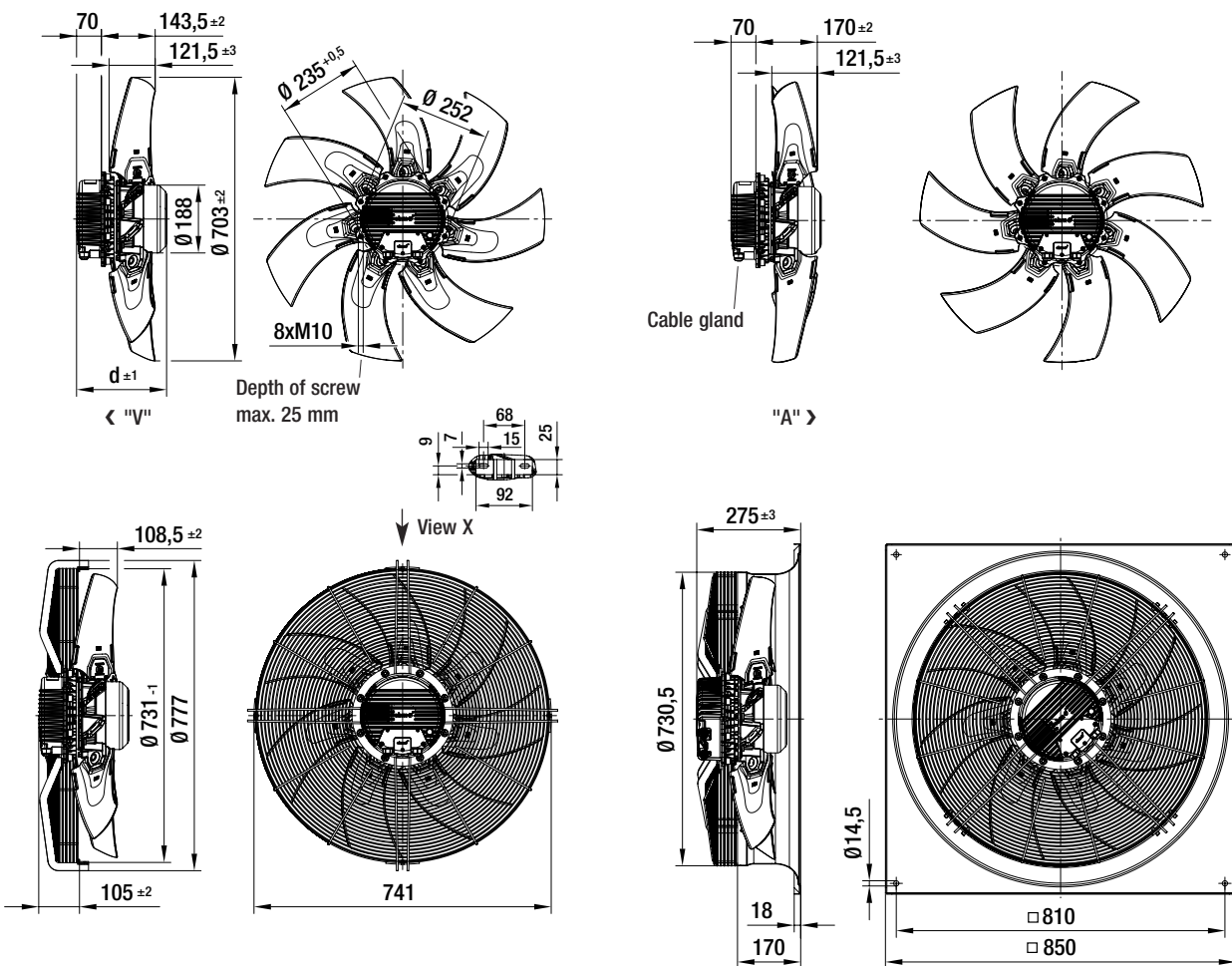


KL4.2	Alarm / status contact
KL4.1	Speed setting input
St2	RJ45-plugs for ebm BUS
St3	RJ45-plugs for ebm BUS
KL1	3-phase power supply
PE	PE (2x)

Pin	St2	St3
1	---	---
2	10 V	---
3	GND	---
4	0-10 V / PWM	---
5	ebm Bus (RS B)	ebm Bus (RS B)
6	ebm Bus (RS A)	ebm Bus (RS A)
7	---	---
8	---	---



Type	S/A/B					d
*3G 710	S	"V"	A3G710-AC01 -01	S3G710-BC01 -01	W3G710-CC01 -01	219,5
		"A"	A3G710-AC01 -02	---	---	219,5
	S	"V"	A3G710-AB06 -01	S3G710-BB06 -01	W3G710-CB06 -01	249,5
		"A"	A3G710-AB06 -02	---	---	249,5



EC axial fans integrated electronics

S-Range, Ø 800



- **Material:** stator and electronics housing made of die-cast aluminium, rotor made of steel sheet (black, KTL-coated), fan blades made of die-cast aluminium
- **Technical features:** integrated electronics, limiting of making of current, mains under-voltage detection, phase failure recognition, limitation of motor current, over-temperature protection of electronics and motor, locked-rotor protection, short-circuit protection
- **Bearings:** maintenance-free ball bearings
- **Balancing quality:** ≤ Q 6,3 according to DIN ISO 1940-1
- **Type of protection:** IP54 according to DIN VDE 0470, part 1 (EN 60 529) category 2
- **Approvals:** UL, CSA, VDE, CE, CCC and GOST are applied for
- **Mounting position / condensate discharges:** Norm is shaft horizontal or rotor down with 4 condensate discharges drilled into rotor. Mounting position rotor on top on request.

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Nominal data		Characteristic	Voltage range	Frequency	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure at 60 °C	Max. back pressure at 50 °C	Perm. amb. temp.	Mass ⁽¹⁾
Type	Motor	VAC	Hz	m ³ /h	min ⁻¹	kW	A	dB(A)	Pa	Pa	°C	kg	
*3G 800	M3G150-FF	①	380-480	50/60	22700	895	1,16	1,90	73	105	160	-20..+60	23,0
	M3G150-IF	②	380-480	50/60	27500	1100	2,10	3,40	78	125	190	-20..+60	26,0

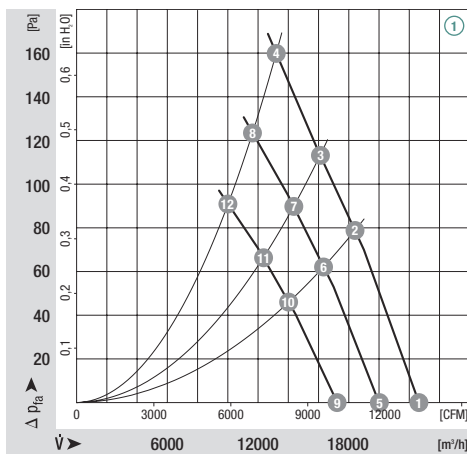
subject to alterations

⁽¹⁾ Mass without guard grille and wall ring

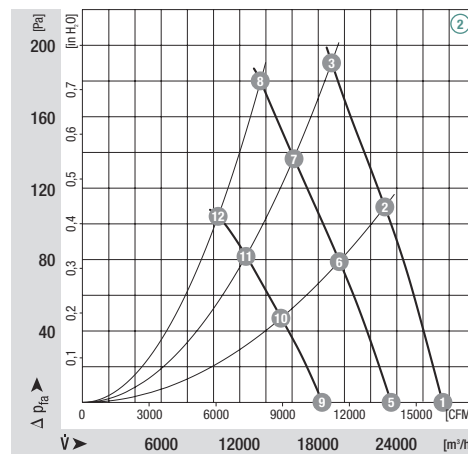
n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]	n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
① ① 895	1,16	71	73	① ⑨ 680	0,53	71	66
① ② 895	1,35	66	74	① ⑩ 680	0,62	66	68
① ③ 895	1,42	62	77	① ⑪ 680	0,65	62	70
① ④ 895	1,49	55	79	① ⑫ 680	0,68	55	72
① ⑤ 790	0,81	71	70				
① ⑥ 790	0,93	66	71				
① ⑦ 790	0,99	62	74				
① ⑧ 790	1,04	55	75				

n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]	n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
② ① 1100	2,10	70	78	② ⑨ 720	0,60	70	68
② ② 1100	2,52	66	79	② ⑩ 720	0,68	66	69
② ③ 1100	2,62	60	82	② ⑪ 720	0,70	60	72
② ④ ---	---	---	---	② ⑫ 720	0,71	56	74
② ⑤ 940	1,31	70	74				
② ⑥ 940	1,52	66	75				
② ⑦ 940	1,63	60	78				
② ⑧ 940	1,63	56	80				

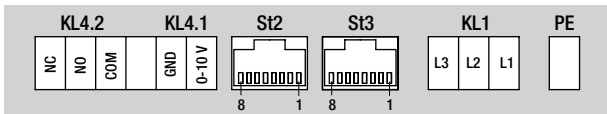
Characteristics



Characteristics



- **Direction of rotation:** dir. of air flow "V" counter-clockwise, dir. of air flow "A" clockwise
- **Electrical connection:**



KL4.2	Alarm / status contact
KL4.1	Speed setting input
St2	RJ45-plugs for ebm BUS
St3	RJ45-plugs for ebm BUS
KL1	3-phase power supply
PE	PE (2x)

Pin	St2	St3
1	---	---
2	10 V	---
3	GND	---
4	0-10 V / PWM	---
5	ebm Bus (RS B)	ebm Bus (RS B)
6	ebm Bus (RS A)	ebm Bus (RS A)
7	---	---
8	---	---

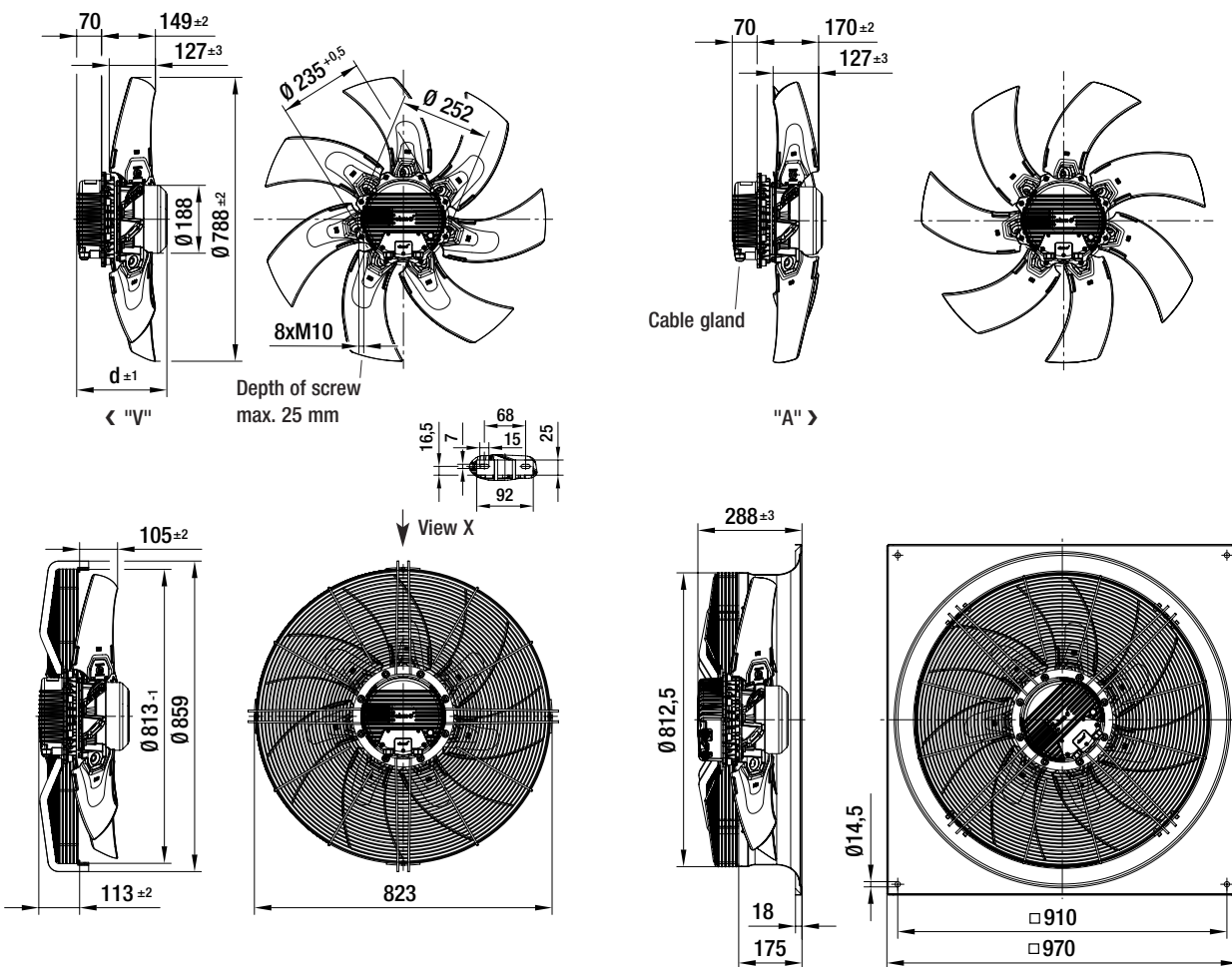
Selection

Cable exit

Direction of air flow

Dimensions

Type	S/A/B				d	
*3G 800	S	"V"	A3G800-AA02 -01	S3G800-BA02 -01	W3G800-CA02 -01	219,5
		"A"	A3G800-AA02 -02	---	---	219,5
	S	"V"	A3G800-AB01 -01	S3G800-BB01 -01	W3G800-CB01 -01	249,5
		"A"	A3G800-AB01 -02	---	---	249,5



Information
AC centrifugal
AC axial
EC centrifugal
EC axial
EC-SYSTEMS
Accessories

EC axial fans integrated electronics

S-Range, Ø 910



- **Material:** stator and electronics housing made of die-cast aluminium, rotor made of steel sheet (black, KTL-coated), fan blades made of die-cast aluminium
- **Technical features:** integrated electronics, limiting of making of current, mains under-voltage detection, phase failure recognition, limitation of motor current, over-temperature protection of electronics and motor, locked-rotor protection, short-circuit protection
- **Bearings:** maintenance-free ball bearings
- **Balancing quality:** ≤ Q 6,3 according to DIN ISO 1940-1
- **Type of protection:** IP54 according to DIN VDE 0470, part 1 (EN 60 529) category 2
- **Approvals:** UL, CSA, VDE, CE, CCC and GOST are applied for
- **Mounting position / condensate discharges:** Norm is shaft horizontal or rotor down with 4 condensate discharges drilled into rotor. Mounting position rotor on top on request.

ebm-papst • Mulfingen

Nominal data		Characteristic	Voltage range	Frequency	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure at 60 °C	Max. back pressure at 50 °C	Perm. amb. temp.	Mass ⁽¹⁾
Type	Motor	VAC	Hz	m ³ /h	min ⁻¹	kW	A	dB(A)	Pa	Pa	°C	kg	
*3G 910	M3G150-FF	①	380-480	50/60	25400	650	0,79	1,40	72	70	95	-20..+60	26,0
	M3G150-IF	②	380-480	50/60	30500	780	1,32	2,20	76	100	140	-20..+60	29,0

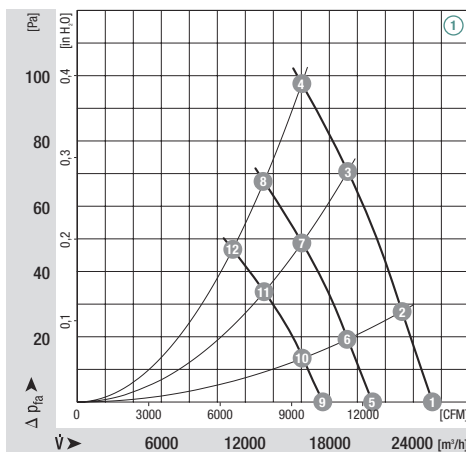
subject to alterations

⁽¹⁾ Mass without guard grille and wall ring

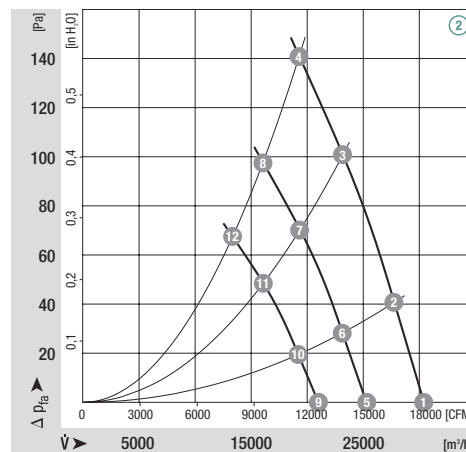
n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]	n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
① ① 650	0,79	85	72	① ⑨ 450	0,29	85	63
① ② 650	0,90	81	72	① ⑩ 450	0,33	81	63
① ③ 650	1,05	71	72	① ⑪ 450	0,39	71	63
① ④ 650	1,11	62	73	① ⑫ 450	0,41	62	64
① ⑤ 540	0,48	85	67				
① ⑥ 540	0,54	81	67				
① ⑦ 540	0,63	71	67				
① ⑧ 540	0,67	62	68				

n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]	n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
② ① 780	1,32	85	76	② ⑨ 540	0,46	85	67
② ② 780	1,50	81	76	② ⑩ 540	0,53	81	67
② ③ 780	1,76	71	76	② ⑪ 540	0,62	71	67
② ④ 780	1,85	62	77	② ⑫ 540	0,65	62	68
② ⑤ 650	0,77	85	72				
② ⑥ 650	0,88	81	72				
② ⑦ 650	1,03	71	72				
② ⑧ 650	1,08	62	73				

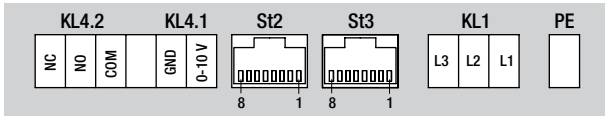
Characteristics



Characteristics



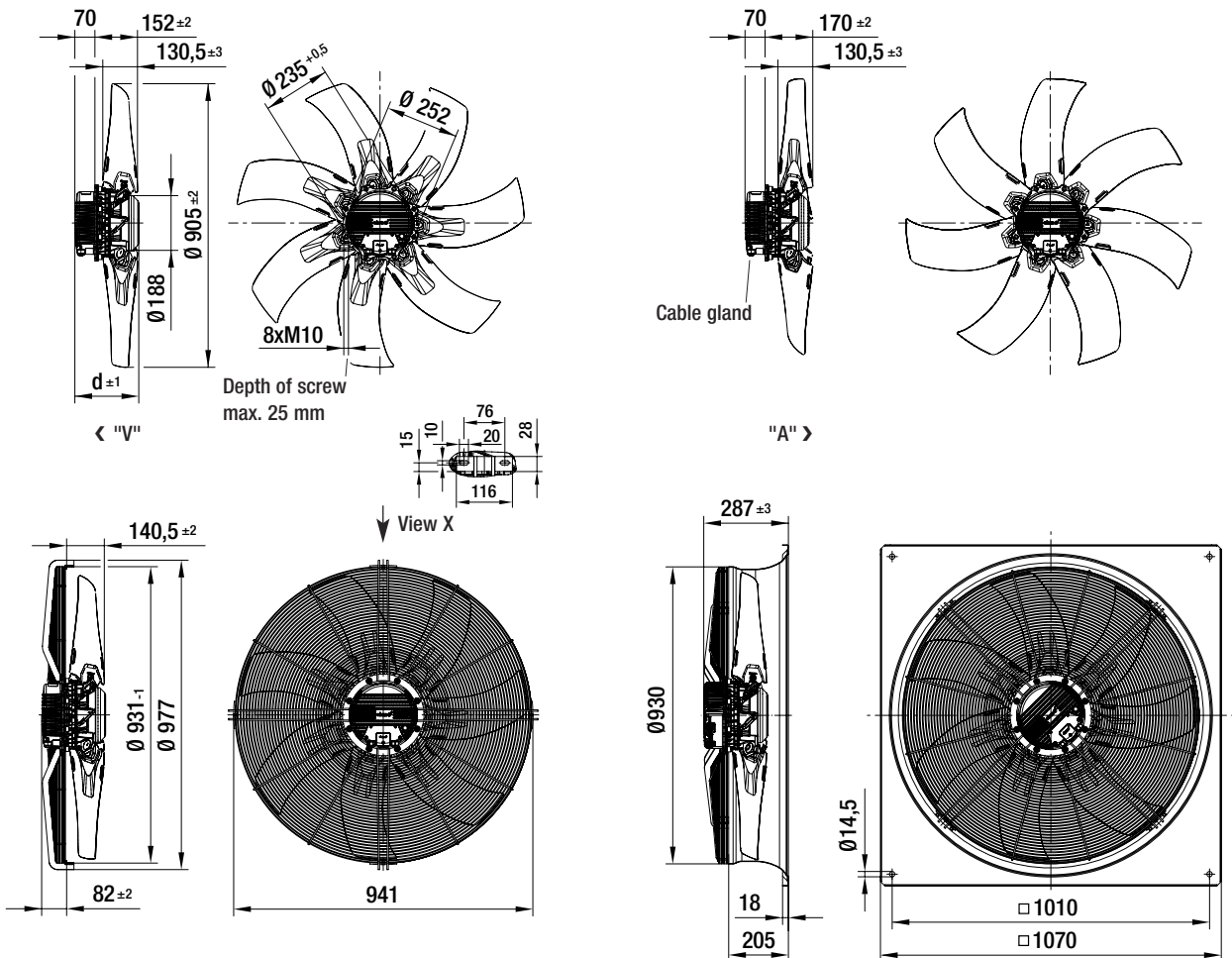
- **Direction of rotation:** dir. of air flow "V" counter-clockwise, dir. of air flow "A" clockwise
- **Electrical connection:**



Configuration RJ45-plugs:		
Pin	St2	St3
1	---	---
2	10 V	---
3	GND	---
4	0-10 V / PWM	---
5	ebm Bus (RS B)	ebm Bus (RS B)
6	ebm Bus (RS A)	ebm Bus (RS A)
7	---	---
8	---	---

KL4.2	Alarm / status contact
KL4.1	Speed setting input
St2	RJ45-plugs for ebm BUS
St3	RJ45-plugs for ebm BUS
KL1	3-phase power supply
PE	PE (2x)

Selection	Cable exit	Direction of air flow	Image			Dimensions
Type	S/A/B					d
*3G 910	S	"V"	A3G910-AC05 -01	S3G910-BC05 -01	W3G910-CC05 -01	219,5
		"A"	A3G910-AC05 -02	---	---	219,5
	S	"V"	A3G910-AD04 -01	S3G910-BD04 -01	W3G910-CD04 -01	249,5
		"A"	A3G910-AD04 -02	---	---	249,5



EC axial fans integrated electronics

S-Range, Ø 990



- **Material:** stator and electronics housing made of die-cast aluminium, rotor made of steel sheet (black, KTL-coated), fan blades made of die-cast aluminium
- **Technical features:** integrated electronics, limiting of making of current, mains under-voltage detection, phase failure recognition, limitation of motor current, over-temperature protection of electronics and motor, locked-rotor protection, short-circuit protection
- **Bearings:** maintenance-free ball bearings
- **Balancing quality:** ≤ Q 6,3 according to DIN ISO 1940-1
- **Type of protection:** IP54 according to DIN VDE 0470, part 1 (EN 60 529) category 2
- **Approvals:** UL, CSA, VDE, CE, CCC and GOST are applied for
- **Mounting position / condensate discharges:** Norm is shaft horizontal or rotor down with 4 condensate discharges drilled into rotor. Mounting position rotor on top on request.

ebm-papst · Muldingen

Nominal data		Characteristic	Voltage range	Frequency	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure at 60 °C	Max. back pressure at 50 °C	Perm. amb. temp.	Mass ⁽¹⁾
Type	Motor	VAC	Hz	m ³ /h	min ⁻¹	kW	A	dB(A)	Pa	Pa	°C	kg	
*3G 990	M3G150-FF	①	380-480	50/60	26900	545	0,56	1,10	69	50	75	-20..+60	27,0
	M3G150-IF	②	380-480	50/60	32000	650	1,10	1,80	73	75	110	-20..+60	30,0

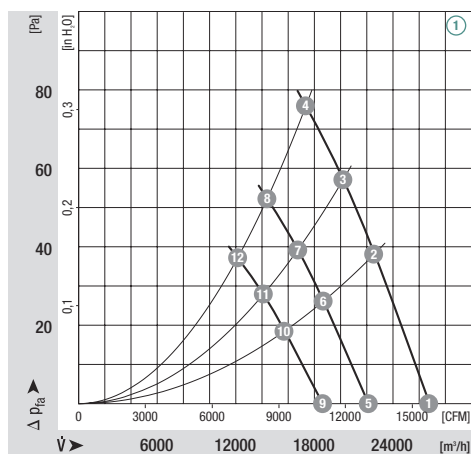
subject to alterations

⁽¹⁾ Mass without guard grille and wall ring

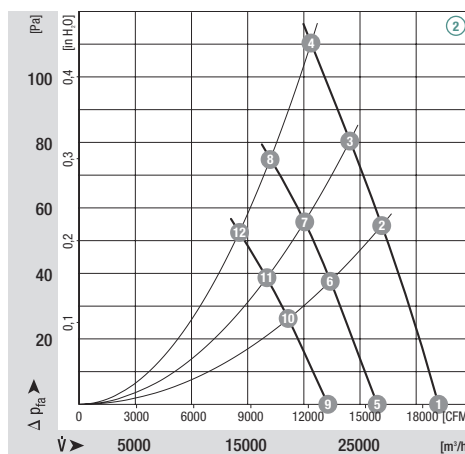
	n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]		n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
① ①	545	0,56	80	69	① ⑨	380	0,25	80	61
① ②	545	0,67	77	71	① ⑩	380	0,30	77	61
① ③	545	0,71	72	71	① ⑪	380	0,32	72	60
① ④	545	0,76	64	70	① ⑫	380	0,34	64	60
① ⑤	450	0,40	80	65					
① ⑥	450	0,48	77	65					
① ⑦	450	0,52	72	65					
① ⑧	450	0,55	64	65					

	n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]		n [min ⁻¹]	P ₁ [kW]	η _{HL} [%]	Lp _A [dBA]
② ①	650	1,10	80	73	② ⑨	450	0,40	80	65
② ②	650	1,32	77	75	② ⑩	450	0,48	77	65
② ③	650	1,41	72	75	② ⑪	450	0,51	72	65
② ④	650	1,50	64	75	② ⑫	450	0,54	64	65
② ⑤	540	0,66	80	69					
② ⑥	540	0,79	77	70					
② ⑦	540	0,85	72	70					
② ⑧	540	0,90	64	70					

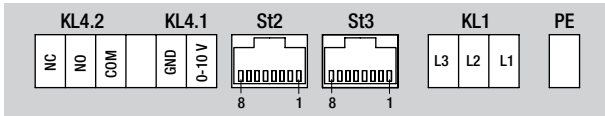
Characteristics



Characteristics



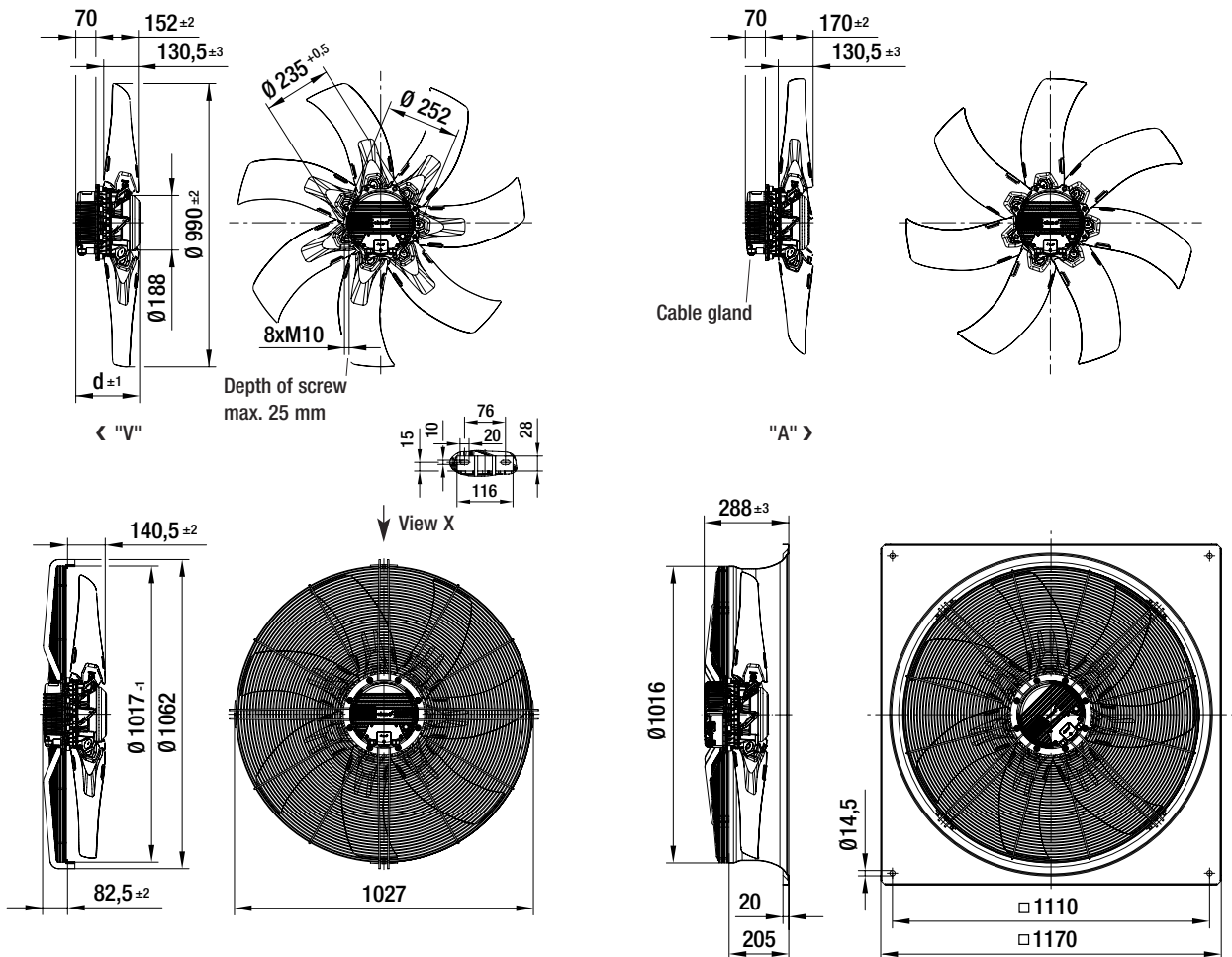
- **Direction of rotation:** dir. of air flow "V" counter-clockwise, dir. of air flow "A" clockwise
- **Electrical connection:**



Configuration RJ45-plugs:		
Pin	St2	St3
1	---	---
2	10 V	---
3	GND	---
4	0-10 V / PWM	---
5	ebm Bus (RS B)	ebm Bus (RS B)
6	ebm Bus (RS A)	ebm Bus (RS A)
7	---	---
8	---	---

KL4.2	Alarm / status contact
KL4.1	Speed setting input
St2	RJ45-plugs for ebm BUS
St3	RJ45-plugs for ebm BUS
KL1	3-phase power supply
PE	PE (2x)

Selection	Cable exit	Direction of air flow	Image				Dimensions
			Type	S/A/B			
*3G 990	S	"V"	A3G990-AC03 -01	S3G990-BC03 -01	W3G990-CC03 -01	219,5	
		"A"	A3G990-AC03 -02	---	---	219,5	
	S	"V"	A3G990-AD05 -01	S3G990-BD05 -01	W3G990-CD05 -01	249,5	
		"A"	A3G990-AD05 -02	---	---	249,5	



EC axial fans

K-Range, Ø 250



- **Material:** plastic
- **Direction of rotation:** direction of air flow "V" counter-clockwise, direction of air flow "A" clockwise
- **Performance curve:** determined at 48 VDC

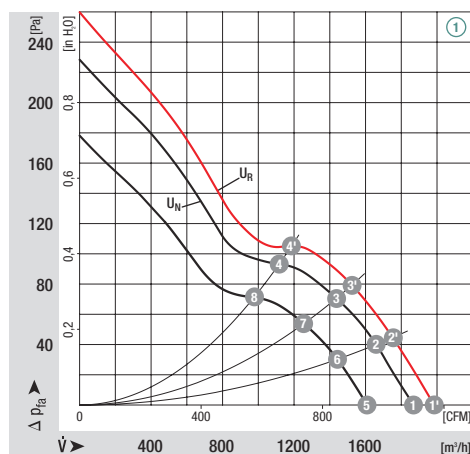
ebm-papst • Mulfingen

Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
*1G 250	M1G074-BF	①	24	16-28	1815	2450	98	4,70	67	---	60	1,3
	M1G074-BF	①	48	36-57	1870	2500	98	2,40	68	---	60	1,3

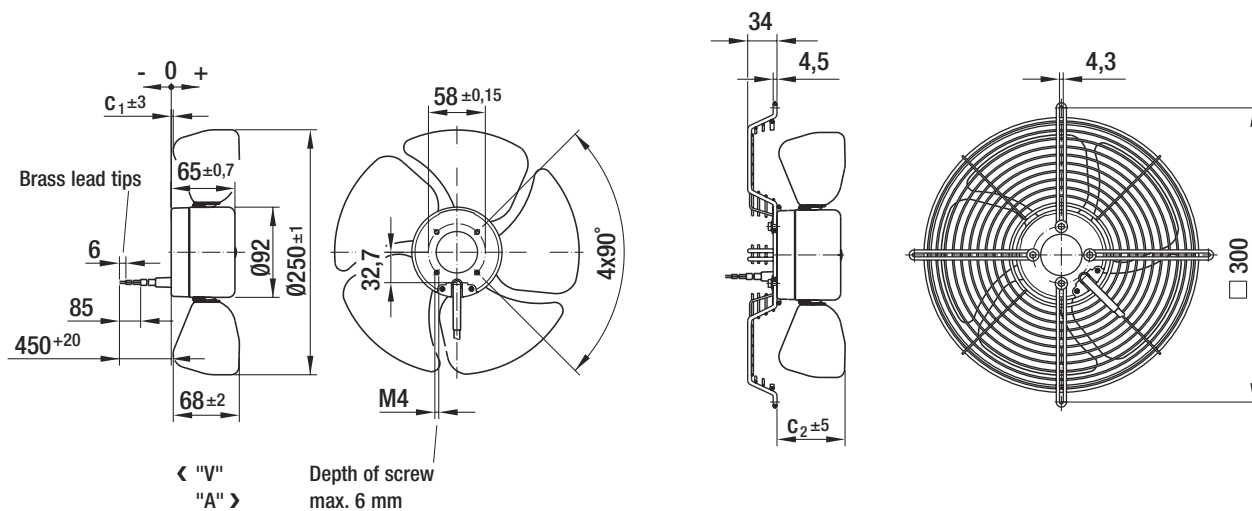
subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	2650	119	---	69	① ⑤	2140	65	---	65
① ②	2550	121	66	65	① ⑥	2080	67	66	59
① ③	2470	123	66	62	① ⑦	2020	70	66	58
① ④	2470	124	59	62	① ⑧	2030	70	59	58
① ①	2500	98	---	68					
① ②	2390	99	66	64					
① ③	2320	100	66	61					
① ④	2310	100	59	60					

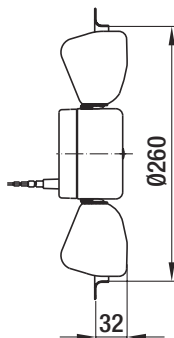
Characteristics



Selection	Cable exit	Direction of air flow	Dimensions			
			Type	S/A/B	C ₁	C ₂
*1G 250	B	"V"	A1G250-AE07 -52	S1G250-EE07 -52	-9	59
		"A"	A1G250-AE07 -53	S1G250-EE07 -53	2	70
	B	"V"	A1G250-AE11 -52	S1G250-EE11 -52	-9	59
		"A"	A1G250-AE11 -53	S1G250-EE11 -53	2	70



Mounting configuration



EC axial fans

K-Range, Ø 300



- **Material:** plastic
- **Direction of rotation:** direction of air flow "V" counter-clockwise, direction of air flow "A" clockwise
- **Performance curve:** determined at 48 VDC

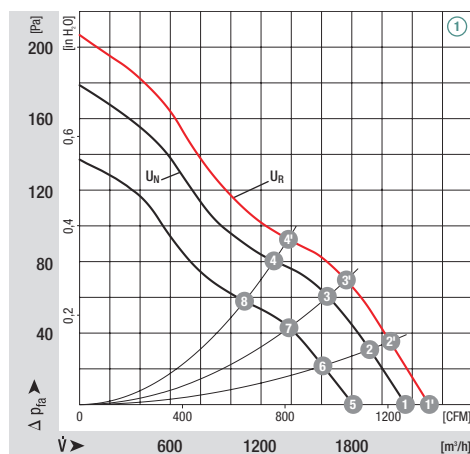
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Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
*1G 300	M1G074-CF	①	24	16-28	2140	1820	76	3,50	66	---	60	1,7
	M1G074-CF	①	48	36-57	2160	1880	85	2,10	65	---	60	1,7

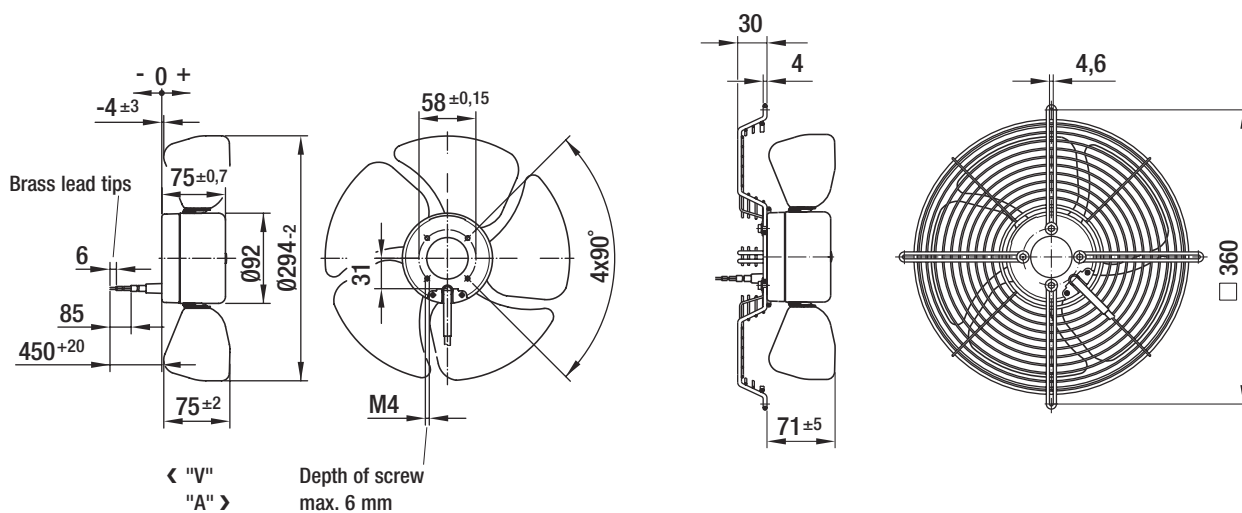
subject to alterations

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	2050	107	---	67	① ⑤	1550	50	---	60
① ②	1990	108	49	66	① ⑥	1520	52	49	61
① ③	1920	110	53	65	① ⑦	1490	55	53	60
① ④	1830	113	46	66	① ⑧	1440	58	46	61
① ①	1880	85	---	65					
① ②	1830	87	49	64					
① ③	1780	89	53	63					
① ④	1700	90	46	64					

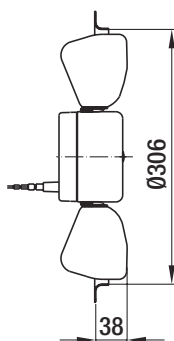
Characteristics



Selection	Cable exit	Direction of air flow		
Type	S/A/B			
*1G 300	B	"V"	A1G300-AH19 -52	S1G300-EH19 -52
		"A"	A1G300-AH19 -53	S1G300-EH19 -53
	B	"V"	A1G300-AH33 -52	S1G300-EH33 -52
		"A"	A1G300-AH33 -53	S1G300-EH33 -53



Mounting configuration



EC axial fans

K-Range, Ø 350



- **Material:** plastic
- **Direction of rotation:** direction of air flow "V" counter-clockwise, direction of air flow "A" clockwise
- **Performance curve:** determined at 24 VDC

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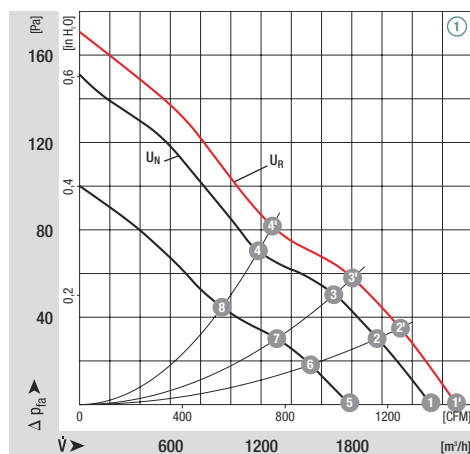
Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure	Perm. amb. temp.	Mass
Type	Motor	VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg	
*1G 350	M1G074-CF	①	24 ⁽¹⁾	16-28	2320	1350	82	3,80	63	---	60	1,9
	M1G074-CF	①	48	36-57	2410	1310	74	1,80	63	---	60	1,9

subject to alterations

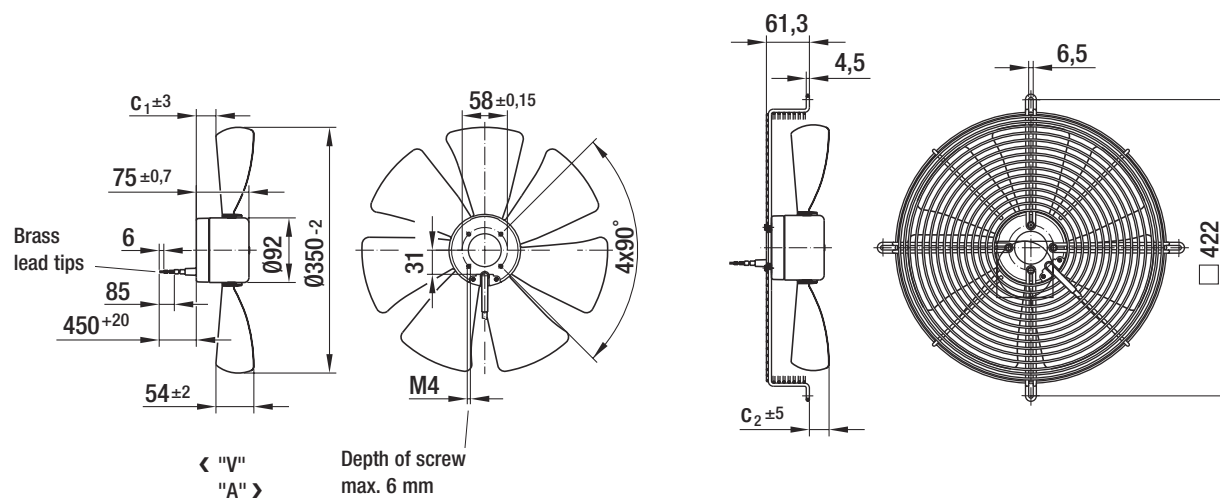
⁽¹⁾ Established in flow direction "V"

	n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P ₁ [W]	η _{HL} [%]	Lp _A [dBA]
① ①	1460	99	---	65	① ⑤	1050	40	---	57
① ②	1390	102	43	66	① ⑥	1020	41	43	58
① ③	1360	104	47	66	① ⑦	1000	43	47	58
① ④	1340	105	38	67	① ⑧	990	43	38	59
① ①	1350	82	---	63					
① ②	1290	83	43	64					
① ③	1270	84	47	64					
① ④	1250	85	38	66					

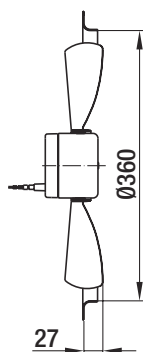
Characteristics



Selection	Cable exit	Direction of air flow	Dimensions			
			Type	S/A/B	C ₁	C ₂
*1G 350	B	"V"	A1G350-AH39 -52	S1G350-EH39 -52	18	18
		"A"	A1G350-AH39 -53	S1G350-EH39 -53	28	28
	B	"V"	A1G350-AH41 -52	S1G350-EH41 -52	18	18
		"A"	A1G350-AH41 -53	S1G350-EH41 -53	28	28



Mounting configuration



EC axial fans

K-Range, Ø 360



- **Material:** plastic
- **Direction of rotation:** counter-clockwise

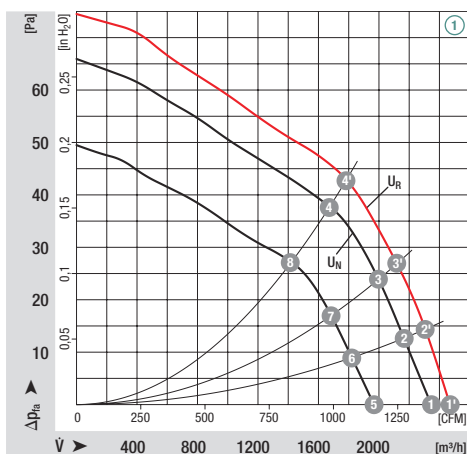
ebm-papst • Mulfingen



Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
*1G 360	M1G074-BF	①	48	36-57	2350	1000	65	1,60	51	---	60	1,4

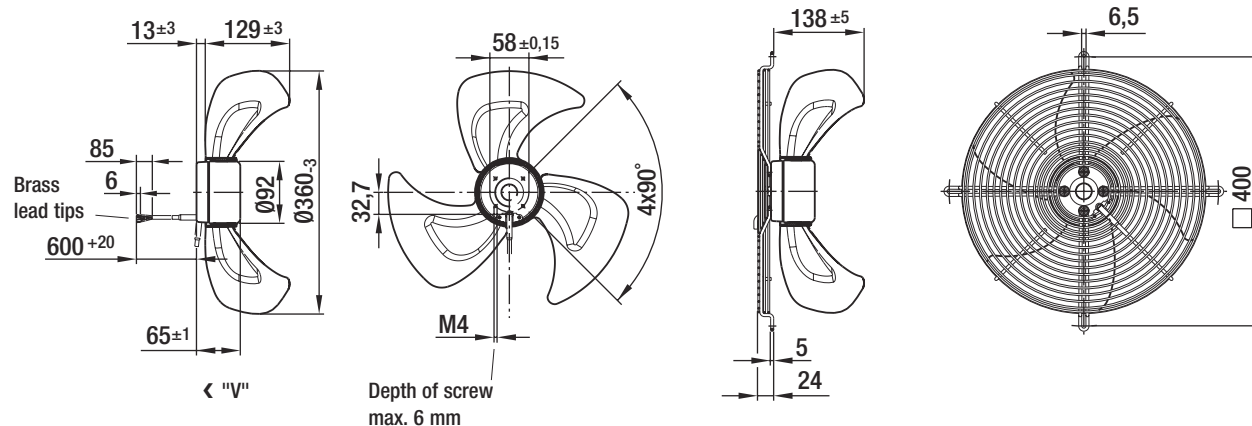
subject to alterations

	n	P ₁	η _{HL}	Lp _A		n	P ₁	η _{HL}	Lp _A
	[min⁻¹]	[W]	[%]	[dBA]		[min⁻¹]	[W]	[%]	[dBA]
① ①	1050	85	---	52	① ⑤	825	42	---	46
① ②	1035	86	48	52	① ⑥	815	43	48	46
① ③	1025	87	56	53	① ⑦	805	44	56	48
① ④	1015	88	56	55	① ⑧	790	45	56	49
① ①	1000	65	---	51					
① ②	970	67	48	51					
① ③	955	67	56	52					
① ④	950	68	56	54					

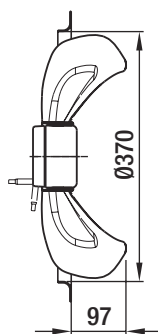
Characteristics



Selection	Cable exit	Direction of air flow		
Type	S/A/B			
*1G 360	B	"V"	A1G360-AC93 -52	S1G360-AC93 -52



Mounting configuration



EC axial fans

K-Range, Ø 360



- **Material:** plastic
- **Direction of rotation:** counter-clockwise

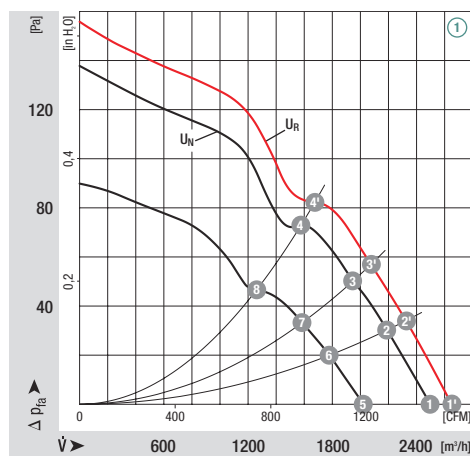
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Nominal data		Characteristic	Voltage	Voltage range	Air flow	Speed/rpm	Power input	Current draw	Noise level	Max. back pressure	Perm. amb. temp.	Mass
Type	Motor		VDC	VDC	m³/h	min⁻¹	W	A	dB(A)	Pa	°C	kg
*1G 360	M1G074-CF	①	24	16-28	2500	1410	105	5,00	58	---	60	1,8
	M1G074-CF	①	48	36-57	2500	1410	100	2,50	58	---	60	1,8

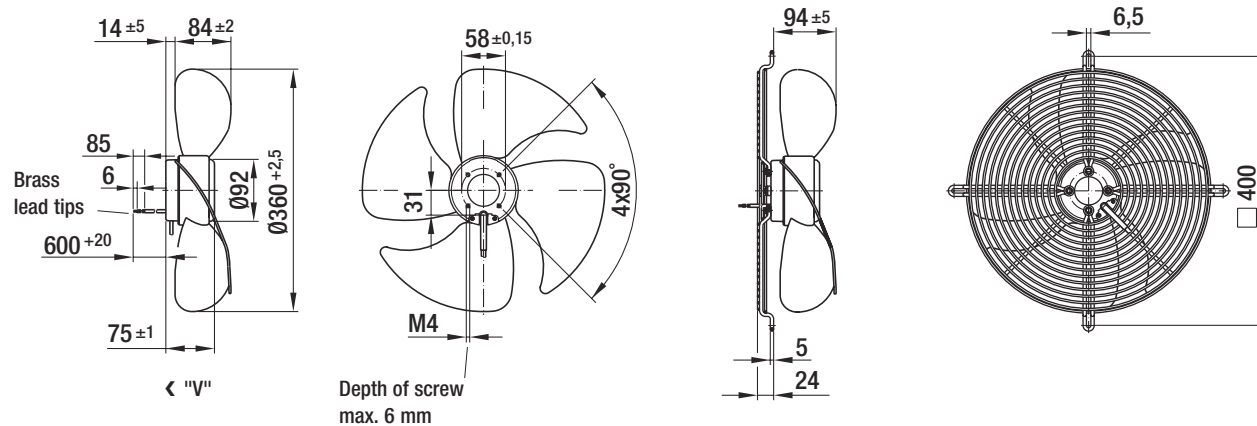
subject to alterations

	n [min⁻¹]	P _i [W]	η _{HL} [%]	Lp _A [dBA]		n [min⁻¹]	P _i [W]	η _{HL} [%]	Lp _A [dBA]
① ①	1500	128	---	61	① ⑤	1120	56	---	55
① ②	1450	130	37	60	① ⑥	1090	58	37	54
① ③	1430	131	45	59	① ⑦	1070	59	45	54
① ④	1420	132	47	63	① ⑧	1070	60	47	57
① ①	1410	105	---	58					
① ②	1360	106	37	57					
① ③	1330	107	45	57					
① ④	1330	108	47	61					

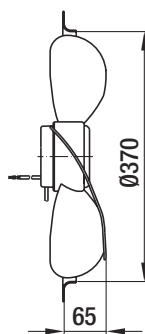
Characteristics

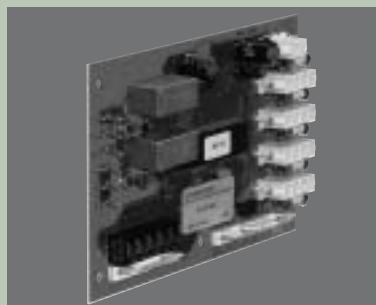
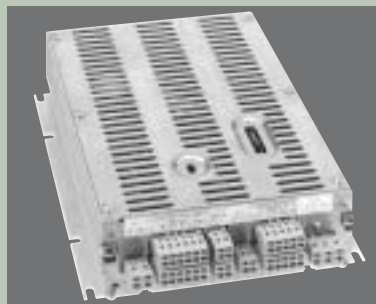
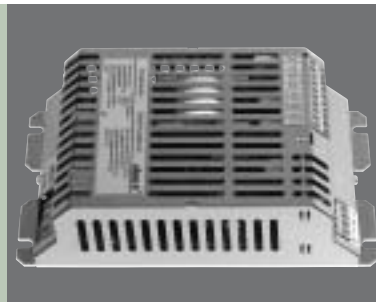


Selection	Cable exit	Direction of air flow		
Type	S/A/B			
*1G 360	B	"V"	A1G360-AB19 -52	S1G360-BB19 -52
		"A"	---	---
	B	"V"	A1G360-AB33 -52	S1G360-BB33 -52
		"A"	---	---



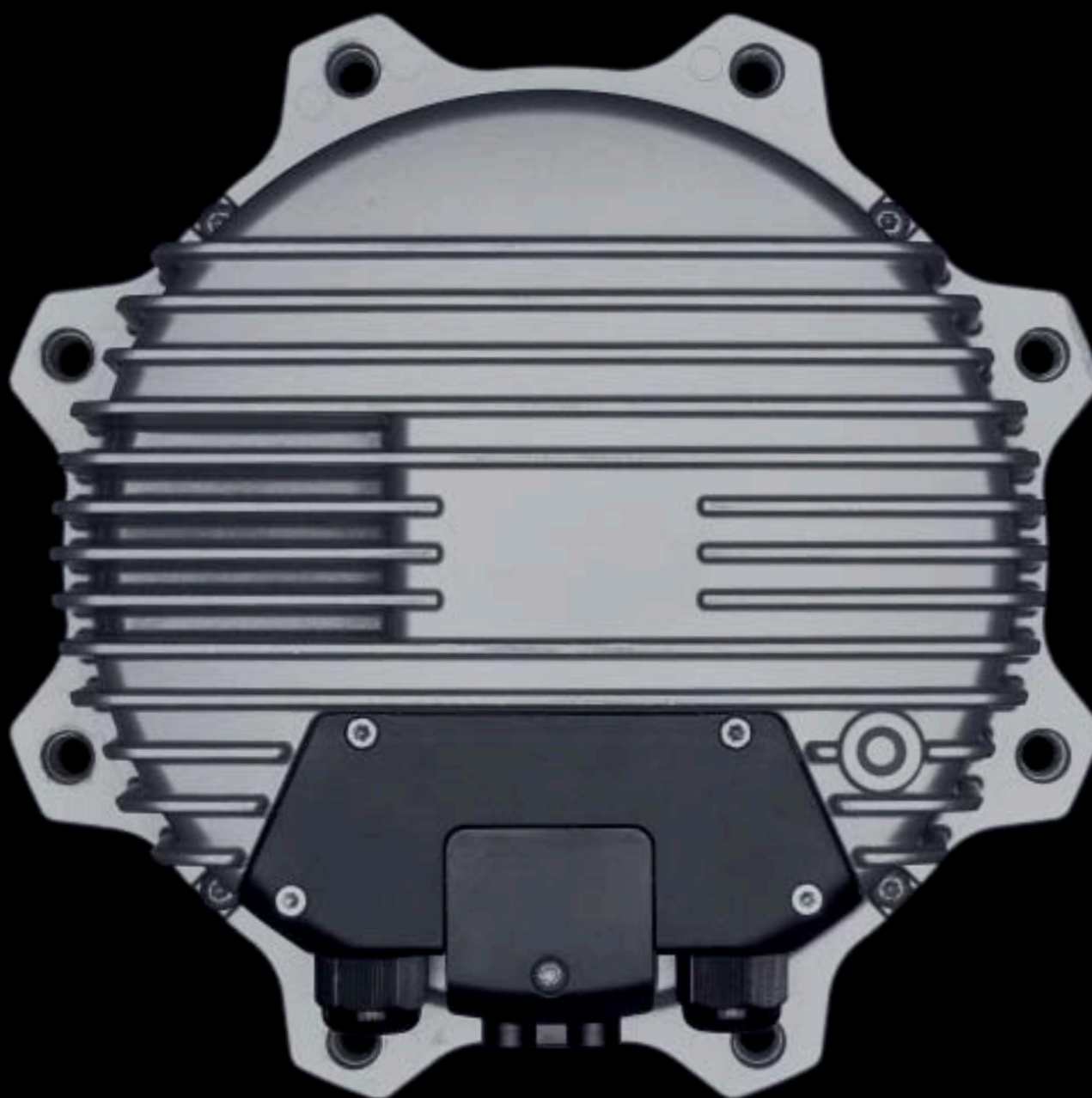
Mounting configuration





EC-SYSTEMS

	Switch power supplies	310
	External commutation electronics	318
	Accessories	328
	HMS controller	336



Information

AC centrifugal

AC axial

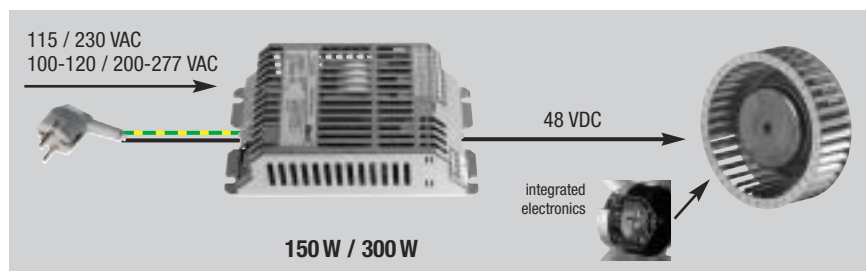
EC centrifugal

EC axial

EC-SYSTEMS

Accessories

EC-SYSTEMS overview



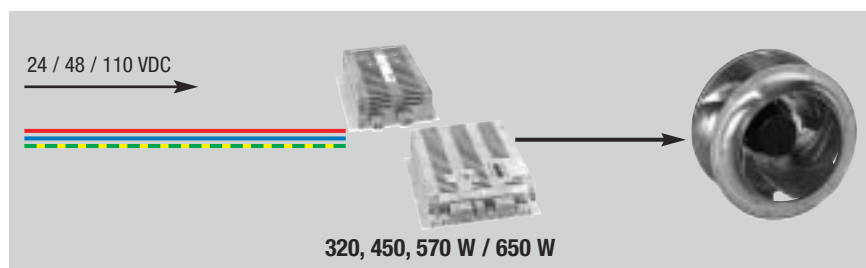
**1- and 3-core EC motors / fans
with integrated commutation electronics**

Power supply	Voltage range ⁽¹⁾	Output voltage	Power output	Steps	Page	EC motor size	Input voltage
CNW 015-AB0* -01	115 / 230 VAC	48 VDC	150 W	1	310 ff.	045	24 / 48 VDC
CNW 015-AB0* -02	115 / 230 VAC	48 VDC	150 W	3	310 ff.	055	
CNW 015-AB0* -13 ⁽¹⁾	115 / 230 VAC	48 VDC	150 W	K	310 ff.	074	
CNW 015-AB0* -05 ⁽²⁾	115 / 230 VAC	48 VDC	150 W	RS485	310 ff.	084	
CNW 030-AC0* -01	100-120 / 200-277 VAC	48 VDC	300 W	1	310 ff.		
CNW 030-AC0* -02	100-120 / 200-277 VAC	48 VDC	300 W	3	310 ff.		
CNW 030-AC0* -13 ⁽¹⁾	100-120 / 200-277 VAC	48 VDC	300 W	K	310 ff.		
CNW 030-AC0* -05 ⁽²⁾	100-120 / 200-277 VAC	48 VDC	300 W	RS485	310 ff.		

⁽¹⁾ EC-SYSTEMS Constant (constant air flow or pressure)

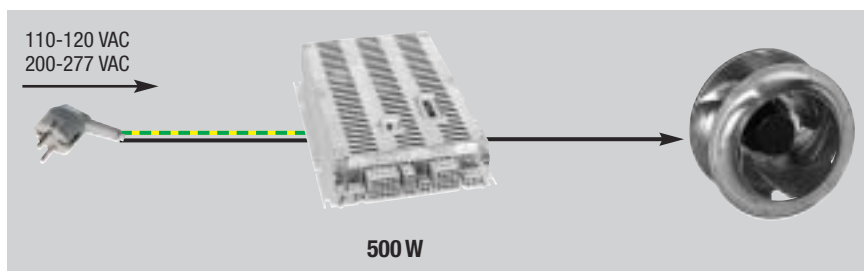
⁽²⁾ RS485 / ebmBUS

⁽³⁾ Separate designs for the relevant voltage range



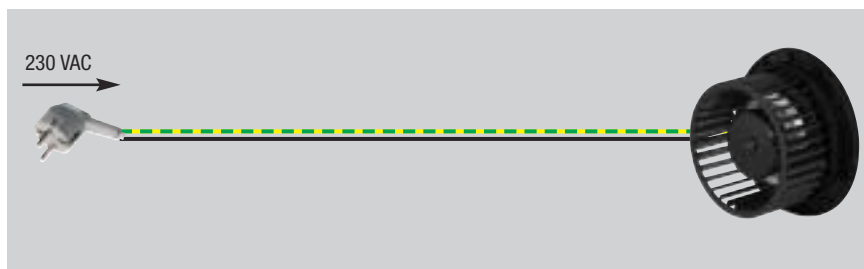
**3-core EC motors / fans
for external commutation electronics**

External electronics	Input voltage	Power input	Page	EC motor size	Input voltage
CHG 032-AA01-01	24 VDC	320 W	318 f.	074	24 / 48 / 110 VDC
CHG 045-AA01-01	48 VDC	450 / 570 W	318 f.	084	
CEG 485-HB50-01	110 VDC	650 W	320 f.	112	



3-core EC motors / fans
for external commutation electronics

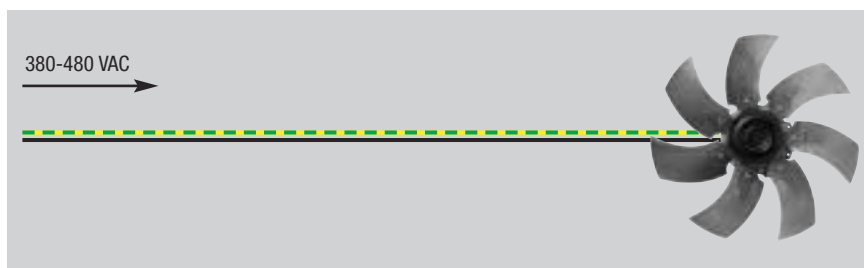
External electronics	Voltage range	Power input	Page	EC motor size
CHW 050-AA01 -70	100-120 VAC 200-277 VAC	250 W 500 W	322 f.	074
CHW 050-AA03 -73	100-120 VAC 200-277 VAC	170 W 300 W	324 f.	084
CHW 050-AA02 -75	100-120 VAC 200-277 VAC	250 W 500 W	326 f.	112



1-core EC motors / fans
with mounted commutation electronics

Type	Input voltage	Power input	Page	EC motor size
G1G 140-AW31 -** ⁽¹⁾	230 VAC	70 W	242 f.	055
R1G 140-AW31 -** ⁽¹⁾	230 VAC	70 W	242 f.	

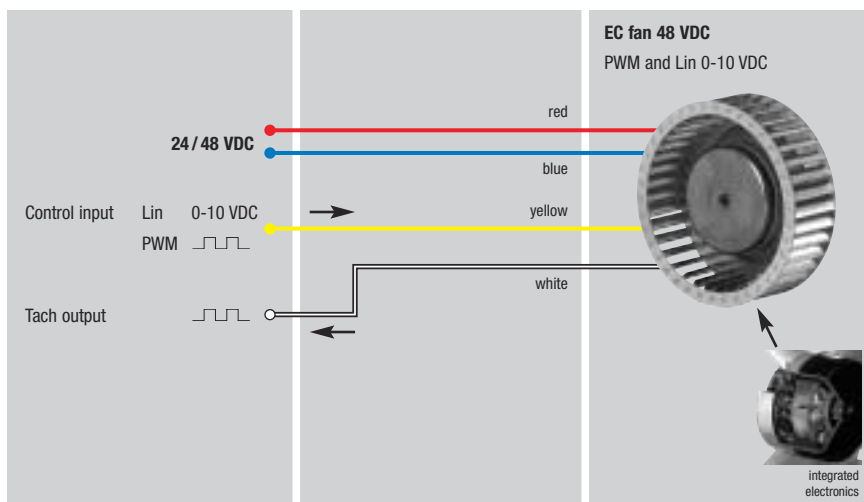
⁽¹⁾ EC-SYSTEMS Constant (constant air flow or pressure)



3-core EC motors / fans
with integrated commutation electronics

Type	Voltage range	Power input	Page	EC motor size
R3G 500 - R3G 630	380-480 VAC	up to 3 kW	220 ff.	150
A3G 710 - A3G 990	380-480 VAC	up to 3 kW	286 ff.	

EC-SYSTEMS options



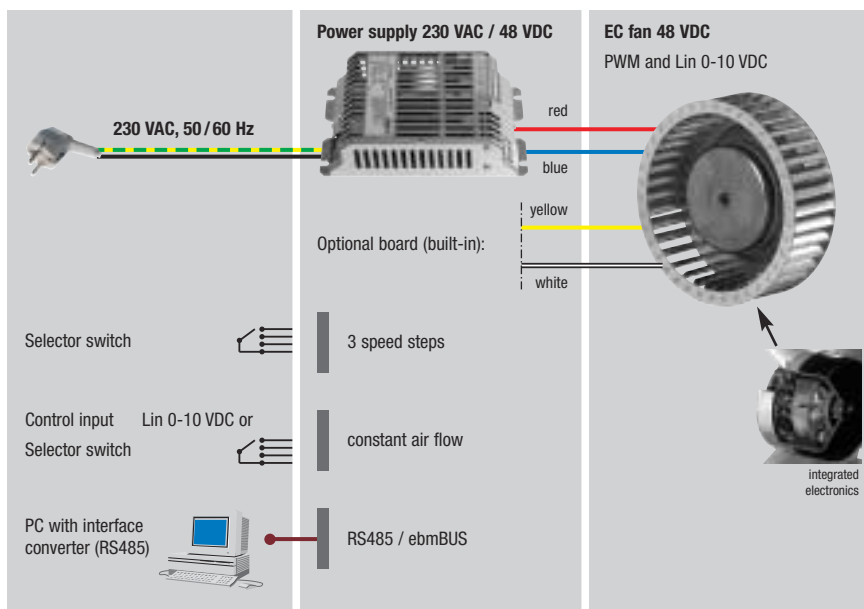
EC fans 24 / 48 VDC with integrated commutation electronics

Linear input:

< 1 VDC -> n=0
1 VDC -> n_{min}
10 VDC -> n_{max}

PWM input:

< 10% PWM -> n=0
10% PWM -> n_{min}
100% PWM -> n_{max}



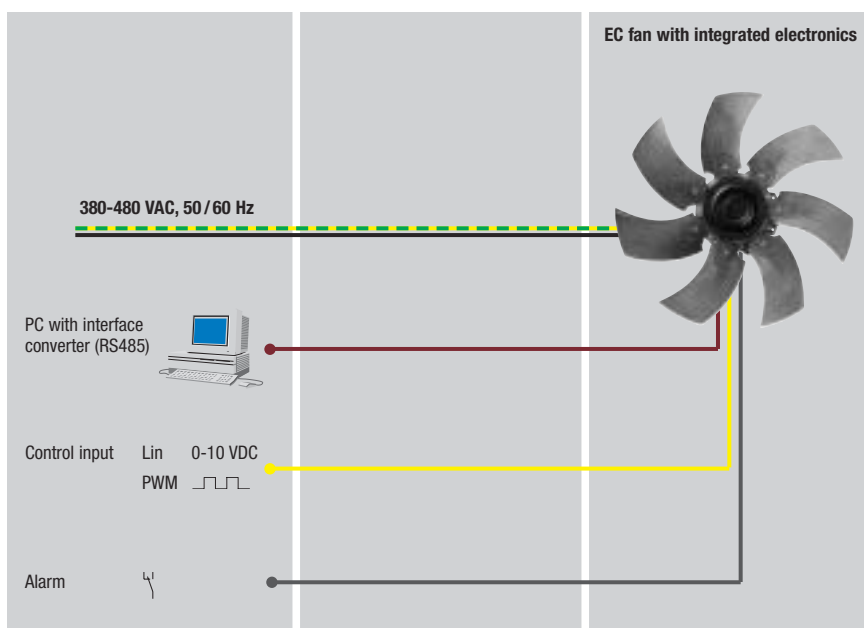
EC fans 48 VDC with integrated commutation electronics

Linear input:

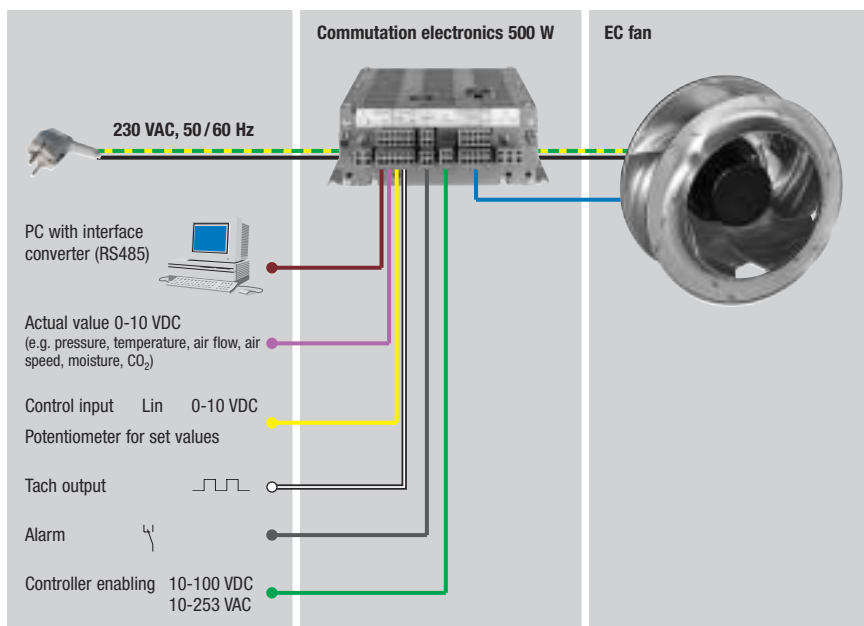
< 1 VDC -> n=0
1 VDC -> n_{min}
10 VDC -> n_{max}

PWM input:

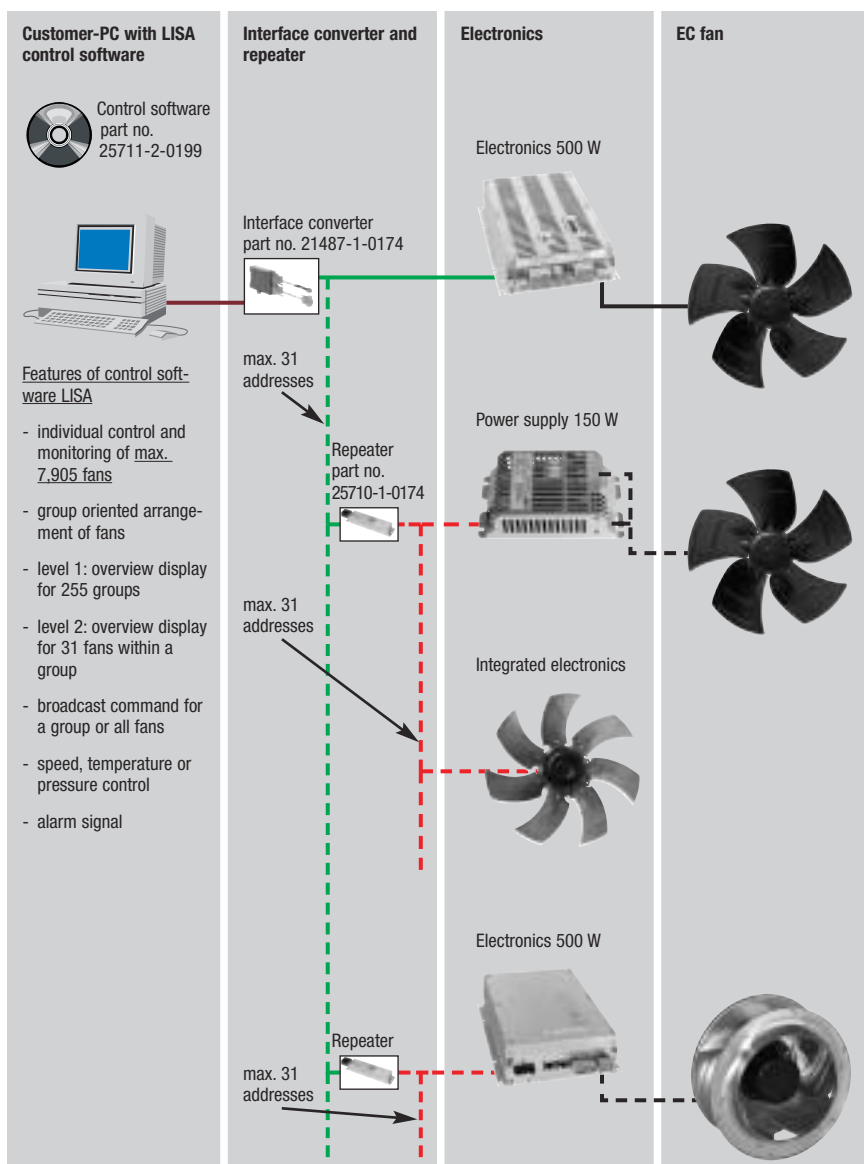
< 10% PWM -> n=0
10% PWM -> n_{min}
100% PWM -> n_{max}



EC fans with integrated commutation electronics 380-480 VAC, 50/60 Hz mains operation



EC fans with external commutation electronics 500 W, 200-277 VAC, 50/60 Hz mains operation



EC-SYSTEMS: Networked EC fans with interface converter and repeater

Switch power supply with PFC, standard version, 48 VDC, 150 / 300 W

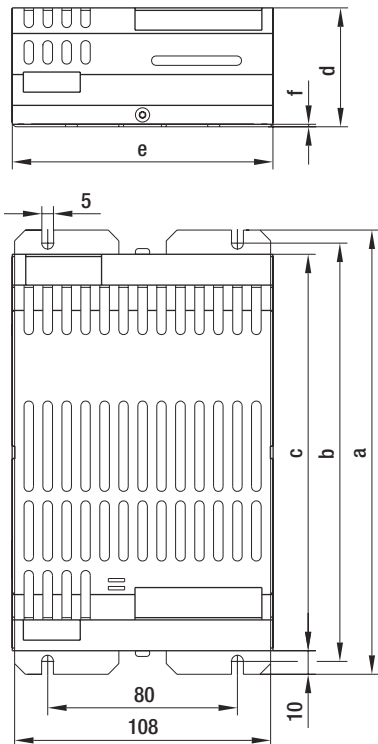


- **General remarks:** Switch power supply with an output power of 150 W / 300 W to supply 48 V EC motors from the 115 / 230 V mains. It is also possible to run several motors up to an overall power of 150 W / 300 W. Data on the 60 W switching power supply is available on request.
- **Function:** Supply of an electrically insulated direct voltage of 48 VDC at the output when connected to the 115 / 230 V mains. The power supply is sustainedly short-circuit proof, open-circuit proof and protected against overheating. An integrated EMC filter guarantees RFI suppression of the unit according to EN 61000-3-2.
- **Legislation:** general design (EN50178); EMC, interference emissions (EN55011, class B); EMC, interference immunity (EN50082-2); EMC, harmonics (EN61000-3-2, class D)
- **Class / type of protection:** class of protection I / IP20 according to DIN EN 60529

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Nominal data	Voltage		Frequency	Output voltage	Output P ₁ max.	Rated output current	Mass	Dimensions					
	VAC	Hz						VDC	W	A	kg	a	b
CNW015-AB06 -01	115	50/60	48	150	3,10	0,7	187	176	167	50	110	1	
CNW015-AB02 -01	230	50/60	48	150	3,10	0,7	187	176	167	50	110	1	
CNW030-AC06 -01	100-120	50/60	48	300	6,25	1,3	272	260	251	66	112	2	
CNW030-AC02 -01	200-277	50/60	48	300	6,25	1,3	272	260	251	66	112	2	

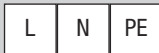
subject to alterations



- **Material:** housing made of stainless steel

- **Electrical connection:**

Line side:



Motor side:



Switch power supply with PFC, 3-step speed preselection, 48 VDC, 150 / 300 W

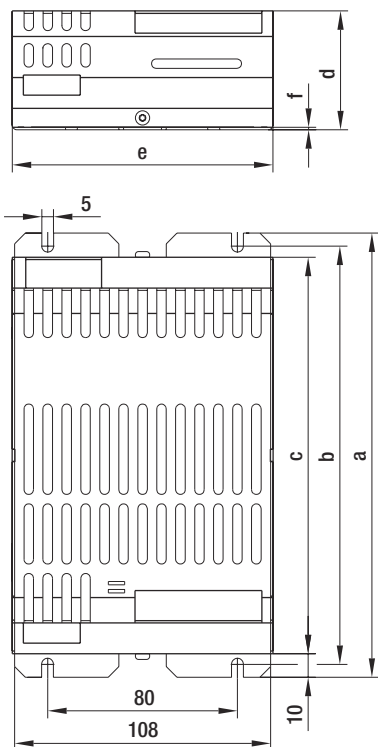


- **General remarks:** Switch power supply with an output power of 150 W / 300 W to supply 48 V EC motors from the 115 / 230 V mains. It is also possible to run several motors up to an overall power of 150 W / 300 W. Data on the 60 W switching power supply is available on request.
- **Function:** Supply of an electrically insulated direct voltage of 48 VDC at the output when connected to the 115 / 230 V mains. The power supply is sustainedly short-circuit proof, open-circuit proof and protected against overheating. An integrated EMC filter guarantees RFI suppression of the unit according to EN 61000-3-2.
- **Legislation:** general design (EN50178); EMC, interference emissions (EN55011, class B); EMC, interference immunity (EN50082-2); EMC, harmonics (EN61000-3-2, class D)
- **Class / type of protection:** class of protection I / IP20 according to DIN EN 60529

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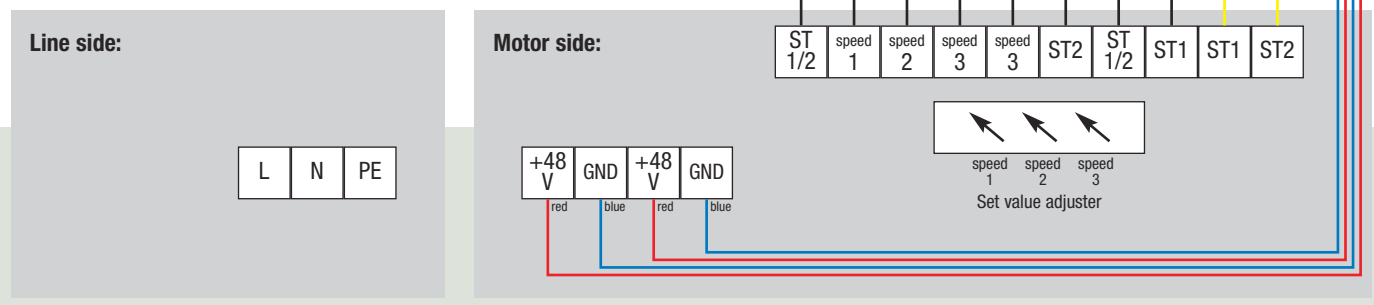
Nominal data	Voltage		Frequency	Output voltage	Output P ₁ max.	Rated output current	Mass	Dimensions					
	VAC	Hz						VDC	W	A	kg	a	b
CNW015-AB06 -02	115	50/60	48	150	3,10	0,7	187	176	167	50	110	1	
CNW015-AB02 -02	230	50/60	48	150	3,10	0,7	187	176	167	50	110	1	
CNW030-AC06 -02	100-120	50/60	48	300	6,25	1,3	272	260	251	66	112	2	
CNW030-AC02 -02	200-277	50/60	48	300	6,25	1,3	272	260	251	66	112	2	

subject to alterations



- **Material:** housing made of stainless steel
- **Control board for 3-step speed preselection:** A control board for the setting of three speed steps of the fans is integrated. An external selection switch allows for the choice of one of the three speeds as set. A frost protection switch can be connected to switch off the fresh air fan. A moisture protection switch may be connected to set the exhaust air fan on maximum speed.

- Electrical connection:



Switch power supply with PFC,

constant air flow or pressure characteristic, 48 VDC, 150 / 300 W

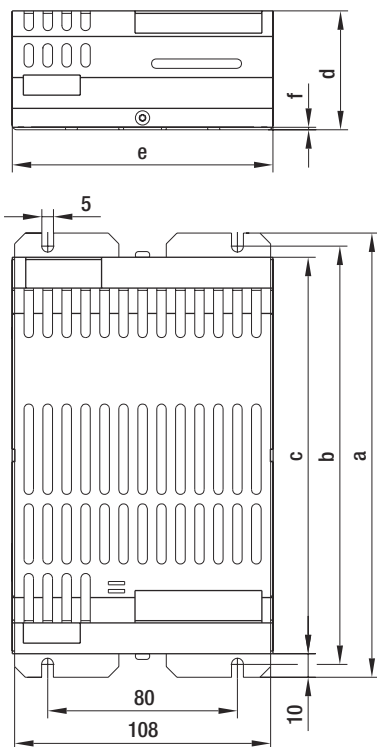


- **General remarks:** Switch power supply with an output power of 150 W / 300 W to supply 48 V EC motors from the 115 / 230 V mains. It is also possible to run several motors up to an overall power of 150 W / 300 W.
Data on the 60 W switching power supply is available on request.
- **Function:** Supply of an electrically insulated direct voltage of 48 VDC at the output when connected to the 115 / 230 V mains. The power supply is sustainedly short-circuit proof, open-circuit proof and protected against overheating. An integrated EMC filter guarantees RFI suppression of the unit according to EN 61000-3-2.
- **Legislation:** general design (EN50178); EMC, interference emissions (EN55011, class B); EMC, interference immunity (EN50082-2); EMC, harmonics (EN61000-3-2, class D)
- **Class / type of protection:** class of protection I / IP20 according to DIN EN 60529

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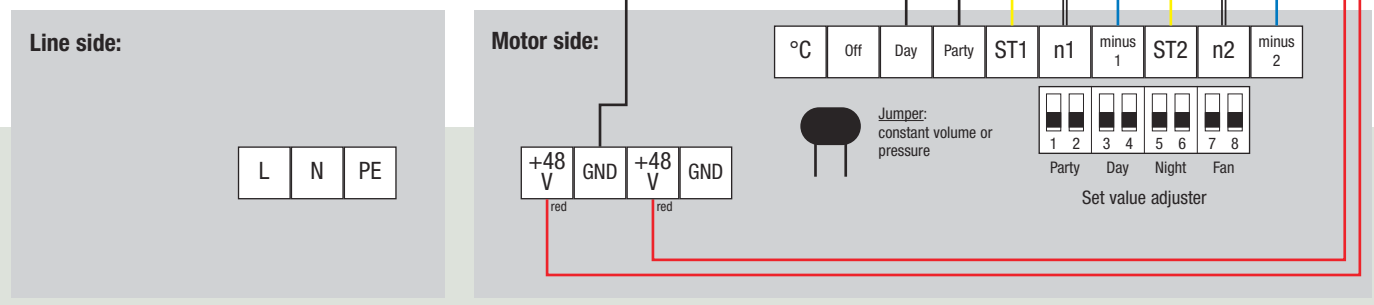
Nominal data	Voltage		Frequency	Output voltage	Output P ₁ max.	Rated output current	Mass	Dimensions					
	VAC	Hz						VDC	W	A	kg	a	b
CNW015-AB06 -13	115	50/60	48	150	3,10	0,7	187	176	167	50	110	1	
CNW015-AB02 -13	230	50/60	48	150	3,10	0,7	187	176	167	50	110	1	
CNW030-AC06 -13	100-120	50/60	48	300	6,25	1,3	272	260	251	66	112	2	
CNW030-AC02 -13	200-277	50/60	48	300	6,25	1,3	272	260	251	66	112	2	

subject to alterations



- **Material:** housing made of stainless steel
- **Control board for constant air flow or pressure characteristic, 3-step type:** suitable for D1G 133-DC17-52, G1G 140-AW13-18 and G1G 160-BD39-52

- Electrical connection:



Switch power supply with PFC,

RS485 and ebmBUS, 48 VDC, 150 / 300 W

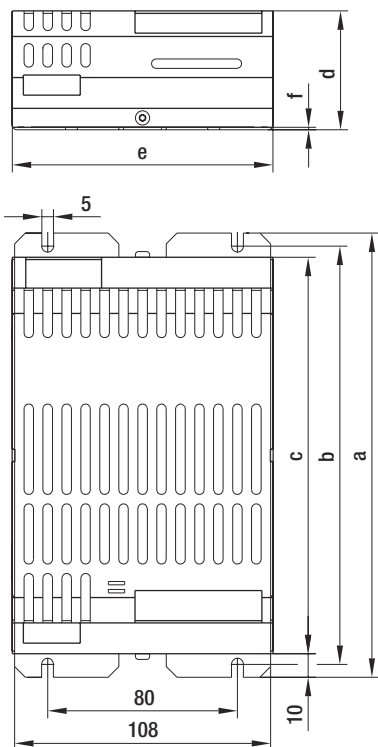


- **General remarks:** Switch power supply with an output power of 150 W / 300 W to supply 48 V EC motors from the 115 / 230 V mains. It is also possible to run several motors up to an overall power of 150 W / 300 W.
Data on the 60 W switching power supply is available on request.
- **Function:** Supply of an electrically insulated direct voltage of 48 VDC at the output when connected to the 115 / 230 V mains. The power supply is sustainably short-circuit proof, open-circuit proof and protected against overheating. An integrated EMC filter guarantees RFI suppression of the unit according to EN 61000-3-2.
- **Legislation:** general design (EN50178); EMC, interference emissions (EN55011, class B); EMC, interference immunity (EN50082-2); EMC, harmonics (EN61000-3-2, class D)
- **Class / type of protection:** class of protection I / IP20 according to DIN EN 60529

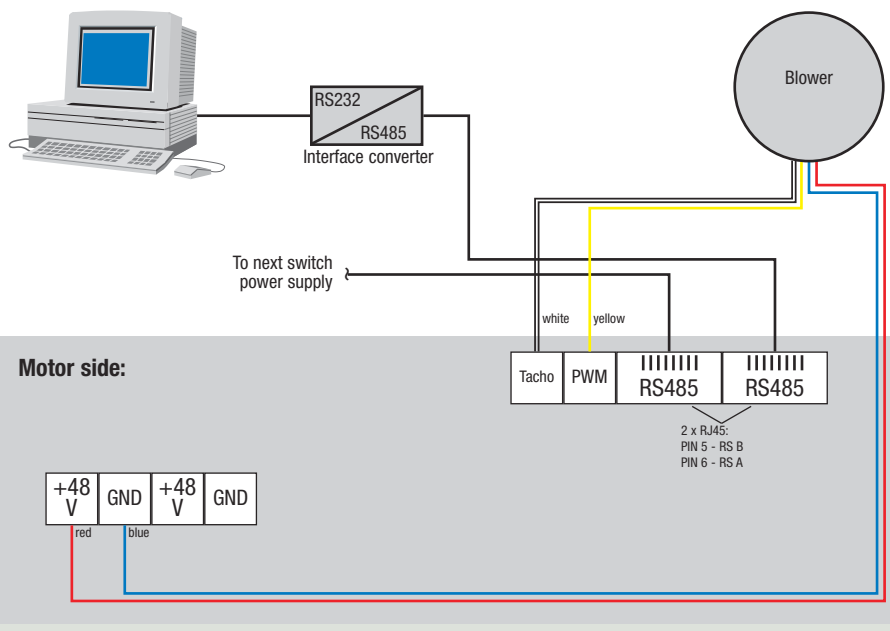
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Nominal data	Voltage		Frequency	Output voltage	Output P ₁ max.	Rated output current	Mass	Dimensions					
	VAC	Hz						VDC	W	A	kg	a	b
CNW015-AB06 -05	115	50/60	48	150	3,10	0,7	187	176	167	50	110	1	
CNW015-AB02 -05	230	50/60	48	150	3,10	0,7	187	176	167	50	110	1	
CNW030-AC06 -05	100-120	50/60	48	300	6,25	1,3	272	260	251	66	112	2	
CNW030-AC02 -05	200-277	50/60	48	300	6,25	1,3	272	260	251	66	112	2	

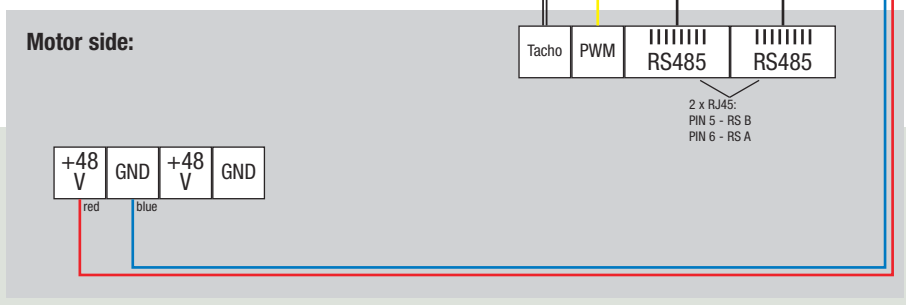
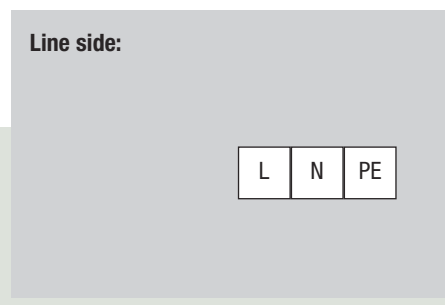
subject to alterations



- **Material:** housing made of stainless steel
- **Control board for RS485, ebmBUS and LISA functions**

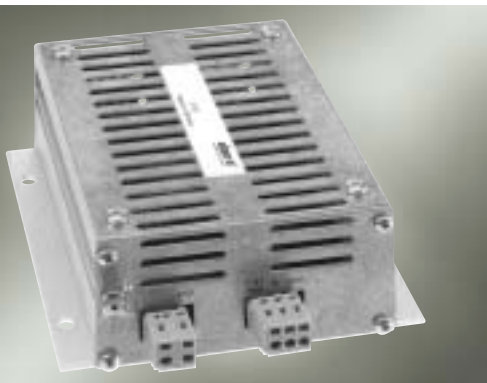


- Electrical connection:



External commutation electronics

24 VDC, 48 VDC

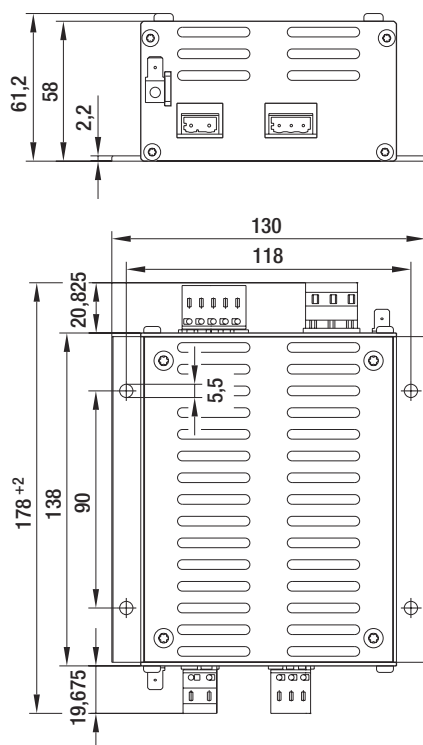


- **General remarks:** for EC motors / fans with three cores and without integrated commutation electronics
- **Function:** open loop speed control input: 0-10 V respectively PWM
- **Legislation:** EMC legislation according to EN 50121-3-2
- **Class / type of protection:** IP20 according to DIN EN 60529

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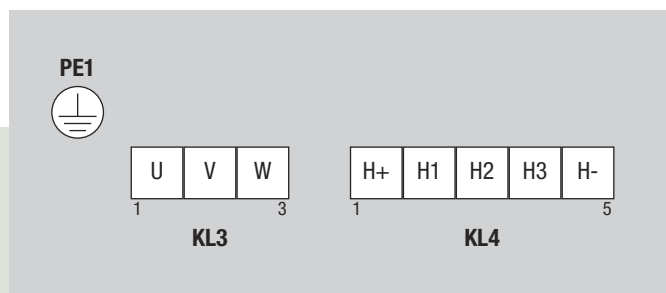
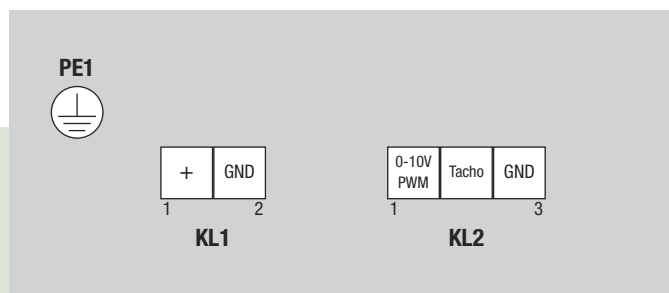
Nominal data	Voltage	Voltage range	Power input P _i max.	Current draw	I _{mot} max.	Perm. amb. temp.	Mass
Type	VDC	VDC	W	A	A	°C	kg
CHG 032-AA01 -01	24	18-34	320	12,0	12,0	-40..+60	0,7
CHG 045-AA01 -01	48	36-60	570	12,0	12,0	-40..+40	0,8
	48	36-60	450	9,5	9,5	-40..+60	

subject to alterations



- **Design:**
 - 0-10 V / PWM input (R_i: 100 kΩ)
 - tach output
- **Connectors for external electronics:**
 - KL1 2-pole connector; centerline 7.5; Co. Wago part no.: 231-202/026-000
 - KL2 4-pole connector; centerline 5; Co. Wago part no.: 231-103/026-000
 - KL3 2-pole connector; centerline 5; Co. Wago part no.: 231-105/026-000
 - KL4 3-pole connector; centerline 7.5; Co. Wago part no.: 731-603

- Electrical connection:



Connector	Signal	Pin No.	Assignment / function
PE1			Ground connection
KL1	+	1	Power supply (+)
	GND	2	GND
KL2	0-10V / PWM	1	Control input
	Tacho	2	Tach output (open collector)
	GND	3	GND

Connector	Signal	Pin No.	Assignment / function
PE1			Ground connection
KL3	U	1	Motor winding U
	V	2	Motor winding V
	W	3	Motor winding W
KL4	H+	1	Power supply for hall-sensors (+)
	H1	2	Hall-sensor 1
	H2	3	Hall-sensor 2
	H3	4	Hall-sensor 3
	H-	5	Power supply for hall-sensors (-)

External commutation electronics

for rail technology, 110 VDC, 650 W

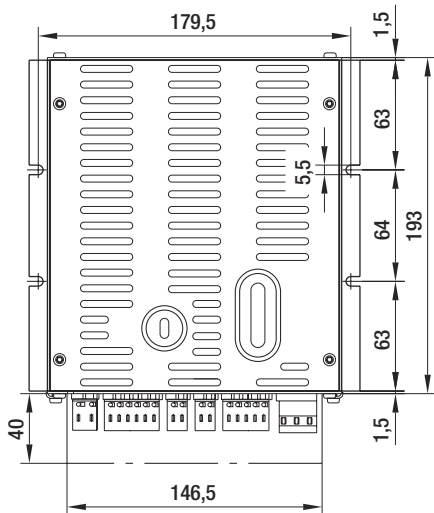
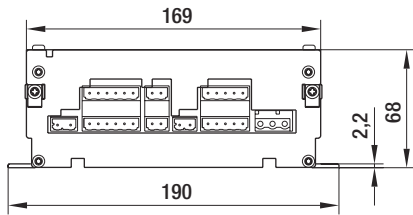


- **General remarks:** for EC motors / fans with three cores and without integrated commutation electronics
- **Function:** Commutation unit for three-core ebm EC motors up to a power input of 650 W. Various basic functions are integrated: open loop speed control, closed loop speed control, even an RS485 interface. In combination with sensors, all control tasks as required in air technology can be executed.
- **Legislation:** low voltage directive 73/23/EEC, VDE 0160/EN 50178, EMC directive 89/336/EEC and EN 61800-3, EN 61000-3, EN 50082-2
- **Class / type of protection:** class of protection I / IP20 according to DIN EN 60529

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Nominal data	Voltage	Power input P _i max.	Current draw	Perm. amb. temp.	Mass
Type	VDC	W	A	°C	kg
CEG 485-HB50 -01	110	650	5,9	-25..+40	2,0

subject to alterations



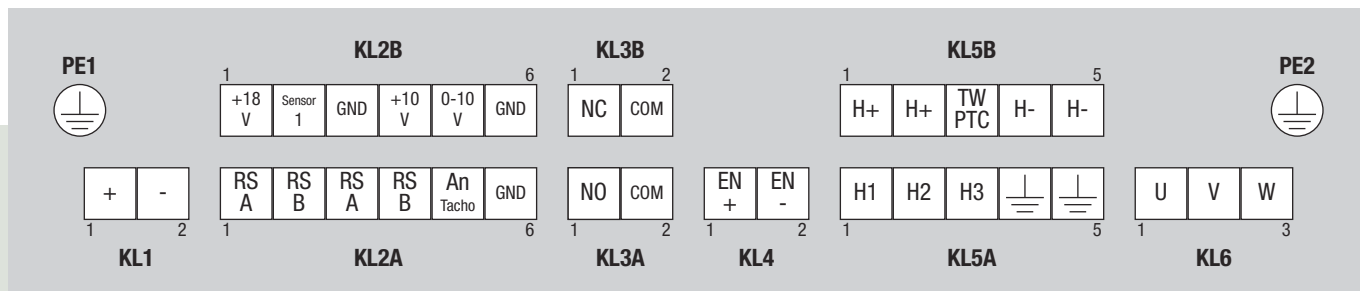
- Design:

- motor output protected against short circuit phase to phase and conditionally phase to earth
- 0-10 V input (R_i: 100 kΩ)
- 0-10 V input (R_i: 100 kΩ) for connection of external actual value input
- RS485 interface (ebmBUS)
- floating alarm contact 250 VAC / 5A, during alarm, relay is released (low-active)
- wide voltage input for external controller enabling via RESET function
- tach output
- LED for operation and alarm mode
green: unit on
red: alarm
- setting of minimum and maximum speeds via potentiometer
- operational modes (to be set via DIP-switch):
closed loop speed control
open loop speed control
controlling external parameters
- direction of motor rotation reversible

- Connectors for external electronics:

- KL1 2-pole connector; centerline 7.5; Co. Wago part no.: 231-202/026-000
- KL2A 6-pole connector; centerline 5; Co. Wago part no.: 231-106/026-000
- KL2B 6-pole connector; centerline 5; Co. Wago part no.: 231-106/026-000
- KL3A 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL3B 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL4 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL5A 5-pole connector; centerline 5; Co. Wago part no.: 231-105/026-000
- KL5B 5-pole connector; centerline 5; Co. Wago part no.: 231-105/026-000
- KL6 3-pole connector; centerline 7.5; Co. Wago part no.: 731-603

- Electrical connection:



Connector	Signal	Pin No.	Assignment / function	Connector	Signal	Pin No.	Assignment / function
PE1			Ground connection	KL3A	NO	1	Relay contact for alarm, make for failure
PE2			Ground connection		COM	2	Relay contact for alarm
KL1	+	1	110 VDC	KL3B	NC	1	Relay contact for alarm, break for failure
	-	2	110 VDC		COM	2	Relay contact for alarm
KL2A	RS A	1	Interface connection RS A	KL4	EN +	1	Enable input via RESET function
	RS B	2	Interface connection RS B		EN -	2	Enable input via RESET function
	RS A	3	Interface connection RS A	KL5A	H1	1	Hall-sensor 1
	RS B	4	Interface connection RS B		H2	2	Hall-sensor 2
	An, Tacho	5	Tach output , open collector		H3	3	Hall-sensor 3
	GND	6	Reference KL2 (for KL2 only)		⏏	4	Shielding connection
KL2B	+18 V	1	+18 V (non-stabilised, +20 %, 20 mA) to supply external sensors		⏏	5	Shielding connection
	Sensor 1	2	Input for external sensor, Ri = 100 kΩ	KL5B	H+	1	Power supply for hall-sensors (+)
	GND	3	Reference KL2 (for KL2 only)		H+	2	Power supply for hall-sensors (+)
	+10 V	4	+10 V (stabilised +/- 3 %, 25 mA)		TW / PTC	3	Thermal switch or PTC connection
	0-10 V	5	Input for set value 0 - 10 V, Ri = 100 kΩ		H-	4	Power supply for hall-sensors (-)
	GND	6	Reference KL2 (for KL2 only)		H-	5	Power supply for hall-sensors (-)
				KL6	U	1	Motor winding U
					V	2	Motor winding V
					W	3	Motor winding W

External commutation electronics

with linear unit and RS485, 200-277 VAC, 500 W

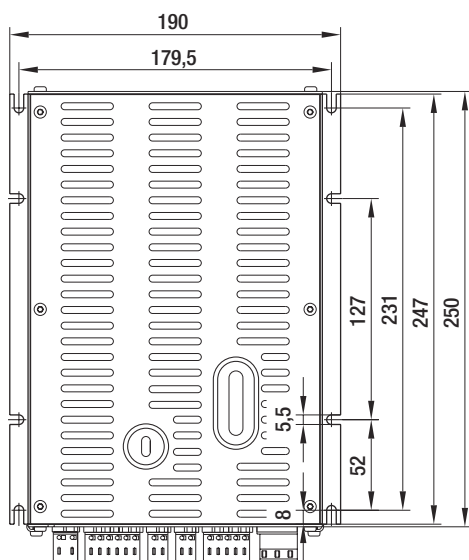
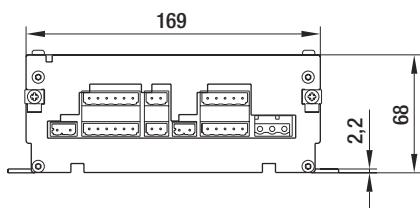


- **General remarks:** for EC motors / fans with three cores and without integrated commutation electronics
- **Function:** Commutating unit for three-core EC motors up to a power input of 500 W. Various basic functions are integrated: open loop speed control, closed loop speed control, even an RS485 interface. In combination with sensors, all control tasks as required in air technology can be executed.
- **Legislation:** low voltage directive 73/23/EEC, VDE 0160/EN 50178, EMC directive 89/336/EEC and EN 61800-3, EN 61000-3, EN 50082-2
- **Class / type of protection:** class of protection I / IP20 according to DIN EN 60529 except for the connection area

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Nominal data	Voltage range	Frequency	Power input P_1 max.	Current draw	I_{mot} max.	Perm. amb. temp.	Mass
Type	VAC	Hz	W	A	A	°C	kg
CHW050-AA01 -70	200-277	50/60	500	2,2/1,8	1,4	-10..+40	2,0

subject to alterations



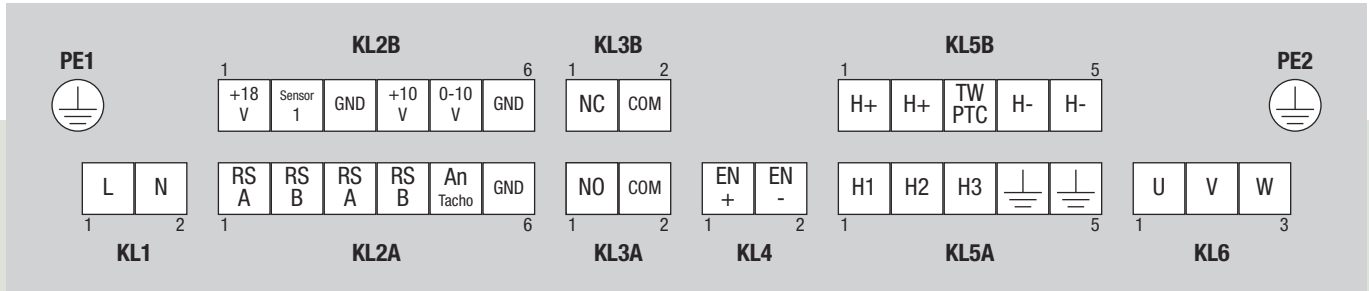
- Design:

- PFC Power Factor Controller according to EN 61000-3-2
- interference immunity according to EN 50082-2
- RFI suppression class B according to EN 55011 for lead length of up to 10 m
- motor output protected against short circuit phase to phase and conditionally phase to earth
- RS485 interface (ebmBUS)
- LED for operation and alarm mode
green: unit ready for operation
red: alarm
- floating alarm contact (change-over contact) 250 VAC / 5A
- 0-10V input ($R_i = 100 \text{ k}\Omega$) for fixing set values
- 0-10V input ($R_i = 100 \text{ k}\Omega$) for connection to external sensor
- wide voltage input for controller enabling via RESET function
- tach output
- setting of minimum and maximum speeds via potentiometer
- operational modes (setting with DIP-switch):
closed loop speed control
open loop speed control
control of external parameters
- motor rotation reversible

- Connectors for external electronics:

- KL1 2-pole connector; centerline 7.5; Co. Wago part no.: 231-202/026-000
- KL2A 6-pole connector; centerline 5; Co. Wago part no.: 231-106/026-000
- KL2B 6-pole connector; centerline 5; Co. Wago part no.: 231-106/026-000
- KL3A 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL3B 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL4 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL5A 5-pole connector; centerline 5; Co. Wago part no.: 231-105/026-000
- KL5B 5-pole connector; centerline 5; Co. Wago part no.: 231-105/026-000
- KL6 3-pole connector; centerline 7.5; Co. Wago part no.: 731-603

- Electrical connection:



Connector	Signal	Pin No.	Assignment / function	Connector	Signal	Pin No.	Assignment / function
PE1			Ground connection	KL3A	NO	1	Relay contact for alarm, make for failure
PE2			Ground connection		COM	2	Relay contact for alarm
KL1	L	1	200-277 VAC, line	KL3B	NC	1	Relay contact for alarm, break for failure
	N	2	200-277 VAC, neutral		COM	2	Relay contact for alarm
KL2A	RS A	1	Interface connection RS A	KL4	EN +	1	Enable input via RESET function
	RS B	2	Interface connection RS B		EN -	2	Enable input via RESET function
	RS A	3	Interface connection RS A	KL5A	H1	1	Hall-sensor 1
	RS B	4	Interface connection RS B		H2	2	Hall-sensor 2
	An, Tacho	5	Tach output , open collector		H3	3	Hall-sensor 3
	GND	6	Reference KL2 (for KL2 only)		⏏	4	Shielding connection
KL2B	+18 V	1	+18 V (non-stabilised, +20 %, 20 mA) to supply external sensors		⏏	5	Shielding connection
	Sensor 1	2	Input for external sensor , Ri = 100 kΩ	KL5B	H+	1	Power supply for hall-sensors (+)
	GND	3	Reference KL2 (for KL2 only)		H+	2	Power supply for hall-sensors (+)
	+10 V	4	+10 V (stabilised +/- 3 %, 25 mA)		TW / PTC	3	Thermal switch or PTC connection
	0-10 V	5	Input for set value 0 - 10 V, Ri = 100 kΩ		H-	4	Power supply for hall-sensors (-)
	GND	6	Reference KL2 (for KL2 only)		H-	5	Power supply for hall-sensors (-)
				KL6	U	1	Motor winding U
					V	2	Motor winding V
					W	3	Motor winding W

External commutation electronics

with RS485, 200-277 VAC, 500 W

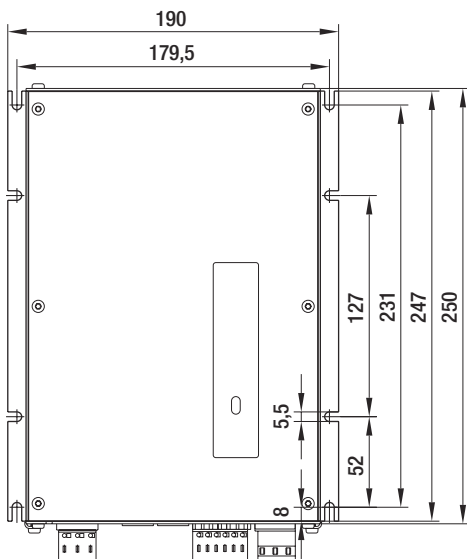
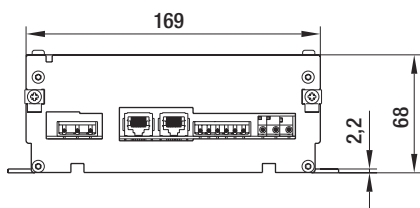


- **General remarks:** for EC motors / fans with three cores and without integrated commutation electronics
- **Function:** Commutating unit for three-core EC motors up to a power input of 500 W. Various basic functions are integrated: open loop speed control, closed loop speed control, even an RS485 interface. In combination with sensors, all control tasks as required in air technology can be executed.
- **Legislation:** low voltage directive 73/23/EEC, VDE 0160/EN 50178, EMC directive 89/336/EEC and EN 61800-3, EN 61000-3, EN 50082-2
- **Class / type of protection:** class of protection I / IP20 according to DIN EN 60529 except for the connection area

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Nominal data	Voltage range	Frequency	Power input P ₁ max.	Current draw	I _{mot} max.	Perm. amb. temp.	Mass
Type	VAC	Hz	W	A	A	°C	kg
CHW050-AA03 -73	200-277	50/60	300	1,5/1,1	0,9	-10..+40	2,0

subject to alterations



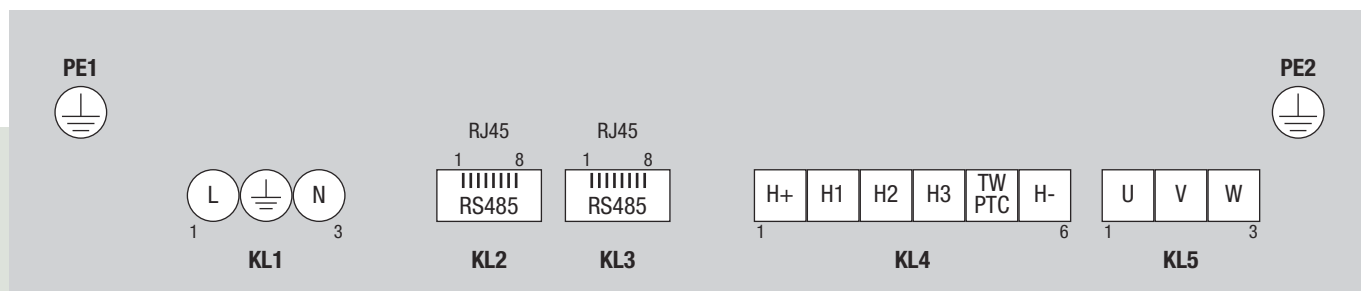
- Design:

- PFC Power Factor Controller according to EN 61000-3-2
- interference immunity according to EN 50082-2
- RFI suppression class B according to EN 55011 for lead length of up to 10 m
- motor output protected against short circuit phase to phase and conditionally phase to earth
- RS485 interface (ebmBUS)
- LED for operation and alarm mode
green: unit ready for operation
red: alarm

- Connectors for external electronics:

- KL1 2-pole connector; centerline 7.5; Co. Wago part no.: 231-202/026-000
- KL2A 6-pole connector; centerline 5; Co. Wago part no.: 231-106/026-000
- KL2B 6-pole connector; centerline 5; Co. Wago part no.: 231-106/026-000
- KL3A 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL3B 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL4 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL5A 5-pole connector; centerline 5; Co. Wago part no.: 231-105/026-000
- KL5B 5-pole connector; centerline 5; Co. Wago part no.: 231-105/026-000
- KL6 3-pole connector; centerline 7.5; Co. Wago part no.: 731-603

- Electrical connection:



Connector	Signal	Pin No.	Assignment / function	Connector	Signal	Pin No.	Assignment / function
PE1			Ground connection	KL3	---	1	---
PE2			Ground connection		---	2	---
KL1	L	1	200-277 VAC, line		---	3	---
	⊥	2	Shielding connection		---	4	---
	N	3	200-277 VAC, neutral		RS B	5	RS485 interface connection RS B
KL2	---	1	---		RS A	6	RS485 interface connection RS A
	---	2	---		---	7	---
	---	3	---		---	8	---
	---	4	---	KL4	H+	1	Power supply for hall-sensors (+)
	RS B	5	RS485 interface connection RS B		H1	2	Hall-sensor 1
	RS A	6	RS485 interface connection RS A		H2	3	Hall-sensor 2
	---	7	---		H3	4	Hall-sensor 3
	---	8	---		TW / PTC	5	Thermal switch or PTC connection
					H-	6	Power supply for hall-sensors (-)
				KL5	U	1	Motor winding U
					V	2	Motor winding V
					W	3	Motor winding W

External commutation electronics

for constant air flow, 200-277 VAC, 500 W

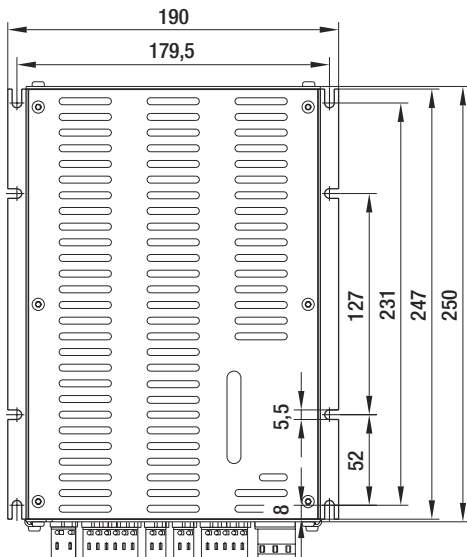
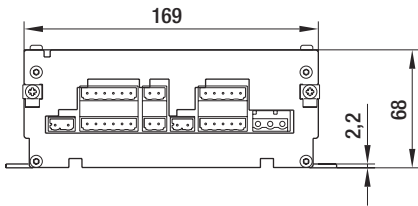


- **General remarks:** for EC motors / fans with three cores and without integrated commutation electronics
- **Function:** Commutating unit for three-core EC motors up to a power input of 500 W. Various basic functions are integrated: open loop speed control, closed loop speed control, even an RS485 interface. In combination with sensors, all control tasks as required in air technology can be executed.
- **Legislation:** low voltage directive 73/23/EEC, VDE 0160/EN 50178, EMC directive 89/336/EEC and EN 61800-3, EN 61000-3, EN 50082-2
- **Class / type of protection:** class of protection I / IP20 according to DIN EN 60529 except for the connection area

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Nominal data	Voltage range	Frequency	Power input P_1 max.	Current draw	I_{mot} max.	Perm. amb. temp.	Mass
Type	VAC	Hz	W	A	A	°C	kg
CHW050-AA02 -75	200-277	50/60	500	2,2/1,8	1,4	-10..+40	2,0

subject to alterations



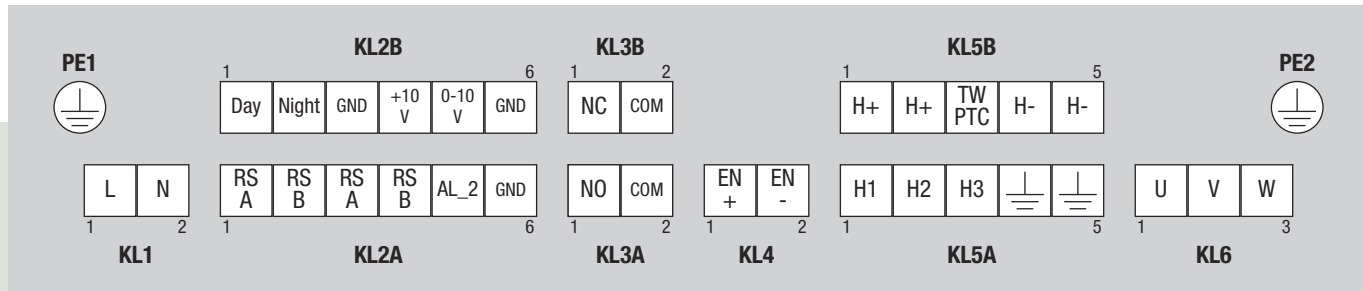
- Design:

- PFC Power Factor Controller according to EN 61000-3-2
- interference immunity according to EN 50082-2
- RFI suppression class B according to EN 55011 for lead length of up to 10 m
- motor output protected against short circuit phase to phase and conditionally phase to earth
- RS485 interface (ebmBUS)
- LED for operation and alarm mode
 - green: unit ready for operation
 - blinking red, green on: 10 % control backup
 - blinking red, green off: 0 % control backup
 - red: alarm
- floating alarm contact (change-over contact) 250 VAC / 5A
- 0-10V input ($R_i = 100 \text{ k}\Omega$) for fixing set values
- 0-10V input ($R_i = 100 \text{ k}\Omega$) for connection to external sensor
- wide voltage input for controller enabling via RESET function.
- open collector output for 10 % control backup
- air flow preselection and fan selection to be set via DIP-switch
- day/night-switch

- Connectors for external electronics:

- KL1 2-pole connector; centerline 7.5; Co. Wago part no.: 231-202/026-000
- KL2A 6-pole connector; centerline 5; Co. Wago part no.: 231-106/026-000
- KL2B 6-pole connector; centerline 5; Co. Wago part no.: 231-106/026-000
- KL3A 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL3B 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL4 2-pole connector; centerline 5; Co. Wago part no.: 231-102/026-000
- KL5A 5-pole connector; centerline 5; Co. Wago part no.: 231-105/026-000
- KL5B 5-pole connector; centerline 5; Co. Wago part no.: 231-105/026-000
- KL6 3-pole connector; centerline 7.5; Co. Wago part no.: 731-603

- Electrical connection:



Connector	Signal	Pin No.	Assignment / function	Connector	Signal	Pin No.	Assignment / function
PE1			Ground connection	KL3A	NO	1	Relay contact for alarm, make for failure
PE2			Ground connection		COM	2	Relay contact for alarm
KL1	L	1	200-277 VAC, line	KL3B	NC	1	Relay contact for alarm, break for failure
	N	2	200-277 VAC, neutral		COM	2	Relay contact for alarm
KL2A	RS A	1	Interface connection RS A	KL4	EN +	1	Enable input via RESET function
	RS B	2	Interface connection RS B		EN -	2	Enable input via RESET function
	RS A	3	Interface connection RS A	KL5A	H1	1	Hall-sensor 1
	RS B	4	Interface connection RS B		H2	2	Hall-sensor 2
	AL_2	5	Advance warning / 10 % control backup		H3	3	Hall-sensor 3
	GND	6	Reference KL2 (for KL2 only)		⏏	4	Shielding connection
KL2B	Day	1	Selector for „day“		⏏	5	Shielding connection
	Night	2	Selector for „night“	KL5B	H+	1	Power supply for hall-sensors (+)
	GND	3	Reference KL2 (for KL2 only)		H+	2	Power supply for hall-sensors (+)
	+10 V	4	+10 V (stabilised +/- 3 %, 25 mA)		TW / PTC	3	Thermal switch or PTC connection
	0-10 V	5	Input for set value 0 - 10 V, Ri = 100 kΩ		H-	4	Power supply for hall-sensors (-)
	GND	6	Reference KL2 (for KL2 only)		H-	5	Power supply for hall-sensors (-)
				KL6	U	1	Motor winding U
					V	2	Motor winding V
					W	3	Motor winding W

Linear unit

100-277 VAC

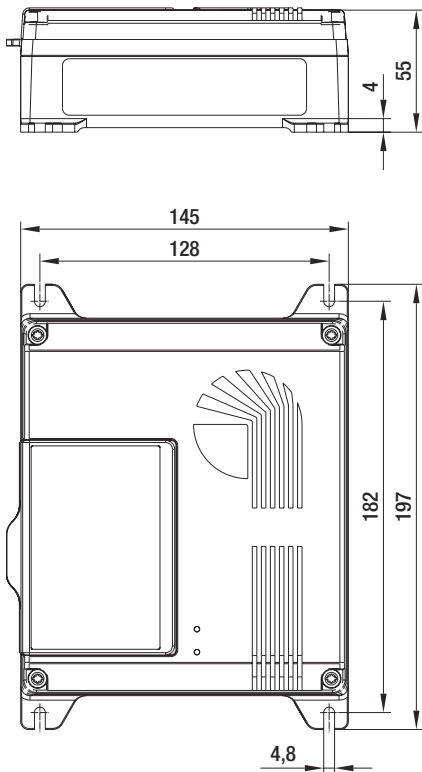


- **Function:** control via 0-10V input, alarm signal (alarm contact), open loop speed control, control of external parameters (pressure, temperature), RS485 interface for electronics
- **Legislation:** low voltage directive 73/23/EEC, VDE 0160/EN 50178, EMC directive 89/336/EEC and EMC directives EN 55011, EN 61000-3, EN 50082-2
- **Class / type of protection:** class of protection I / IP54 according to DIN EN 60529

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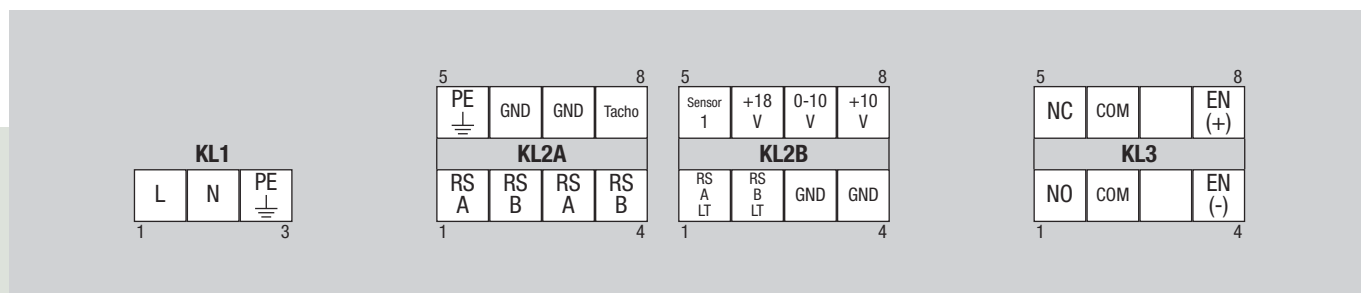
Nominal data	Voltage range	Frequency	Power input P_1 max.	Perm. amb. temp.	Mass
Type	VAC	Hz	W	°C	kg
CLC 000-AA01 -01	100-277	50/60	8	-20..+40	0,5

subject to alterations



- **Design:**
 - interference immunity according to EN 50082-2
 - RFI suppression class B according to EN 55011
 - 0-10V input ($R_i = 100 \text{ k}\Omega$) for fixing set values
 - 0-10V input ($R_i = 100 \text{ k}\Omega$) for external sensors
 - connection to KTY10 temperature sensor for temperature control
 - RS485 interface (ebmBUS)
 - floating alarm contact, during alarm, relay is released
 - wide voltage input for external controller enabling via RESET function
 - tach output
 - LED for operation and alarm mode
green: unit ready for operation
red: alarm
 - setting of minimum and maximum speeds via potentiometer
 - operational modes (setting via DIP-switch):
closed loop speed control
open loop speed control
control of external parameters
 - motor rotation reversible

- Electrical connection:



Connector	Signal	Pin No.	Assignment / function	Connector	Signal	Pin No.	Assignment / function
KL1	L	1	100-277 VAC, line	KL2B	RS A LT	1	Interface connection RS A fan
	N	2	100-277 VAC, neutral		RS B LT	2	Interface connection RS B fan
	PE \perp	3	Protective earth		GND	3	Reference KL2
KL2A	RS A	1	Interface connection RS A		GND	4	Reference KL2
	RS B	2	Interface connection RS B	Sensor 1	5	Input for external sensor 0-10 V, Ri = 100 k Ω or direct connection of a KTY10 temperature sensor (reference GND KL2B pin no. 3)	
	RS A	3	Interface connection RS A	+18 V	6	+18 V (non-stabilised, +20 %, 20 mA) to supply external sensors	
	RS B	4	Interface connection RS B	0-10 V	7	Input for set value 0-10 V, Ri = 100 k Ω	
	PE \perp	5	PE connection for optimum bridging, reference KL2A to earth	+10 V	8	+10 V (stabilised +/-2 %, 20 mA)	
	GND	6	Reference KL2	KL3	NO	1	Relay contact for alarm, make for failure, load 250 VAC / 5A at cos ϕ = 1
	GND	7	Reference KL2		COM	2	Relay contact for alarm
	Tacho	8	Tach output , open collector		---	3	---
			EN -		4	Enable input (- in case of DC), 10-253 VAC, 10-100 VDC	
			NC		5	Relay contact for alarm, break for failure, load 250 VAC / 5A at cos ϕ = 1	
			COM		6	Relay contact for alarm	
			---		7	---	
			EN +		8	Enable input (+ in case of DC), 10-253 VAC, 10-100 VDC	

Plug-in control terminal

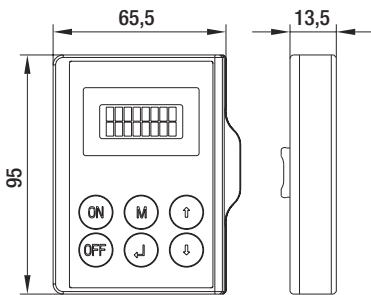


- **General remarks:** Terminal to control networked fans and to set their parameters; RS485 (ebmBUS). The control terminal can be plugged in onto the linear unit (see page 328).
- **Class / type of protection:** class of protection III / IP54 according to DIN EN 60529 (when plugged in)
- **Display:** plain text LCD, 2x8 characters

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Nominal data	Perm. amb. temp.	Perm. storage temp.	Mass
Type	°C	°C	kg
CBC 000-AA01 -01	-20..+45	-20..+65	0,1

subject to alterations



Hand-held control terminal

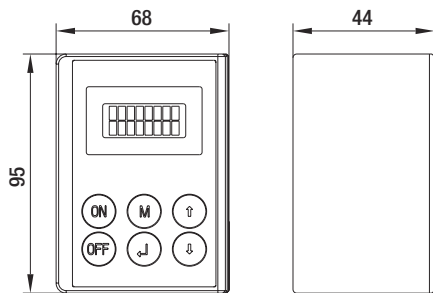


- **General remarks:** Terminal to control networked fans and to set their parameters; RS485 (ebmBUS)
- **Class / type of protection:** class of protection III / IP20 according to DIN EN 60529
- **Display:** plain text LCD, 2x8 characters
- **Accumulator and charging electronics:** 2 x round cell R6 DIN 40863 NiMH 1,500 mAh, operating time approx. 40 hrs, standby time approx. 100 days, charging time max. 4 hrs.
- **Parts included in delivery:** hand-held control terminal, power supply and accumulator unit, BUS cable, 2 x round cell R6 NiMH 1,500 mAh

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Nominal data	Perm. amb. temp.	Perm. storage temp.	Mass
Type	°C	°C	kg
CBC 000-AB01 -01	0..+45	-20..+65	0,4

subject to alterations



RS485 repeater

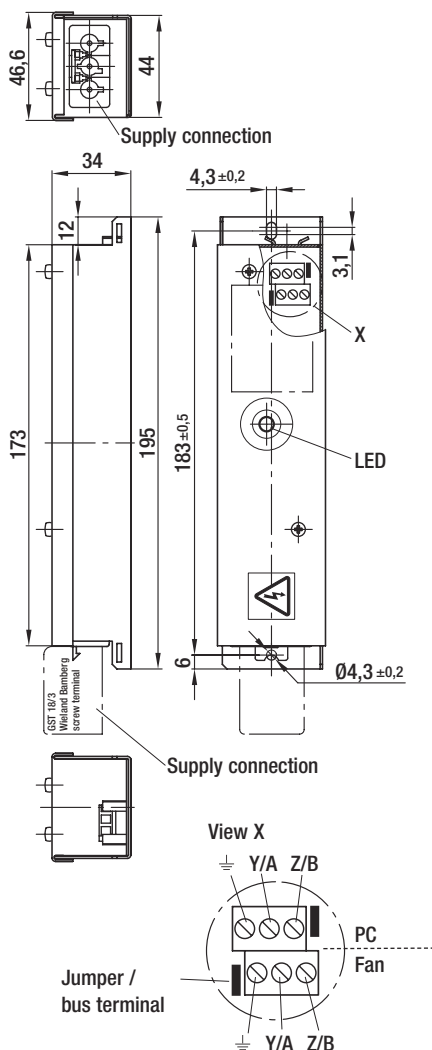


- **General remarks:** The physical RS485 repeater is used for the connection of two segments on RS485 basis. It can split a segment with network bus wires that are too long, or with too many nodes into two smaller, standardised units. A maximum of 31 nodes can be connected to the repeater.
- **Installation:** The repeater housing is mounted on the wall or in the cable duct with two screws (Ø 4 mm) or with cable ties.
- **Material:** housing made of galvanised sheet steel
- **Type of protection:** IP20 according to DIN EN 60529

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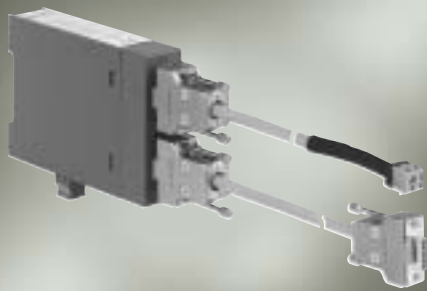
Nominal data	Supply voltage	Frequency	Power input	Perm. operating temp.	Perm. storage temp.	Mass
Part no.	VAC	Hz	VA	°C	°C	kg
25710-1-0174	200-277	50/60	<5	0..+50	-20..+70	0,4

subject to alterations



- **Type of transceiver:** 2 x ANSI standard RS485-transceiver
- **Galvanic insulation:** operating insulation 500 V between both channels
- **Network connection:** screw terminals
- **Mains connection:** Wieland connector GST 18/3 (forming part of delivery)

Interface converter RS232 - RS485

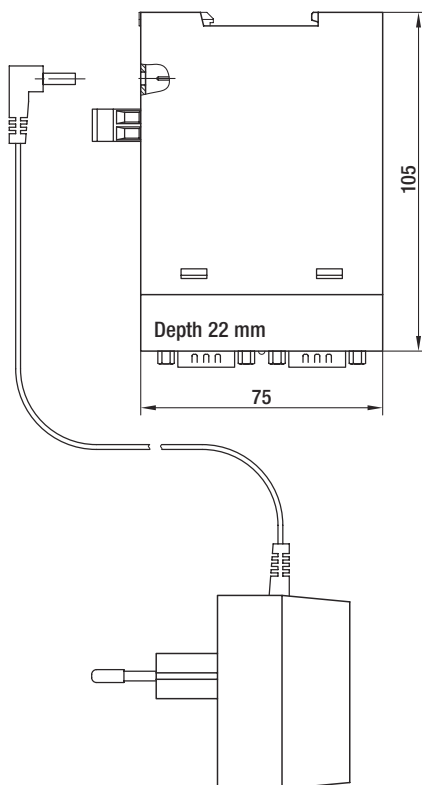


- **General remarks:** this interface converter permits bi-directional connection of RS232 devices (Laptop or PC) with ebmBUS devices (electronic commutation unit with RS485 interface)
- **Safety:** electrical insulation between the RS232 and RS485 side is provided
- **Material:** plastic housing for standard rail mounting according to DIN EN 50022-35
- **Status display:** via LEDs
green: supply voltage o.k.
red: data exchange
- **Operating mode:** RS485, 2-wire mode with echo and automatic control

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Nominal data	Supply voltage power supply	Supply voltage	Current draw at no-load operation	Mass (incl. PS)
Part no.	VAC	VAC / VDC	mA	kg
21487-1-0174	230	12-24	150	0,4

subject to alterations



- **Galvanic insulation:** min. 1kV insulation voltage between RS232 and RS485 interfaces and between power supply and interfaces
- **Overvoltage protection:** varistors according to IEC 801-2, level 4
- **Parts included in delivery:** interface converter, AC power supply 230 VAC / 12 VDC, 500 mA, adaptor leads with 2 x 9-pole SUB-D sockets, adaptor leads with 9-pole SUB-D socket and screw terminal RS485

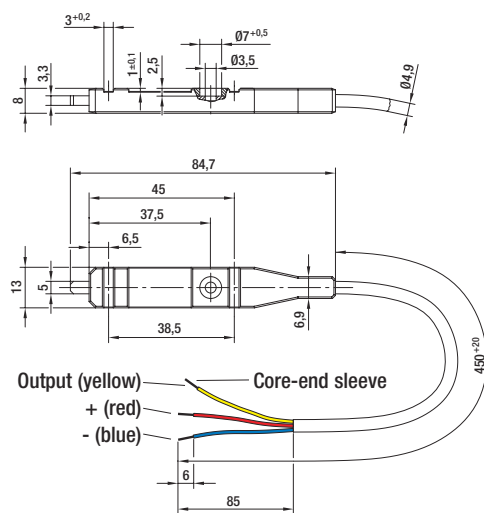
Temperature control module



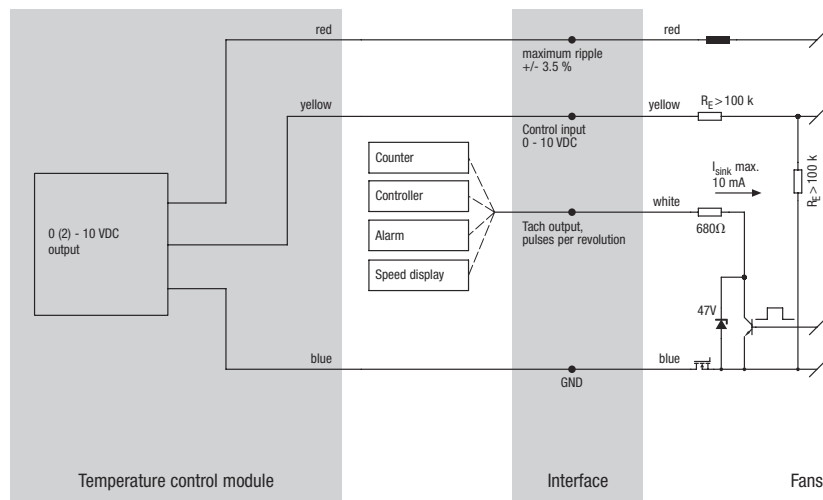
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Nominal data	Voltage	Current draw	Output	Output impedance	Mass
Part no.	VDC	mA	VDC	kΩ	kg
50002-1-0174	18-60	10	2-10	6,8	0,02
50003-1-0174	18-60	10	0-10	6,8	0,02

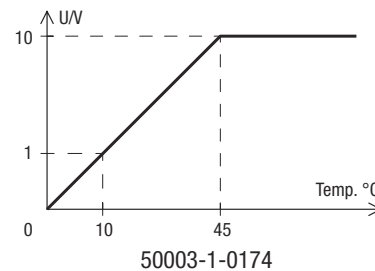
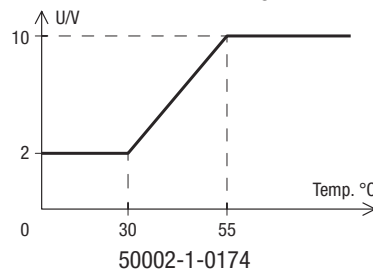
subject to alterations



Electrical connection:



Control function: Both designs have „cooling“ as control function



LISA control software for EC-SYSTEMS



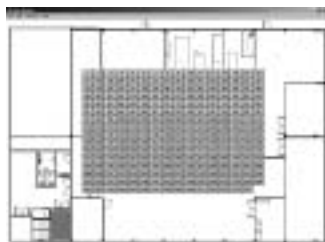
- **Version:** LISA 4.07
- **Features:**
 - individual control and monitoring of max. 7,905 fans
 - group oriented arrangement of the fans
 - level 1: overview display for 255 groups
 - level 2: overview display for 31 fans within a group
 - broadcast command for a group or all fans
 - speed, temperature or pressure control
 - alarm signal

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Part no.

25711-2-0199

subject to alterations



- **Suitable for:**
 - CEE 485-HB12-02
 - CHW 050-AA01-02
 - CHW 050-AA01-70
 - CHW 050-AA01-72
 - CHW 050-AA03-73
 - CNW 015-AB06-05
 - CNW 015-AB02-05
 - CNW 030-AB06-05
 - CNW 030-AB02-05
- **System requirements:**
 - Windows 95 / 98
 - Windows 2000 / NT

HMS controller

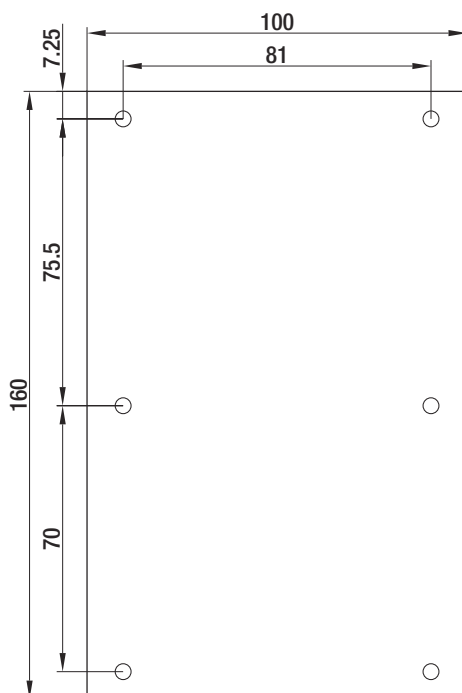


- **General remarks:** The HMS controller is governed by a micro processor and is specifically designed for Heat Management Systems (=HMS). This controller allows for an almost limitless programming variety as regards customer-specific fan speed / temperature profiles. Moreover, this controller offers a multitude of the most diverse alarm configurations. Our HMS controller has been specially designed and adjusted to the product range of ebm-papst in Mulfingen. Thus, any size of our fans or blowers can be used. The most diverse of applications needing temperature-dependent control are possible. Among these are applications in telecommunication and the IT industry, in refrigeration and air-conditioning as well as in specific industrial plants and systems.

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Nominal data	Supply voltage	Max. power input (without fans)	Max. power input per fan (at nominal voltage)	Max. current draw (without fan)	Perm. amb. temp.	Mass
Type	VDC	W	W	A	°C	kg
CCC 000-AA02 -02	16-57	10	130	0,175	-20..+40	0,15

subject to alterations



Features:

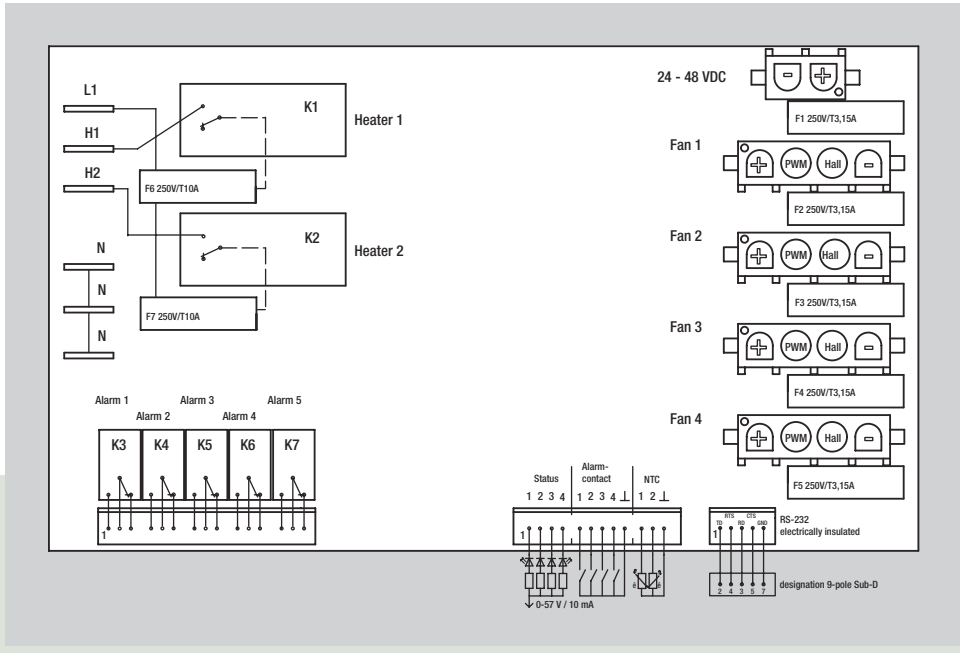
- 4 fan speed / temperature characteristics that can be programmed independent of each other
- 2 programmable no-frost relays for connection of 115 / 230 VAC heating devices
- 5 programmable alarm relays:
 - temperature alarm (over- / under-temperature)
 - fan good/bad alarm programming
 - temperature sensor alarm
 - programmable depending on signal inputs
- 4 programmable status outputs:
 - brought out as „open collector“ to connect optical or acoustic displays / alarms
 - each fan speed can be set individually
- 4 signal inputs for external switch
- connection of two independent temperature sensors (NTCs) possible
- RS232 interface galvanic insulated
- selective protection of each fan
- programming via Windows software (terminal programme)

Requirements:

- supply voltage of HMS controller: 16 - 57 VDC
- fans with standard interface
 - 24 / 48 VDC fan voltage
 - PWM / linear control input (0 - 10 V)
 - open collector tach output
- NTC with $R_{25} = 33 \text{ k}\Omega$ (EPCOS type M 891/33k/J)
- system requirements: Windows 9x / NT / 2000 / XP

- **Safety:** according to EN 60950

- **EMC / EMI:** interference immunity EN 61000, interference emission EN 50081-1



Information

AC centrifugal

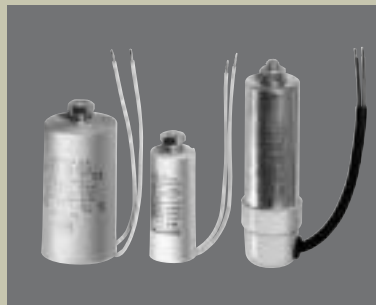
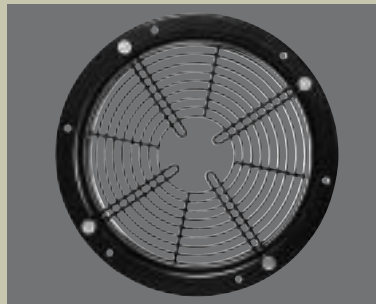
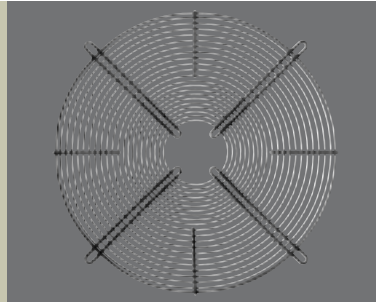
AC axial

EC centrifugal

EC axial

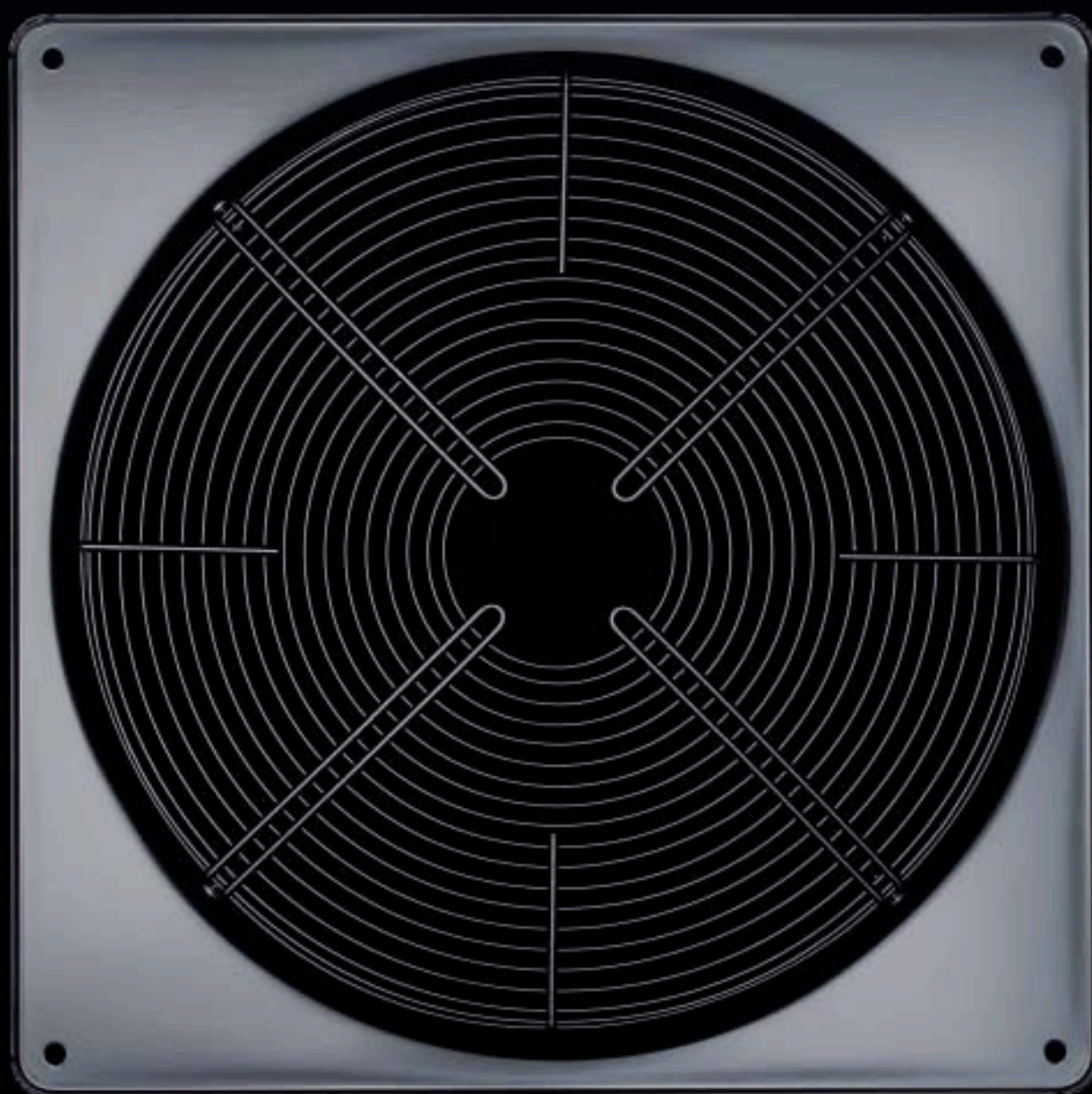
EC-SYSTEMS

Accessories



Accessories

Inlet rings	340
Guard grilles	342
Wall rings	352
Lead connections, capacitors, terminal boxes	355
Air filters, anti-vibration mount	358



Information

AC centrifugal

AC axial

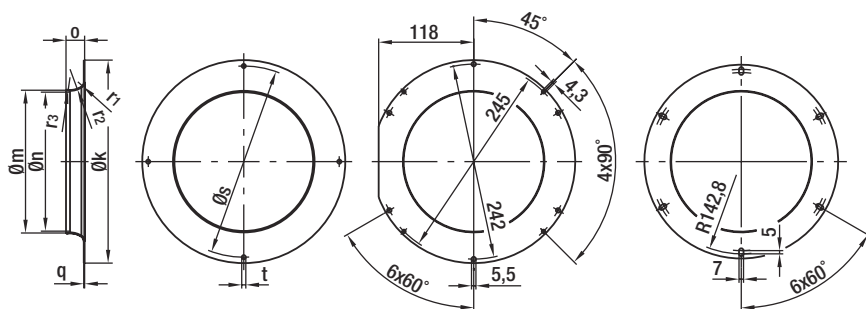
EC centrifugal

EC axial

EC-SYSTEMS

Accessories

Accessories



- **Material:** galvanised sheet steel

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Inlet rings for backward curved centrifugal fans

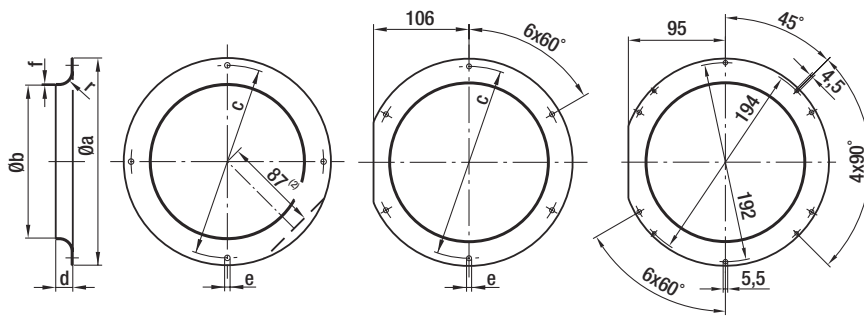
Part no.	Size ⁽¹⁾	AC/EC	Vers.	k	m	n	o	q	r ₁	r ₂	r ₃	s	t
96120-2-4013	120 (K)	EC	1	146	94,4	---	18,0	0,80	16,0	---	---	134	4x4,5
09566-2-4013	133 (K)	AC/EC	1	129	87,0	---	13,0	1,00	8,0	---	---	118	4x4,5
09576-2-4013	175 / 190 (K)	AC/EC	1	170	125,5	---	14,0	1,25	10,0	---	---	158	4x4,5
09609-2-4013	220 (K)	AC/EC	2	252	155,0	---	21,0	0,80	22,0	---	---	---	---
96358-2-4013	225 (K)	AC/EC	1	223	146,0	---	28,0	1,50	25,0	---	---	210	4x4,5
96359-2-4013	250 (K)(S)	AC/EC	1	255	164,5	---	31,0	1,50	28,0	---	---	240	4x4,5
96360-2-4013	270 / 280 (S)	AC/EC	1	280	182,5	---	35,0	1,50	31,0	---	---	260	4x4,5
97512-2-4013	310 (K)	AC/EC	3	300	192,0	---	53,0	1,00	30,0	60,0	---	---	---
31050-2-4013	310 (A)	AC/EC	1	300	211,0	208,1	48,0	1,25	18,0	55,5	35,0	280	4x4,5
31051-2-4013	310 ⁽²⁾ (A)	AC/EC	1	300	211,0	209,2	27,5	1,25	10,0	32,0	20,0	280	4x4,5
51357-2-4013	330 / 355 (K)	AC	1	350	224,0	---	60,0	1,50	54,0	28,0	---	325	4x4,5
35560-2-4013	355 (A)	AC/EC	1	350	240,0	236,4	60,0	1,50	22,5	70,0	44,0	325	4x4,5
35561-2-4013	355 ⁽²⁾ (A)	AC/EC	1	350	240,0	238,0	30,0	1,50	11,0	35,0	22,0	325	4x4,5
54476-2-4013	400 (A)	AC/EC	1	370	257,0	---	66,0	1,50	22,0	50,0	90,0	345	4x4,5
54478-2-4013	450 (A)	AC	1	413	287,0	---	71,0	1,50	25,0	55,0	100,0	390	6x9
54480-2-4013	500 (A)	AC	1	456	323,0	---	79,0	1,50	28,0	65,0	115,0	430	6x9
63072-2-4013	500 (A)	EC	1	470	342,0	337,0	75,0	2,00	28,0	87,0	55,0	445	6x9
63071-2-4013	560 (A)	EC	1	515	385,0	380,0	82,0	2,00	30,0	95,0	60,0	490	6x9
63070-2-4013	630 (A)	EC	1	634	433,0	427,0	98,5	2,00	37,0	14,0	72,0	600	6x10,5

subject to alterations

⁽¹⁾ Size with key for impeller material: (K) = plastic, (S) = sheet steel, (A) = aluminium

⁽²⁾ Short inlet ring

Accessories



- **Material:** galvanised sheet steel

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Inlet rings for forward curved centrifugal fans

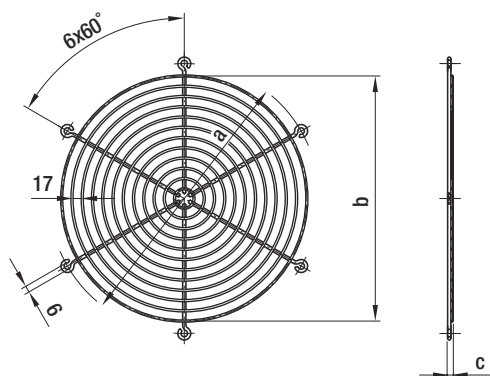
Part no.	Size	Vers.	a	b	c	d	e	f	r
09560-2-4013	076 / 085 ⁽¹⁾	1	92	63,4	84	6	3x4,2	0,80	6,8
09563-2-4013	097 ⁽¹⁾	1	116	80,0	108	10	3x4,5	0,80	10,0
09566-2-4013	108	1	129	87,0	118	13	4x4,5	1,00	8,0
09569-2-4013	120	1	142	100,0	132	9	4x4,5	1,00	8,0
09572-2-4013	133	1	150	112,0	142	12	4x4,5	1,00	10,0
09576-2-4013	140 / 146	1	170	125,5	158	14	4x4,5	1,25	10,0
09588-2-4013	160	1 ⁽²⁾	185	130,0	175	17	4x4,5	0,75	12,0
09597-2-4013	180	3	210	149,0	---	28	---	1,25	25,0
09605-2-4013	200 / 225	2	230	175,0	213	24	6x5,5	1,25	20,0

subject to alterations

⁽¹⁾ 3 drilled holes staggered by 120°

⁽²⁾ Dimension 87 only with 09588-2-4013

Accessories



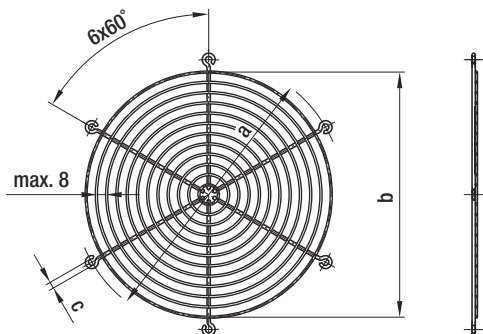
- **Material:** ⁽¹⁾galvanised steel wire or ⁽²⁾phosphatized steel wire, plastic coated in RAL no. 9005, black

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Guard grilles (e.g. for backward curved centrifugal fans)

Part no.	Size	a	b	c
65152-2-4039 ⁽¹⁾	250	250	172	5
53526-2-4039 ⁽¹⁾	280 / 310	290	210	10
54329-2-4039 ⁽²⁾	355	328	286	10
54328-2-4039 ⁽²⁾	400	366	286	10

subject to alterations



- **Material:** phosphatized steel wire, plastic coated in RAL no. 9005, black

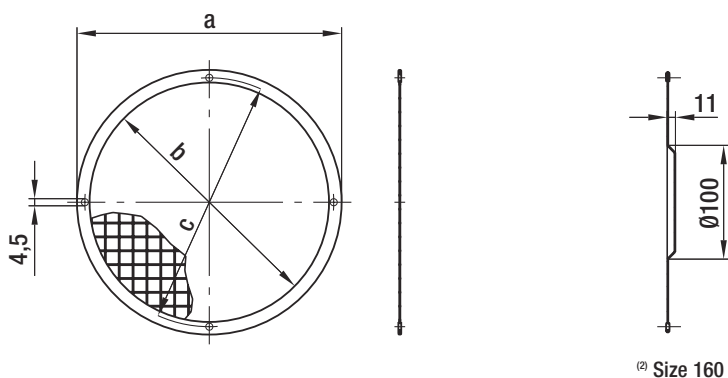
ebm-papst • Mulfingen

Guard grilles (e.g. for axial fans)

Part no.	Size	a	b	c
09513-2-4039	200	250	227	6
09518-2-4039	250	295	265	7
09532-2-4039	300	380	323	9

subject to alterations

Accessories



- **Material:** welded grille made of galvanised steel, frame made of tinned sheet iron 0.3 mm thick

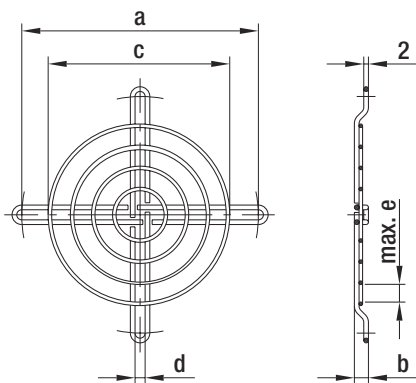
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Guard grilles for blowers with single inlet

Part no.	Size	a	b	c
09489-2-4039	076 / 085 ⁽¹⁾	90	74	84
09490-2-4039	108	126	110	118
09494-2-4039	120	140	124	132
09492-2-4039	140 / 146	168	152	158
09503-2-4039	160 ⁽²⁾	183	170	175
09493-2-4039	180	205	189	194

subject to alterations

⁽¹⁾ 3 drilled holes staggered by 120°



- **Material:** ⁽¹⁾sheet steel, plastic coated, silver-metallic gloss or ⁽²⁾galvanised sheet steel, chromatised in blue

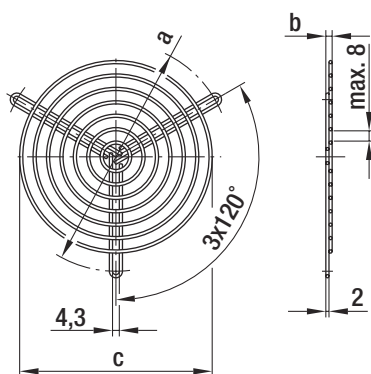
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Guard grilles for blowers with single inlet

Part no.	Size	a	b	c	d	e
09603-2-4039 ⁽¹⁾	076 / 085	101	6,0	79	4,3	8
98214-2-4039 ⁽¹⁾	108	120	3,5	88	4,3	8
25028-2-4039 ⁽²⁾	140 / 146	162	8,5	139	4,3	8
17729-2-4039 ⁽²⁾	160	175	3,5	139	4,6	7

subject to alterations

Accessories



- **Material:** phosphatized steel wire, plastic coated in ⁽¹⁾RAL no. 9005, black or ⁽²⁾silver-metallic gloss

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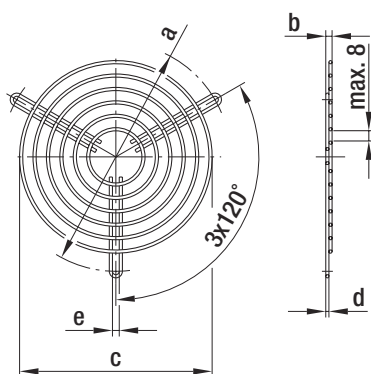
Guard grilles for blowers with dual inlet

Part no.	Size	a	b	c
83319-2-4039 ⁽²⁾	097 ⁽³⁾	96	3,5	71
09485-2-4039 ⁽²⁾	097 ⁽⁴⁾	114	3,5	88
09500-2-4039 ⁽²⁾	133 / 146	145	4,0	122
31003-2-4039 ⁽²⁾	180	174	9,5	192
95644-2-4039 ⁽¹⁾	200	250	5,0	206

subject to alterations

⁽³⁾ for D2E097-CB

⁽⁴⁾ for D2E097-B*



- **Material:** phosphatized steel wire, plastic coated, silver-metallic gloss

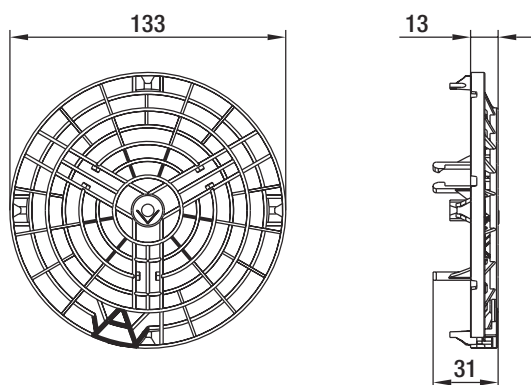
ebm-papst · Mulfingen

Guard grilles for blowers with dual inlet (EW sheet steel support)

Part no.	Size	a	b	c	d	e
35000-2-4039	160	182	12	144	2,4	4,5
62226-2-4039	180	192	9	173	3,0	5,2
62227-2-4039	200	213	9	190	3,0	5,2
62228-2-4039	225	242	9	222	3,0	5,2
25825-2-4039	250	275	9	255	3,0	5,2

subject to alterations

Accessories



- **Material:** Ultramid A3X2G5, black
- **Special feature:** triangular, raised contour
- **Suitable for:** D2E 140 -HR
D2E 146 -HR
D2E 146 -HS
D2E 146 -HT
D4E 146 -LV
K4E 146 -AB
D4E 160 -HN

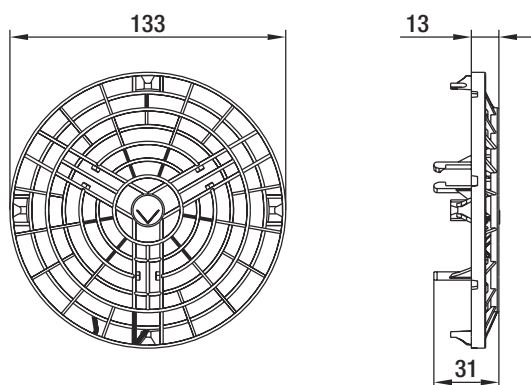
ebm-papst • Muldingen

Guard grilles for blowers with dual inlet with plastic housing (cable exit side of blower)

Part no.

34265-2-2929

subject to alterations



- **Material:** Ultramid A3X2G5, black
- **Special feature:** outmost two rings are closed
- **Suitable for:** D2E 140 -HR
D2E 146 -HR
D2E 146 -HS
D2E 146 -HT
D4E 146 -LV
K4E 146 -AB
D4E 160 -HN

ebm-papst • Muldingen

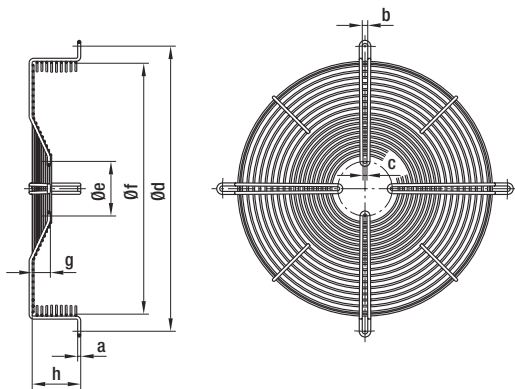
Guard grilles for blowers with dual inlet with plastic housing (side of blower opposite cable exit)

Part no.

38182-2-2929

subject to alterations

Accessories



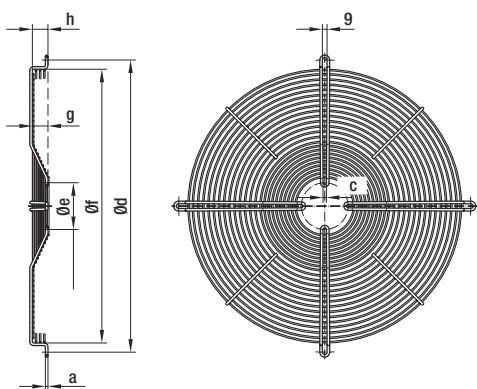
- **Material:** phosphatized steel wire, plastic coated in RAL no. 9005, black
- **Note:** Please consult your engineer for relevant part numbers of complete fans.

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Basket guard grilles for S-Range axial fans

Part no.	Size	AC/EC	AC motor	EC motor	a	b	c	d	e	f	g	h
19110-2-4039	200	AC/EC	068	074	3,9	6,5	4,3	260	58	229,0	---	39
19111-2-4039	250	AC/EC	068	074	3,9	6,5	4,5	300	58	271,0	---	38
19112-2-4039	250	AC/EC	068	074	3,9	6,5	4,5	300	58	271,0	---	53
64555-2-4039	300	AC/EC	068	074	4,5	4,3	4,3	360	58	329,5	---	50
64556-2-4039	300	AC	068	---	4,5	4,3	4,3	360	58	329,5	26,0	50
64557-2-4039	300	AC	074	---	5,0	6,5	6,5	330	90	324,0	---	50
64558-2-4039	315	AC	068	---	4,5	6,5	4,5	375	58	336,5	30,0	80
64559-2-4039	330	AC	068	---	4,5	6,5	4,5	410	58	354,5	30,0	80
64560-2-4039	350	AC	074	---	5,0	6,5	6,5	422	90	380,0	30,0	80
64379-2-4039	400	AC/EC	074	084	5,0	9,0	6,5	470	90	420,0	30,0	80
64536-2-4039	420	AC/EC	074	084	5,0	9,0	6,5	502	90	458,0	30,0	80
64378-2-4039	450	AC/EC	074	084	5,0	9,0	6,5	522	90	482,0	30,0	80
25938-2-4039	450	AC	094	---	7,0	9,0	7,0	515	115	472,0	16,5	80

subject to alterations



- **Material:** phosphatized steel wire, plastic coated in RAL no. 9005, black

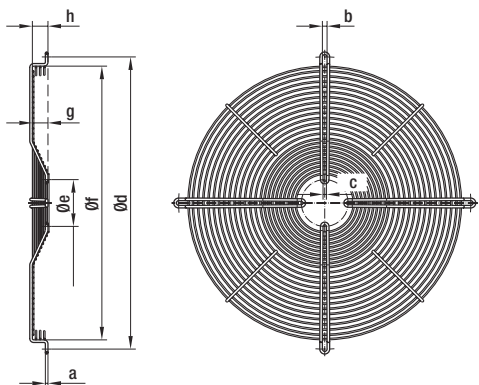
ebm-papst • Mulfingen

Basket guard grilles for S-Range axial fans (for mounting on square wall rings with long nozzle)

Part no.	Size	AC/EC	AC motor	EC motor	a	c	d	e	f	g	h
63978-2-4039	420 / 450	AC/EC	074	084	5	6,5	562	90	526	30,0	30,0
25950-2-4039	450	AC	094	---	7	7,0	560	115	523	16,5	38,0

subject to alterations

Accessories



- **Material:** phosphatized steel wire, plastic coated in RAL no. 9005, black
- **Note:** Please consult your engineer for relevant part numbers of complete fans.

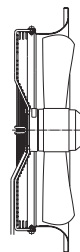
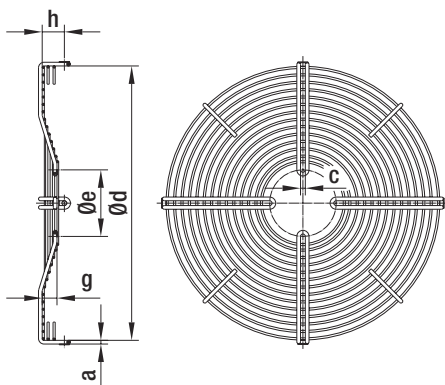
ebm-papst • Mulfingen

Guard grilles for S-Range axial fans

Part no.	Size	AC/EC	AC motor	EC motor	a	b	c	d	e	f	g	h
18656-2-4039	200	AC	068	---	3,9	4,6	4,6	245	58	---	---	---
62622-2-4039	200	EC	---	074	3,9	4,6	4,6	245	58	---	---	---
09414-2-4039	250	AC	068	---	3,9	4,6	4,6	290	58	---	---	---
62623-2-4039	250	EC	---	074	3,9	4,6	4,6	290	58	---	---	---
09415-2-4039	300	AC	068	---	3,9	4,6	4,6	360	58	---	---	---
62624-2-4039	300	EC	---	074	3,9	4,6	4,6	360	58	---	---	---
72320-2-4039	300	AC	068	---	4,5	4,3	4,3	360	58	329	26,0	26,0
64052-2-4039	300	AC	074	---	5,0	6,5	6,5	360	90	---	---	---
64489-2-4039	315	AC	068	---	4,5	6,4	4,3	375	58	336	30,0	30,0
64490-2-4039	330	AC	068	---	4,5	6,4	4,3	410	58	371	30,0	30,0
64051-2-4039	350	AC	074	---	5,0	6,5	6,5	422	90	374	30,0	30,0
64538-2-4039	400 / 420	AC	074	084	5,0	9,0	6,5	502	90	452	30,0	30,0
64539-2-4039	450	AC	074	084	5,0	9,0	6,5	522	90	476	30,0	30,0
25950-2-4039	450	AC	094	---	7,0	9,0	7,0	560	115	517	16,5	21,5

subject to alterations

Accessories



Possible mounting

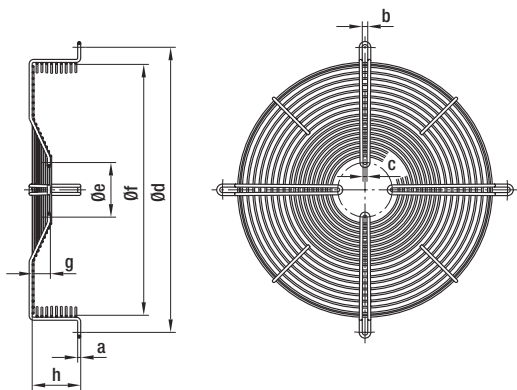
- **Material:** phosphatized steel wire, plastic coated in RAL no. 9005, black
- **Wall rings:** see page 353
- **Note:** Please consult your engineer for relevant part numbers of complete fans.

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Guard grilles for S-Range axial fans (for mounting on the square wall ring with long nozzle, but directly on the nozzle side)

Part no.	Size	AC/EC	AC motor	EC motor	a	c	d	e	g	h
35802-2-4039	350	AC	074	---	5	6,5	371	90	20,0	30
35803-2-4039	400	AC	074 (4-pole)	---	5	6,5	413	90	---	16
35804-2-4039	400	AC/EC	074 (6-pole)	084	5	6,5	413	90	30,0	28
35805-2-4039	450	AC	074 (4-pole)	---	5	6,5	466	90	---	25
35806-2-4039	450	AC/EC	074 (6-pole)	084	5	6,5	466	90	20,0	30
26510-2-4039	450	AC	094	---	7	7,0	466	115	16,5	41

subject to alterations



- **Material:** phosphatized steel wire, plastic coated in RAL no. 9005, black
- **Note:** Please consult your engineer for relevant part numbers of complete fans.

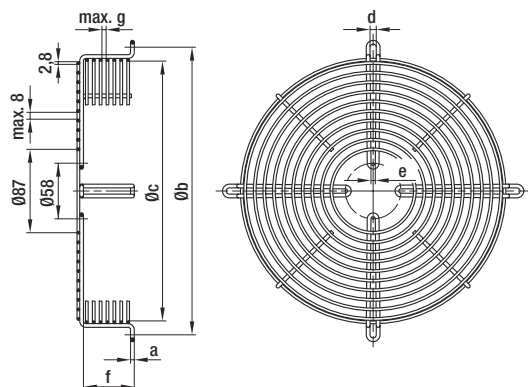
ebm-papst • Mulfingen

Basket guard grilles for K-Range axial fans

Part no.	Size	AC/EC	AC motor	EC motor	a	b	c	d	e	f	g	h
66024-2-4039	250	AC/EC	068	074	4,5	4,3	4,3	300	58	271	26	60
77709-2-4039	300	AC/EC	068	074	3,9	4,5	4,5	360	58	340	26	26
19115-2-4039	350	AC/EC	068	074	4,5	6,5	4,5	422	58	380	---	54
62229-2-4039	360	AC/EC	068	074	4,5	6,3	4,3	400	58	357	12	16
64378-2-4039	450	AC/EC	074	084	5,0	9,0	6,5	522	90	476	30	80
64539-2-4039	450	AC/EC	074	084	5,0	9,0	6,5	522	90	476	30	30

subject to alterations

Accessories



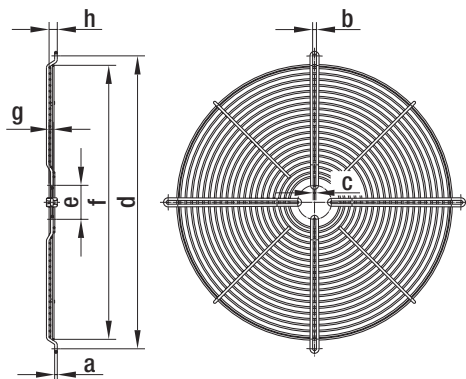
- **Material:** phosphatized steel wire, plastic coated in RAL no. 9005, black
- **Note:** Please consult your engineer for relevant part numbers of complete fans.

ebm-papst • Mulfingen

Basket guard grilles for A-Range axial fans

Part no.	Size	a	b	c	d	e	f	g
19110-2-4039	200	3,9	260	229	6,5	4,3	39	6
19111-2-4039	250	3,9	300	271	6,5	4,5	38	6
19112-2-4039	250	3,9	300	271	6,5	4,5	53	6
19113-2-4039	300	3,9	360	327	6,5	4,5	35	6
19114-2-4039	350	4,5	422	375	6,5	4,5	72	6
19115-2-4039	350	4,5	422	380	6,5	4,5	54	6
63406-2-4039	400	4,5	470	428	9,0	4,5	67	8

subject to alterations



- **Material:** phosphatized steel wire, plastic coated in RAL no. 9005, black
- **Note:** Please consult your engineer for relevant part numbers of complete fans.

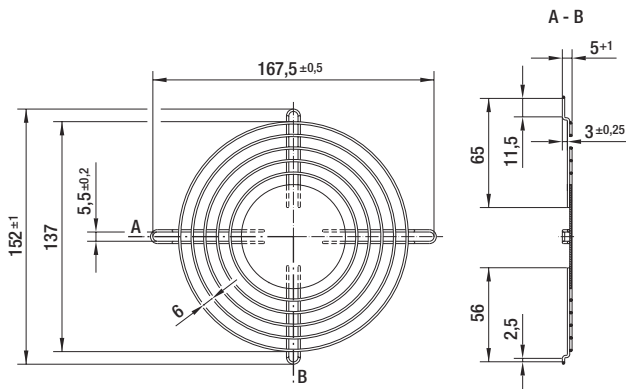
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Guard grilles for A-Range axial fans

Part no.	Size	a	b	c	d	e	f	g	h
18656-2-4039	200	3,9	4,6	4,6	245	58	195,0	---	---
09414-2-4039	250	3,9	4,6	4,6	290	58	247,0	---	---
09415-2-4039	300	3,9	4,6	4,6	360	58	300,0	---	---
19699-2-4039	315	4,5	6,3	4,3	375	58	327,0	---	3,5
69667-2-4039	350	4,5	6,5	4,5	422	58	387,0	---	6,5
19117-2-4039	400	4,5	6,3	4,3	500	58	467,5	7	14,0

subject to alterations

Accessories



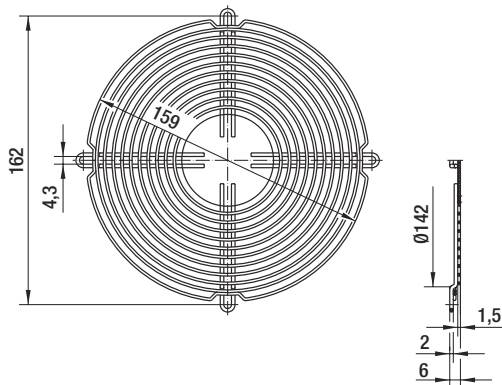
- **Material:** galvanised steel wire, chromatised in blue

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Guard grille for axial fans

Part no.	Size
51019-2-4039	130

subject to alterations



- **Material:** galvanised steel wire, chromatised in blue (alternatively: nickel-plated)

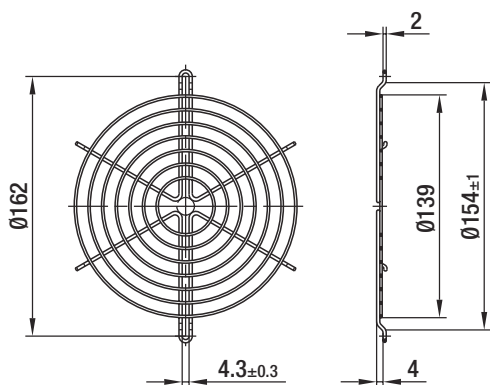
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Guard grille for axial fans (according to EN 294)

Part no.	Size
50952-2-4039	130 / 142 / 143

subject to alterations

Accessories



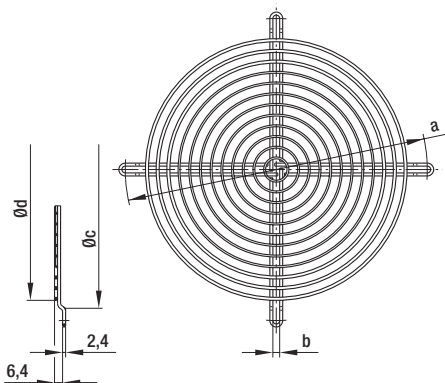
- **Material:** steel wire, ⁽¹⁾plastic coated, silver-metallic gloss or ⁽²⁾galvanised, chromatised in blue

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Guard grille for axial fans

Part no.	Size
03749-2-4039	142
04013-2-4039	143

subject to alterations



- **Material:** steel wire, plastic coated, silver-metallic gloss

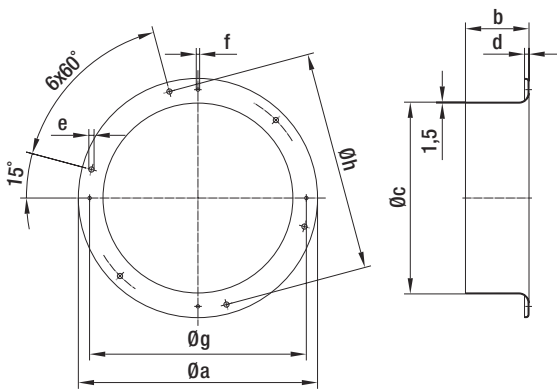
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Guard grille for axial fans

Part no.	Size	a	b	c	d
78128-2-4039	200	240	5,4	221,5	208
09418-2-4039	250	295	6,4	278,5	270

subject to alterations

Accessories



- **Material:** sheet steel, plastic coated in RAL no. 9005, black

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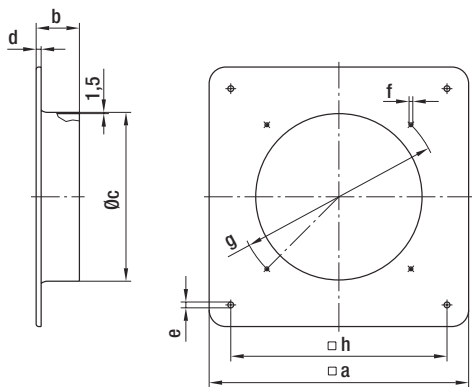
Wall rings with long nozzle for axial fans

Part no.	Size	a	b	c	d	e	f	g	h
18912-2-4037	200	280	80	203	5	7	4,5	245	250
64009-2-4037	250 (S-Range)	320	86	260	6	7	4,5	290	295
18910-2-4037	250 (A-Range)	320	85	257	6	7	4,5	290	295
18908-2-4037	300	397	80	326	11	9	M4	360	380
18902-2-4037	315	397	74	347	11	9	M6	374	380
18892-2-4037	330	440	80	369	11	9	M6	408	404
18900-2-4037	350	460	80	390	12	9	M6	422	442
18930-2-4037	400	528	96	419	12	9	M8	500	504
18929-2-4037	420	544	96	447	12	9	M8	500	520
64000-2-4037	450 ⁽¹⁾	607	100	465	14	11	M8	560	578

subject to alterations

⁽¹⁾ Use guard grille 63978-2-4039 to mount the axial fan

Accessories



- **Material:** sheet steel, plastic coated in RAL no. 9005, black

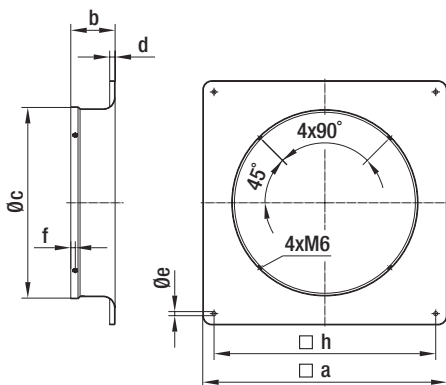
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Square wall rings with long nozzle for axial fans

Part no.	Size	a	b	c	d	e	f	g	h
18918-2-4037	200	312	52,0	203	6	7	4,5	245	260
37701-2-4037	250 (S-Range)	370	56,0	260	6	7	4,5	290	320
18933-2-4037	250 (A-Range)	370	55,0	257	6	7	4,5	290	320
18924-2-4037	300	430	80,0	326	11	9	4,5	360	380
18903-2-4037	315	430	72,5	345	11	9	M6	375	380
18901-2-4037	350	485	80,0	388	12	9	M6	422	435
64005-2-4037	400	540	98,0	417	12	9	M8	500	490
64006-2-4037	420 ⁽¹⁾	576	94,0	439	14	11	M8	560	535
64007-2-4037	450 ⁽¹⁾	576	100,0	465	14	11	M8	560	535

subject to alterations

⁽¹⁾ Use guard grille 63978-2-4039 to mount the axial fan



- **Material:** sheet steel, plastic coated in RAL no. 9005, black
- **Guard grilles:** see page 348

Possible mounting

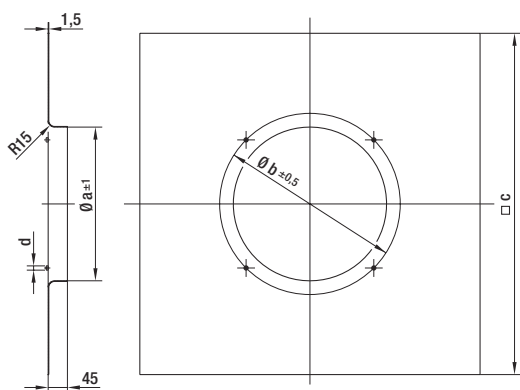
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Square wall rings with long nozzle for S-Range axial fans (for mounting directly on the nozzle side)

Part no.	Size	a	b	c	d	e	f	h
64011-2-4037	350	485	80	367	12	9	10	435
64020-2-4037	400	540	98	409	12	9	10	490
64001-2-4037	450	576	100	463	14	11	10	535

subject to alterations

Accessories



- **Material:** galvanised sheet steel

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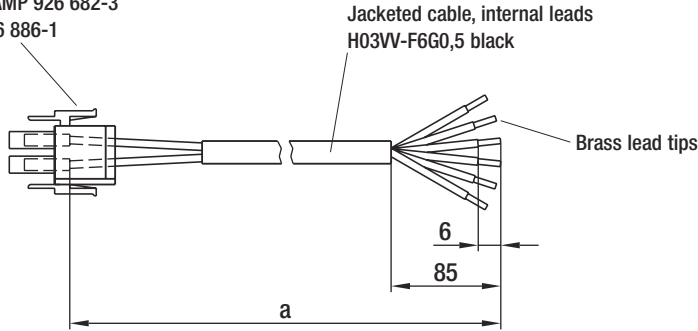
Square wall rings with short nozzle for S-Range axial fans

Part no.	Size	a	b	c	d
35222-2-4037	350	358	422	795	M6
35223-2-4037	400	400	468	840	M8
35224-2-4037	420	426	500	850	M8
35225-2-4037	450	452	515	850	M8

subject to alterations

Accessories

AMP-Universal-Mate-N-Lok suitable for:
connector shell AMP 926 682-3
plug pin AMP 926 886-1



- **Suitable for:** D2E 140 -HR
D2E 146 -HR
D2E 146 -HS
D2E 146 -HT

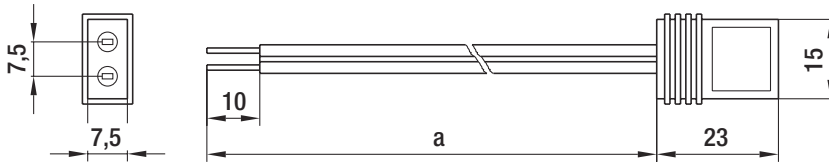
- **Plug assignment:**
 - 1 = Step 1 (white)
 - 2 = Step 2 (red)
 - 3 = Step 3 (grey)
 - 4 = Step 4 (black)
 - 5 = N (blue)
 - 6 = PE (green / yellow)

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Lead connections for centrifugal blowers

Part no.	a
21956-4-1040	300
21957-4-1040	450
21958-4-1040	650
21959-4-1040	1000

subject to alterations



- **Plug connection:**
2.8 x 0.5 mm

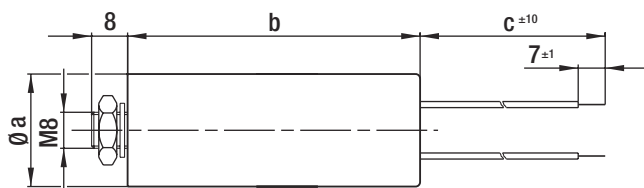
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Lead connections for axial fans (with plug connector)

Part no.	Size	a
01434-4-6711	142 / 143	610
01477-4-6711	142 / 143	1000
01505-4-6711	142 / 143	2000

subject to alterations

Accessories



- **Material:** housing made of thermoplast
- **Connection lead:** multi-lead PVC cable 0.5 mm (16 x 0.2 mm² with brass lead tips)
- **Approval:** VDE according to DIN EN 60252 (VDE 0560/8)
- **Calculated life time:**
400 V; -25..+85 °C; 30,000 hrs; class A
450 V; -25..+85 °C; 10,000 hrs; class B

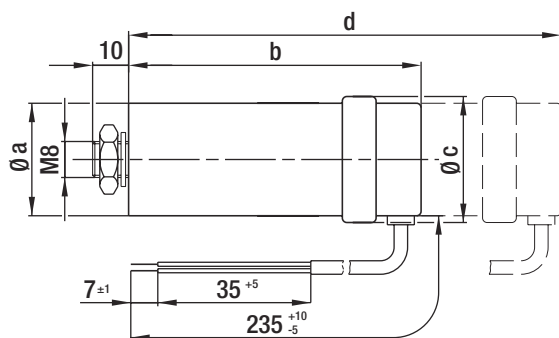
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MKP motor capacitors (without fuse)

Part no.	Capacity	a	b (max.)	c
02100-4-7320	1,0 µF	25-28	58	235
99282-4-7320	1,5 µF	25-28	58	235
99283-4-7320	2,0 µF	25-28	58	235
02103-4-7320	2,5 µF	25-28	58	235
68462-4-7320	3,0 µF	25-28	58	235
99284-4-7320	4,0 µF	28-32	58	235
02101-4-7320	5,0 µF	30-36	58	235
99285-4-7320	6,0 µF	30-36	70	235
66788-4-7320	7,0 µF	30-36	70	100
99286-4-7320	8,0 µF	35-40	72	235
99287-4-7320	10,0 µF	35-40	72	200
30457-4-7320	14,0 µF	40-45	92	150
90025-4-7320	25,0 µF	40	95	235

subject to alterations

Accessories



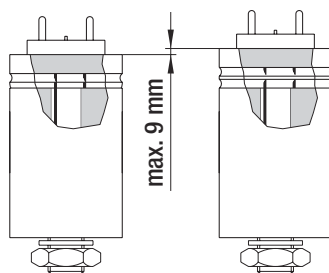
- **Material:** plastic cap, aluminium cup
- **Designation:** FPU or P2 according to IEC 252 (non-flammable, non-explosive, circuit-breaking)
- **Approval:** VDE according to DIN EN 60252 (VDE 0560/8)
- **Calculated life time:**
420 V; -25...+85 °C; 30,000 hrs; class A
470 V; -25...+85 °C; 10,000 hrs; class B
500 V; -25...+85 °C; 3,000 hrs; class C

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MKP motor capacitors (with fuse)

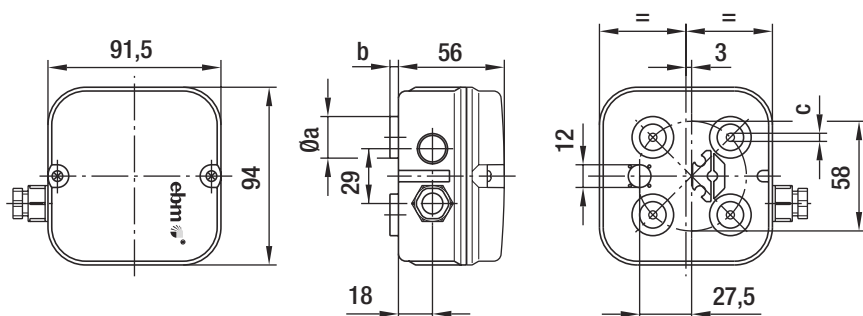
Part no.	Capacity	a	b (max.)	c	d (max.)
02151-4-7320	1,0 µF	25-30	77	28	92
02155-4-7320	1,5 µF	25	77	28	92
02156-4-7320	2,0 µF	25	77	28	92
02159-4-7320	2,5 µF	30	71	33	92
02160-4-7320	3,0 µF	30	71	33	92
02161-4-7320	4,0 µF	25-30	104	28	92
02162-4-7320	5,0 µF	25-30	104	28	104
02163-4-7320	6,0 µF	30	101	33	110
02164-4-7320	7,0 µF	30-35	101	33	110
02165-4-7320	8,0 µF	30-35	102	33	111
02166-4-7320	10,0 µF	35	96	38	110
90026-4-7320	14,0 µF	40	130	48	139
02170-4-7320	25,0 µF	40-45	116	48	130

subject to alterations



- **Pull-off protector:** The housing expands by max. 9mm. The protector responds to overload by the generated excess pressure snapping off the internal lead in a predetermined breaking point.
- **Mounting:** d is the overall dimension of the capacitor which has to be taken into account when mounting the part. The capacitor design, however, depends on the manufacturer. The expansion (9mm) is either added to dimension b, or it is already integrated in the capacitor.

Accessories



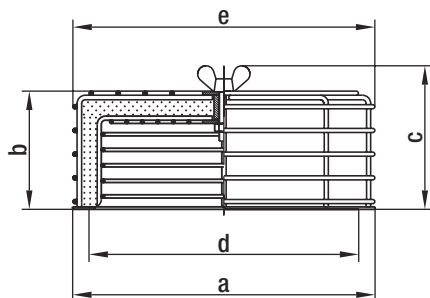
- **Description:** Two-piece terminal box for AC motors of size 068 or 074, terminal strip with 4- or 7-pole. Suitable for installation of capacitor with 10 µF max.
- **Material:** ABS
- **Type of protection:** IP54

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Terminal box

Part no.	AC motor	a	b	c
64442-1-7612	068 (4-pole)	22	5,0	4,3
64444-1-7612	068 (7-pole)	22	5,0	4,3
64443-1-7612	074 (4-pole)	12x14,5	10,5	5,5
64445-1-7612	074 (7-pole)	12x14,5	10,5	5,5

subject to alterations



- **Material:** steel wire / sheet steel, plastic coated in RAL no. 9005, black
- **Filter:** Viledon filter type R: PSB / 29 OS (according to DIN 24185)
separation capacity: < 86 %
efficiency: < 20 %
dust binding capacity: 650 g/m²

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Air filter for centrifugal blowers (with die-cast aluminium housing)

Part no.	Size	a	b	c	d	e	Spare filter
95777-1-5171	108 / 120	142	66	83	118-132	145	95779-1-5171
95778-1-5171	140 / 146 / 160	185	74	91	158-175	185	95780-1-5171
95347-1-5171	180	210	74	91	194	185	95780-1-5171

subject to alterations