4656 Z

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INDEX

1 General 2

2 Mechanics 2

2.1 GENERAL 2
2.2 MOTOR 2
2.3 CONNECTIONS 2

3 Operating Data 3

3.1 ELECTRICAL OPERATING DATA 3
3.2 OPERATING DATA - ELECTRICAL INTERFACE - OUTPUT 3
3.3 ELECTRICAL FEATURES 4
3.4 AERODYNAMICS 4
3.5 SOUND DATA 5

4 Environment 5

4.1 GENERAL 5
4.2 CLIMATIC REQUIREMENTS*) 5
4.3 MECHANICAL REQUIREMENTS 6
4.4 EMC 6

5 Safety 6

5.1 ELECTRICAL SAFETY 6
5.2 APPROVAL TESTS 6

6 Reliability 6

6.1 GENERAL 6

7 Drawing 7

Special features according to QMH 2-5.4.7 and company standard 1-23.00 have the following definitions:

"A" : Product features or process parameters which influence the safety of a product or the compliance of legal requirements. (Must not necessary verified and documented 100%. Standards and legal requirements must be considered.)

"FK" : Product features or process parameters which influence the fit and function of a product or which have to be controlled or documented for some other reasons (e.g. Customer requirements).

1 General

Fan type	Fan	
Rotating direction looking at rotor	Clockwise	**FK**
Airflow direction	Air outlet over struts	**FK**
Bearing system	Ball bearing	
Lubrication	see sectional drawing of the bearing	
Mounting position Tolerance	Any	
Balancing grade	2,5	**FK**
Impeller weight		

2 Mechanics

2.1 General

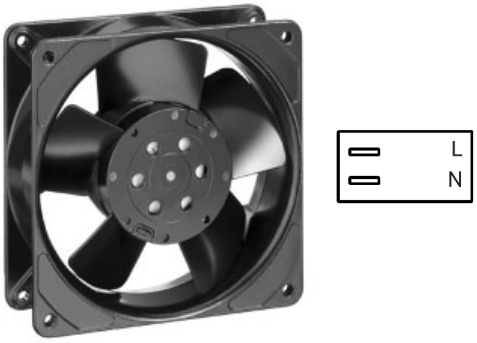
Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Diameter	0,0 mm	
Mass	0,540 kg	
Surface protection	see single part drawing of the housing, flange and impeller	
Housing material	Metal	
Impeller material	Metal	
Max. torque when mounted across both mounting flanges Screw size	wire outlet corner: 120 Ncm remaining corners: 350 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Motor

Type of motor	Shaded pole motor-extern rotor	
Diameter of the motor	40,0 mm	
Height of the motor	14,0 mm	
Operating mode	Continuous duty	
Insulation material class	F	

2.3 Connections

Electrical connection	Plug	
Lead wire length Tolerance	See drawing	
Tube length Tolerance	See drawing	
Wire size (AWG)		
Insulation diameter		
Plug	See drawing	
Contact	See drawing	



3 Operating Data

3.1 Electrical Operating Data

Measurement conditions:	Normal air density = 1,2 kg/m3; Temperature 23°C +/- 3°C; Motor axis horizontal;warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

Δp = 0: corresp. to free air flow (see section 3.4)
I: corresp. to RMS line current

Features	Condition	Symbol	Values	
Frequency	Δp = 0	f	50 Hz	60 Hz
Nominal voltage Tolerance	Δp = 0	U_N	230,0 V + 6,0 % - 10,0 %	230,0 V + 6,0 % - 10,0 %
Power consumption Tolerance	Δp = 0	P	19,0 W +- 10,0 %	17,0 W +- 10,0 %
Current consumption Tolerance	Δp = 0	I	115 mA *) +- 10,0 %	100 mA *) +- 10,0 %
Speed Tolerance	Δp = 0	n	2.650 1/min *) +- 3,0 %	3.100 1/min *) +- 3,0 %

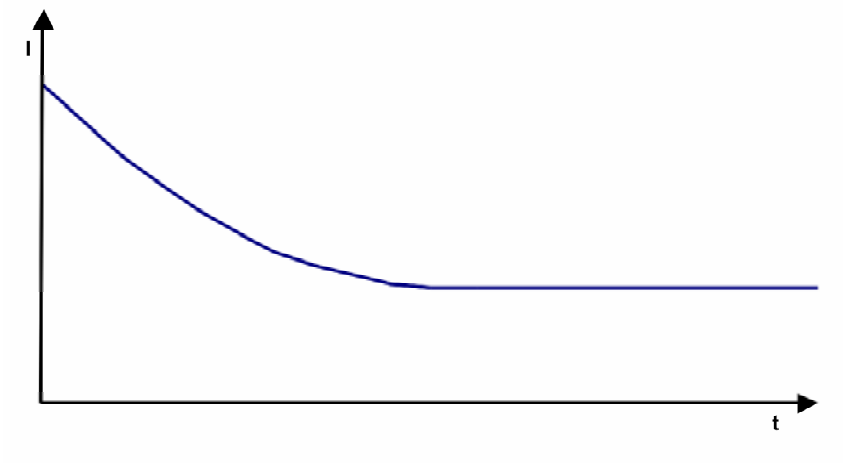
*) Attention: Marked values are "FK" features

3.2 Operating Data - Electrical Interface - Output

Tacho type	None

3.3 Electrical Features

Locked rotor protection	Impedance	**A**
Locked rotor current at Un		



3.4 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23°C +/- 3°C; In the intake and outlet area should not be any solid obstruction within 0,5 m. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions.

a.) Operation condition:
2.650 1/min at free air flow Frequency: 50 Hz

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	152,0 m3/h	**FK**
Max. static pressure (Δp = max. / $\dot{V}$ =0)	70 Pa	**FK**

b.) Operation condition:
3.100 1/min at free air flow Frequency: 60 Hz

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	180,0 m3/h	**FK**
Max. static pressure (Δp = max. / $\dot{V}$ =0)	80 Pa	**FK**

3.5 Sound Data

Measurement conditions:	Sound pressure level: 1 Meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see section 3.4

a.) Operation condition:
2.650 1/min at free air flow Frequency: 50 Hz

Optimal operating point	130,0 m3/h @ 15 Pa	
Sound power level at the optimal operating point	5,1 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	37,0 dB(A)	

b.) Operation condition:
3.100 1/min at free air flow Frequency: 60 Hz

Optimal operating point	148,0 m3/h @ 20 Pa	
Sound power level at the optimal operating point	5,5 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	42,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-40 °C / 50 Hz -40 °C / 60 Hz	
Max. permitted ambient temperature TU max.	75 °C / 50 Hz 85 °C / 60 Hz	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	100 °C	

4.2 Climatic Requirements*)

Humidity requirements	humid heat, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Radiation exposure	None	
Dust requirements	None	
Salt fog requirements	None	
Harmful gas requirements	None	

*) Permittet application area:
The product is intended for use in sheltered rooms with controlled temperature and controlled humidity. Directly exposure to water must be avoided.

Pollution degree 1 (according DIN EN 60664-1)
There is either no pollution or it occurs only dry, non-conductive pollution. The pollution has no negative impact.

4.3 Mechanical Requirements

Please require severity levels and specification parameters from the responsible development departments

4.4 EMC

not specified

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25°C. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	1500 VAC / 1 Min. 1500 VAC / 1 Sec.	**A**
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25°C measured with U=500 VDC for 1 min.	RI > 50 MOhm	
clearance / creepage distance	2,0 mm / 1,8 mm	
Protection class	I	

5.2 Approval Tests

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Yes / GB 12350 Safety Requirements for small Power Motors

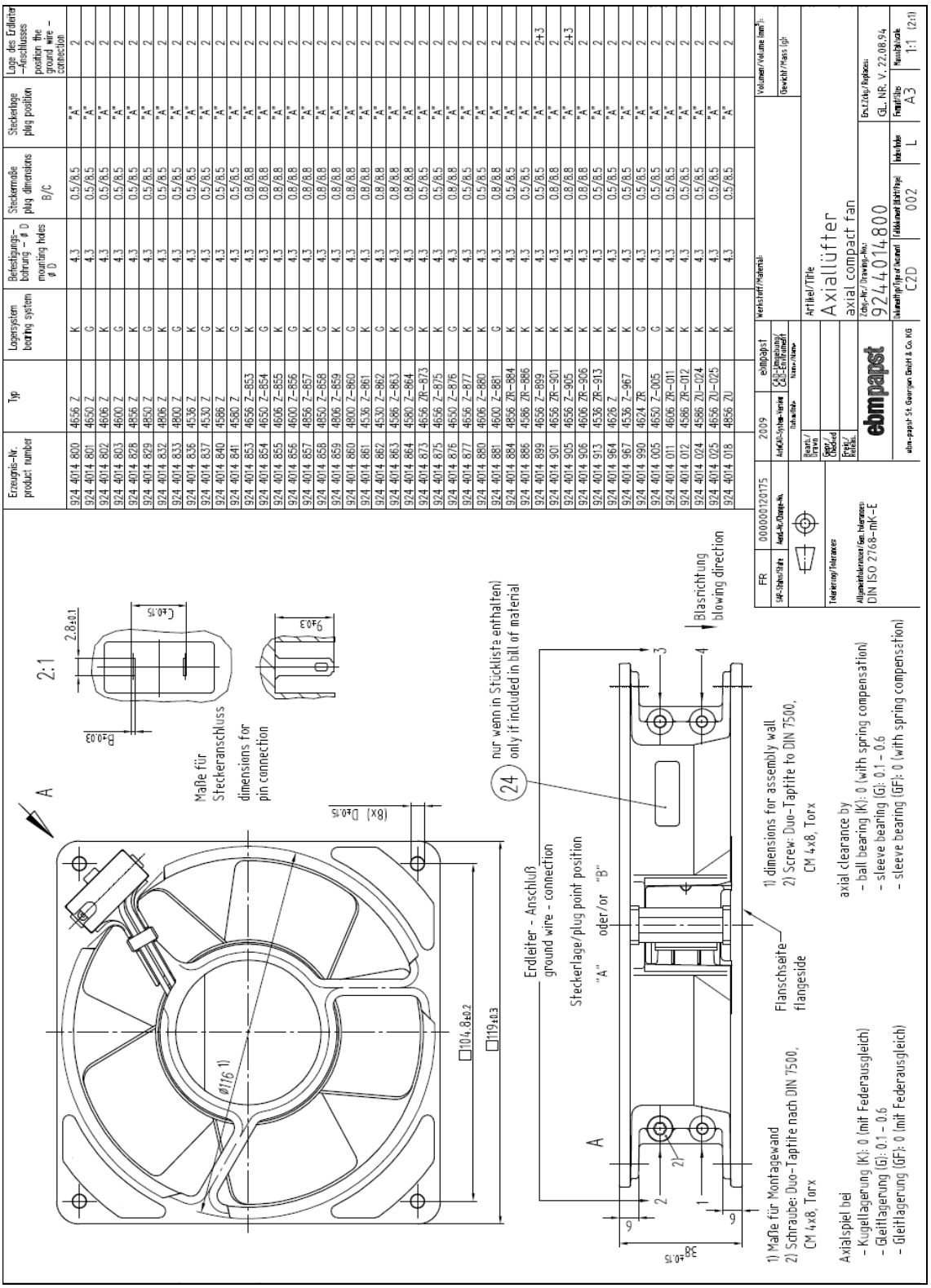
The approval tests are observed to:
U approval max.: 230 V / f: 60 Hz @ TU approval max.: 85 °C

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	37.500 h / 50 Hz 40.000 h / 60 Hz	
Life expectancy L10 at TU max.	17.500 h / 50 Hz 15.000 h / 60 Hz	

7 Drawing



Erzeugnis-Nr. product number	Typ	Lagersystem bearing system	Befestigungsbohrung – ⌀ D mounting holes ⌀ D	Steckermaße plug dimensions B/C	Steckerlage plug position	Lage des Erdleiter –Anschlusses position the ground wire – connection
924 4014 800	4656 Z	K	4,3	0,5/8,5	"A"	2
924 4014 801	4650 Z	G	4,3	0,5/8,5	"A"	2
924 4014 802	4606 Z	K	4,3	0,5/8,5	"A"	2
924 4014 803	4600 Z	G	4,3	0,5/8,5	"A"	2
924 4014 828	4656 Z	K	4,3	0,5/8,5	"A"	2
924 4014 829	4850 Z	G	4,3	0,5/8,5	"A"	2
924 4014 832	4806 Z	K	4,3	0,5/8,5	"A"	2
924 4014 833	4800 Z	G	4,3	0,5/8,5	"A"	2
924 4014 836	4536 Z	K	4,3	0,5/8,5	"A"	2
924 4014 837	4530 Z	G	4,3	0,5/8,5	"A"	2
924 4014 840	4586 Z	K	4,3	0,5/8,5	"A"	2
924 4014 841	4580 Z	G	4,3	0,5/8,5	"A"	2
924 4014 853	4656 ZR-853	K	4,3	0,8/8,8	"A"	2
924 4014 854	4650 Z-854	G	4,3	0,8/8,8	"A"	2
924 4014 855	4606 Z-855	K	4,3	0,8/8,8	"A"	2
924 4014 856	4600 Z-856	G	4,3	0,8/8,8	"A"	2
924 4014 857	4856 Z-857	K	4,3	0,8/8,8	"A"	2
924 4014 858	4850 Z-858	G	4,3	0,8/8,8	"A"	2
924 4014 859	4806 Z-859	K	4,3	0,8/8,8	"A"	2
924 4014 860	4800 Z-860	G	4,3	0,8/8,8	"A"	2
924 4014 861	4536 Z-861	K	4,3	0,8/8,8	"A"	2
924 4014 862	4530 Z-862	G	4,3	0,8/8,8	"A"	2
924 4014 863	4586 Z-863	K	4,3	0,8/8,8	"A"	2
924 4014 864	4580 Z-864	G	4,3	0,8/8,8	"A"	2
924 4014 873	4656 ZR-873	K	4,3	0,5/8,5	"A"	2
924 4014 875	4656 Z-875	K	4,3	0,5/8,5	"A"	2
924 4014 876	4650 Z-876	G	4,3	0,8/8,8	"A"	2
924 4014 877	4656 Z-877	K	4,3	0,5/8,5	"A"	2
924 4014 880	4606 Z-880	K	4,3	0,5/8,5	"A"	2
924 4014 881	4600 Z-881	G	4,3	0,8/8,8	"A"	2
924 4014 884	4856 ZR-884	K	4,3	0,5/8,5	"A"	2
924 4014 886	4586 ZR-886	K	4,3	0,5/8,5	"A"	2
924 4014 899	4656 Z-899	K	4,3	0,5/8,5	"A"	2+3
924 4014 901	4650 ZR-901	K	4,3	0,8/8,8	"A"	2
924 4014 905	4656 Z-905	K	4,3	0,8/8,8	"A"	2+3
924 4014 906	4606 ZR-906	K	4,3	0,8/8,8	"A"	2
924 4014 913	4536 ZR-913	K	4,3	0,5/8,5	"A"	2
924 4014 964	4626 Z	K	4,3	0,5/8,5	"A"	2
924 4014 967	4536 Z-967	K	4,3	0,5/8,5	"A"	2
924 4014 990	4624 ZR	G	4,3	0,5/8,5	"A"	2
924 4014 005	4650 Z-005	G	4,3	0,5/8,5	"A"	2
924 4014 011	4606 ZR-011	K	4,3	0,5/8,5	"A"	2
924 4014 012	4586 ZR-012	K	4,3	0,5/8,5	"A"	2
924 4014 024	4586 ZU-024	K	4,3	0,5/8,5	"A"	2
924 4014 025	4656 ZU-025	K	4,3	0,5/8,5	"A"	2
924 4014 018	4856 ZU	K	4,3	0,5/8,5	"A"	2