R3G146-EC50-01

EC centrifugal fan

forward-curved, single-intake

Automotive



ebm-papst Mulfingen GmbH & Co. KG
Bachmühle 2 · D-74673 Mulfingen
Phone +49 7938 81-0
Fax +49 7938 81-110
info1@de.ebmpapst.com
www.ebmpapst.com

Limited partnership · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	**R3G146-EC50-01**
Motor	**M3G084-BF**

Nominal voltage	VDC	26
Nominal voltage range	VDC	16 .. 32
Method of obtaining data		fa
Status		prelim.
Speed (rpm)	min^{-1}	2750
Power consumption	W	280
Current draw	A	10.8
Min. back pressure	Pa	0
Min. back pressure	in. wg	0
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	85

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment
Subject to change

Data according to Commission Regulation (EU) 327/2011

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	46.1	34.1
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		56	44
05 Variable speed drive		Yes	

09 Power consumption P_e	kW	0.27
09 Air flow q_v	m^3/h	420
09 Pressure increase p_{fs}	Pa	962
10 Speed (rpm) n	min^{-1}	3975
11 Specific ratio*		1.01

Data obtained at optimum efficiency level.
The ErP data is determined using a motor-impeller combination in a standardized measurement setup.

* Specific ratio = 1 + p_{fs} / 100 000 Pa

LU-186494

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Technical description

Weight	1.5 kg
Size	146 mm
Motor size	84
Cover material	PP plastic
Blade material	PA plastic
Balancing grade according to DIN ISO 1940-1	G 10
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP24 KM; (motor); electronics IP 6K9K
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	H4
Ambient temperature note	Over +75°C with power derating
Max. permitted ambient temp. for motor (transport/storage)	+90 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	Shaft horizontal or rotor on bottom; rotor on top on request
Condensation drainage holes	None, open rotor
Cooling hole/opening	On rotor side
Mode	S1
Motor mounting	Ball bearing
Motor bearing	(sealed)
Life expectancy	40,000 h (typical)
Technical features	- Tach output - Power limiter - Load dump (58 V) - Motor current limitation - Soft start - Control input 0-10 VDC / PWM - Temperature derating - Overvoltage detection - Thermal overload protection for electronics - Reverse polarity protection
Electrical hookup	Plug
Motor protection	Reverse polarity and locked-rotor protection
Comment	E1 approval in preparation

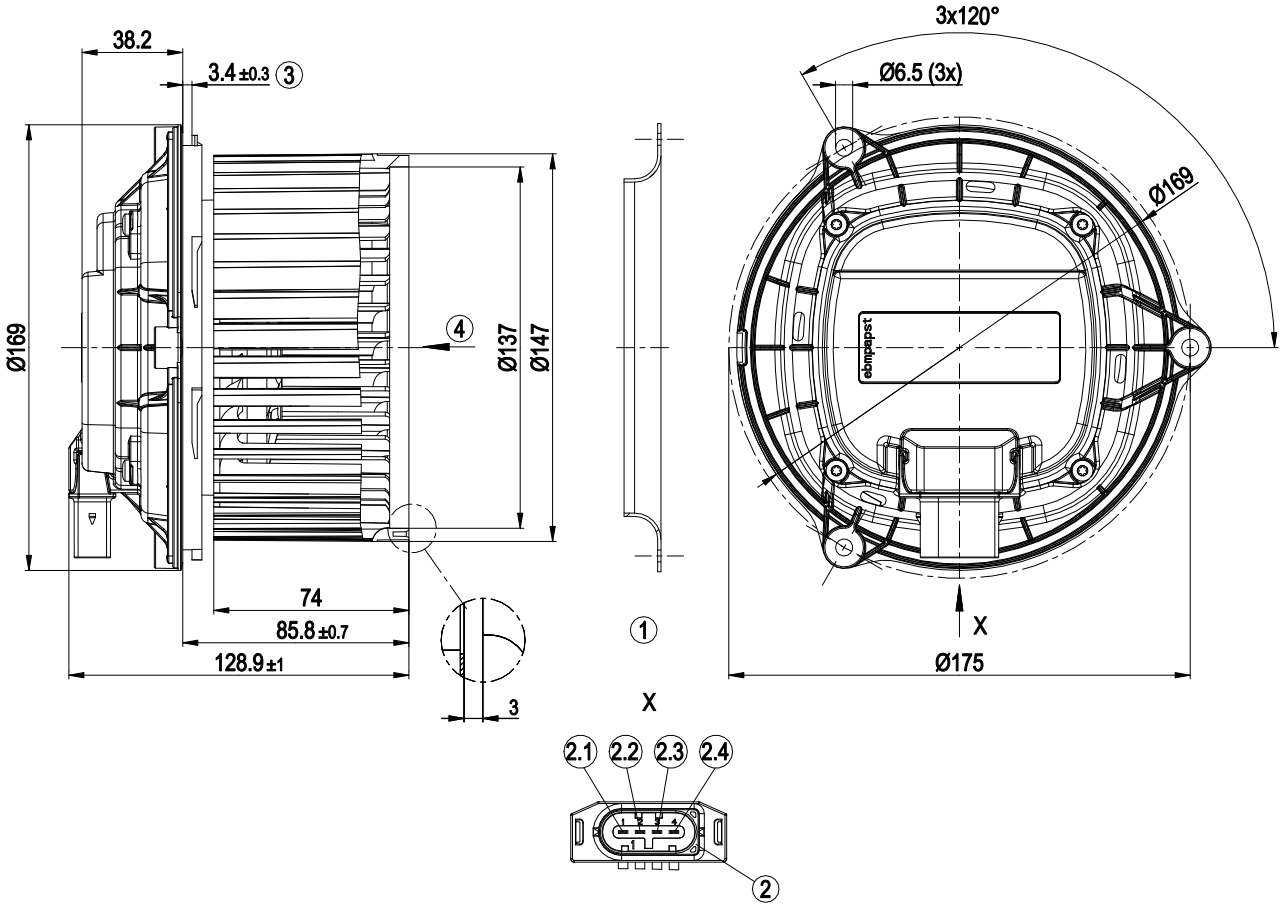
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Product drawing



1	Accessory part: inlet ring 09576-2-4013 not included in scope of delivery
2	4-pole plug, pluggable with cable from accessories
2.1	Diagnostic output
2.2	PWM
2.3	+ UB
2.4	GND
	Cable from accessories not included in scope of delivery
	Mating connector TE MCP 2.8, 4-pole 1-1718628-1
	Plug contacts: 2.8 mm TE 1-968855-1 and TE 1-968857-1
	Seal: TE 828904-1 and TE 828905-1
3	Bayonet attachment for metal or plastic
	A detailed drawing of the recess required for bayonet attachment can be obtained from ebm-papst.
4	Max. permissible axial bearing loads: 50 N (brief periods during handling or installation)

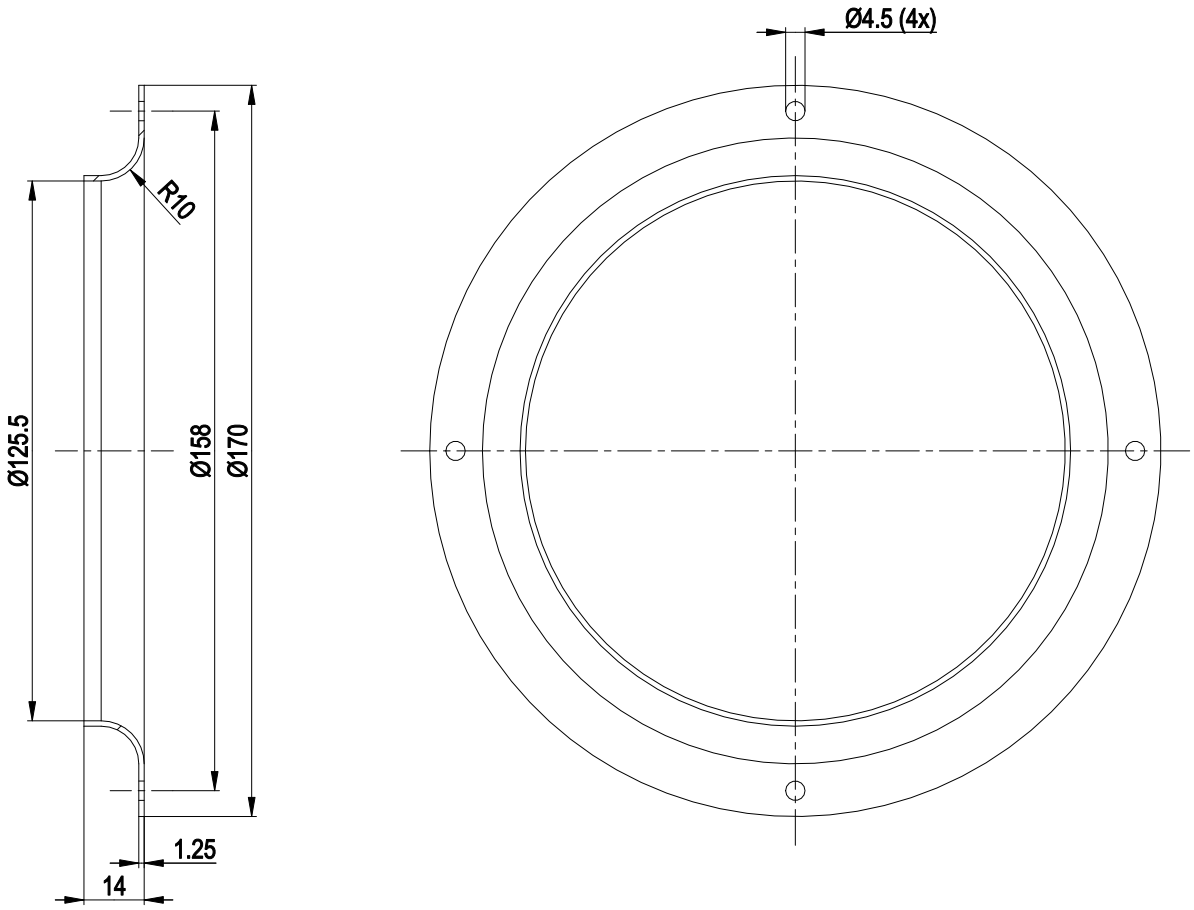
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Accessory part



1	Accessory part: inlet ring 09576-2-4013 not included in scope of delivery

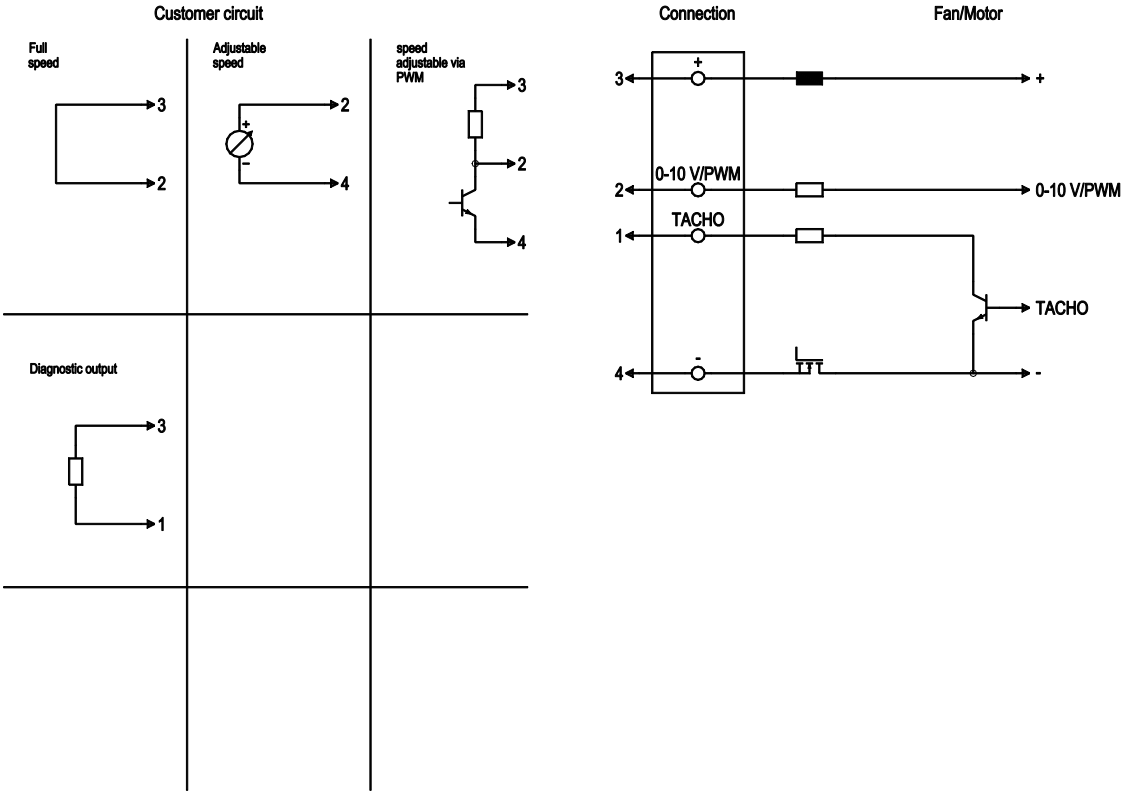
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Connection diagram



No.	Conn.	Designation	Function/assignment
	3	+	Power supply +
	2	0-10 V / PWM	Control input Ri > 36 kΩ 0-10 V __typ. < 1 V ⇒ n=0 __1,5 V ⇒ n=min __>9.5 V ⇒ n=max) or PWM (> 10 V; 1-10 kHz __typ. < 4 % ⇒ n=0 __10 % ⇒ n=min __> 95% ⇒ n=max)
	1	Tacho	Tach output: open collector, 1 pulse per revolution, Isink max = 10 mA, Ri = 2.1 kΩ
	4	-	Power supply -

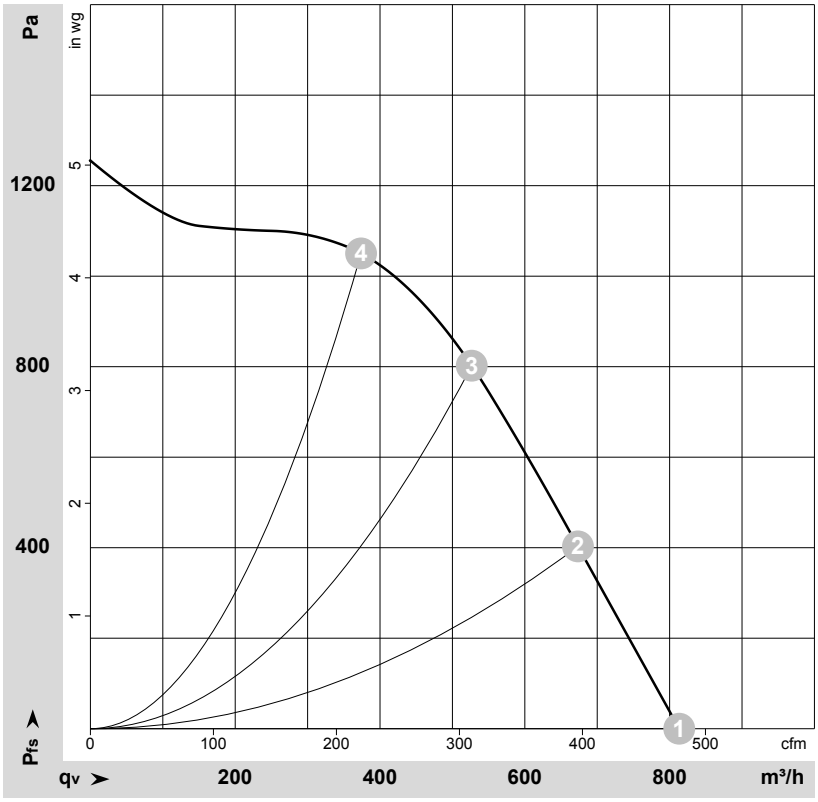
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Curves: Air performance



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-178834-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

Measured values

	U	n	P_{ed}	I	LpA_{in}	LwA_{in}	q_V	p_{fs}	q_V	p_{fs}
	V	min^{-1}	W	A	dB(A)	dB(A)	m^3/h	Pa	cfm	in. wg
1	26	2750	280	10.80	73	79	815	0	480	0.00
2	26	3245	280	10.80	72	78	675	400	395	1.61
3	26	3815	280	10.80	72	78	525	800	310	3.21
4	26	4225	245	9.55	72	79	375	1050	220	4.22

U = Power supply · n = Speed (rpm) · P_{ed} = Power consumption · I = Current draw · LpA_{in} = Sound pressure level intake side · LwA_{in} = Sound power level intake side · q_V = Air flow
p_{fs} = Pressure increase

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