SPECIFICATION FOR APPROVAL

CUSTOMER : _____

CUSTOMER PART NO. : _____

CUSTOMER APPROVED	APPROVED BY	CHECKED BY	PREPARED BY
	研發處 2021.08.09 簡文榮	研發處 2021.08.09 利俊宏 / 研發處 2021.08.09 蔡淑媛	研發處 2021.08.09 陳佩如

MODEL NO. : AD1224UB-F51(FN21CU)

DESCRIPTION : _____

SPEC NO. : SA-0120170206002

ISSUE DATE : 2021.08.09

REVISION : A02

THIS OFFER IS MADE ACCORDING TO YOUR CURRENT INQUIRY. UNLESS OTHERWISE REVISED, THIS SPECIFICATION WILL BE FINAL FOR ALL FUTURE PRODUCTION OF ORDERS FROM YOUR RESPECTED COMPANY

KINDLY STUDY IN DETAILS AND RETURN TO US THE DUPLICATE DULY SIGNED AS YOUR CONFIRMATION OF SAME.

協禧電機股份有限公司 研發處 2021.08.09 發行章

ISO 14001:2004 SGS UKAS ENVIRONMENTAL MANAGEMENT 005

UL REGISTERED FIRM
ADDA CORP.
REGISTERED TO ISO 9001
ISO/TS 16949
CERTIFICATE NO.A8035

ADDA CORPORATION

Revised Record

Rev.	Revision Description	Change page	Date
A00	Preliminary		2017.02.08
A01	修正圖面，追加10.10、10.11	4/5	2019.06.24
A02	Update	all	2021.08.09

協禧電機股份有限公司
研發處
2021.08.09
發行章

D A T A - S H E E T

Engineering

BRUSHLESS AXIAL COOLING FANS Printed On: 21/08/09

Customer	:	Ref: (RoHS)
Adda Model No	: AD1224UB-F51(FN21CU)	
Samples attached	: Piece(s),	
Safety Approval	: UL,CUL,TUV,CE	TUV:EN 62368-1 2014+A11 UL:UL507 CE:EN 61000-6-1:2007 EN 61000-6-3:2007+A1

Specifications

ITEM		SPECIFICATION / CONDITION
DIMENSIONS	:	120x120x38 mm
BEARING TYPE	:	TWO BALL
RATED VOLTAGE	:	24 VDC
OPERATING VOLTAGE RANGE	:	21.6 VDC ~ 26.4 VDC
START-UP VOLTAGE	:	17 VDC , NORMAL
REAL CURRENT	:	0.38 Amp
REAL POWER	:	9.12 Watt
RATED CURRENT	:	0.40 Amp + 10 %MAX
RATED POWER	:	9.60 Watt
RATED SPEED	:	3200 RPM ± 10 %
		(IN FREE AIR AT RATED VOLTAGE)
AIR FLOW	:	114.361 CFM (min.: 102.924 CFM)
AIR FLOW	:	3.236 CMM (min.: 2.912 CMM)
		(IN FREE AIR AT RATED VOLTAGE)
STATIC AIR PRESSURE	:	0.349 Inch H_2O (min.: 0.282 Inch H_2O)
STATIC AIR PRESSURE	:	8.864 mm H_2O (min.: 7.179 mm H_2O)
		(IN FREE AIR AT RATED VOLTAGE)
NOISE LEVEL	:	52.6 dB (A) (max.: 56.6 dB(A))
MOTOR PROTECTION	:	BY IC
POLARITY PROTECTION	:	YES
CONNECTION LEAD TYPE	:	WIRE, AWG# 24
LIFE EXPECTANCY	:	70000 Hours at 40℃ / 65% RH
NET WEIGHT	:	235 Gram.
PACKING	:	40 pcs. Per Export Carton.

Unless otherwise stated, the relative humidity is 65%, and the temperature is 25℃ for the standard testing.

Should you have any doubt, please refer to the environmental conditions specified in the acknowledgement document.



SPECIFICATION

1・0 SCOPE

1.1 If the information or other related document is inconsistent with this acknowledgement document, please refer to the acknowledge document.

1.2 This documentation defines the mechanical & electrical characteristics of DC brushless fans.

1.3 The specification of this product is described in details in the acknowledgement document. No guarantee is given to our product under the use of over specifications.

1.4 For any change or amendment to the specifications, such change will be noticed in writing beforehand.

1.5 If the product is used on the MIS system, please specify the specification in the purchase order.

2・0 MATERIAL

2・1 Frame : UL94V-0 Glass Filled polyester (P.B.T)

2・2 Fan Blade : UL94V-0 Glass Filled polyester (P.B.T)

2・3 RoHS : (V) YES

HF : ( ) YES

3・0 DIMENSIONS & CONSTRUCTION

All dimensions, Direction of rotation and air flow were specified as per drawing attached.

4・0 CHARACTERISTICS & DEFINITION

4・1 All rated characteristics were specified as per data sheet enclosed.

4・2 Rated Current：Rated Current shall be measured after 3 minutes of continuous rotation at rated voltage.

4・3 Rated Speed ：Rated Speed shall be measured after 3 minutes. of continuous rotation at rated voltage.

4・4 Start Voltage ：The voltage which is able to start the fan to operate by suddenly switching ’ ON ’ .

4・5 Input Power ：Input Power shall be measured after 3 minutes of continuous rotation at rated voltage.

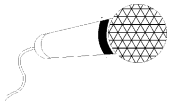
4・6 Locked Rotor Current：Locked current shall be measured within one minute of rotor locked, after 3 minutes of continuous rotation at rated voltage in clean air.

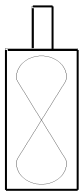
4・7 Air Flow & Static Pressure：The air flow data and static pressures should be determined in accordance with AMCA-210 standard in a doublechamber testing with intake – side measurement.

4・8 Noise Level ：The measurement of noise level is carried out with reference to ISO7779 in a semi-anechoic chamber with the microphone positioned 1 meter from the air intake. Testing fan shall be hung in clean air .

NOISE LEVEL MEASUREMENT

Mic. Fan





Direction
of air flow
>>>>>>>>

<---------- 1 mtr. ---------->



5.0 MECHANICAL INSPECTION

5.1 Rotation Direction
Counterclockwise when look into impeller side.

5.2 Protection
All fans have integrated protection against locked rotor condition so that there will be no damage to winding or any electronic component.
Restarting is automatic as soon as any constraint to rotation has been released.
As fan placed at dead angle position, and the switch was changed from off to on. Restarting was automatic normal as soon as and proved that this fan is good fan.

5.3 Locked Rotor Protection
No damage shall be found after 72 hours continuously at condition of rotation locked.
Restarting is automatic as soon as constraint to running has been released.

5.4 Avoid the damage, check the correct voltage and proper polarity before connecting with power.

5.5 Free Drop Shock
In minimum package condition, the fan should withstand drops on any three faces from a height of 30cm onto a wood board of 10mm thick.

5.6 Please do not stick a grease and/or an oil to the fan housing or blade which may have a harmful influence by a chemical reaction at high humidity.

5.7 If the fan is reinstalled, please pay special attention to the noise due to the vibration (or resonance).

5.8 During the testing of the fan, please make sure the finger guard is used for safety.

6.0 ELECTRICAL INSPECTION

6.1 Insulation Resistance
Not less than 10M ohm between housing and positive end of lead wire (red) at 500V DC.

6.2 Dielectric Strength
No damage should be found at 500 VAC for 60 seconds, measured with 1mA trip current between housing and positive end of lead wire.

6.3 Life Expectancy
The continous duty life at given temperature after which, 90% of testing units shall still be running.

6.4 While the fan is running, do not intentionally lock the fan for a long time since the overheating of the motor produced by the long-time locking will damage the fan.

7.0 ENVIRONMENTAL

7.1 Improper use such as disassembling the fan, being covered with dust, or dipping the fan in water that results in defects is not covered in the warranty. Do not use the fan in the environment with corrosive air or liquid.

7.2 Operating Temperature / Humidity
-10℃ to +70℃ at humidity 65%+/-20% RH.

7.3 Storage Temperature
All function shall be normal after 500 hours storage at -40℃ to +70 ℃ with a 24 hour recovery period at room temperature.

7.4 Humidity
After 96 hours, 95% RH, 40+/-2℃ per MIL-STD-202F, method 103B humidity test, the measured data on insulation resistance and dielectric strength shall meet the specificaition.

7.5 Do not place or store the fan in the environment with high/low temperature/humidity. If the fan is stored for more than 6 months, functional test is highly recommended before using.



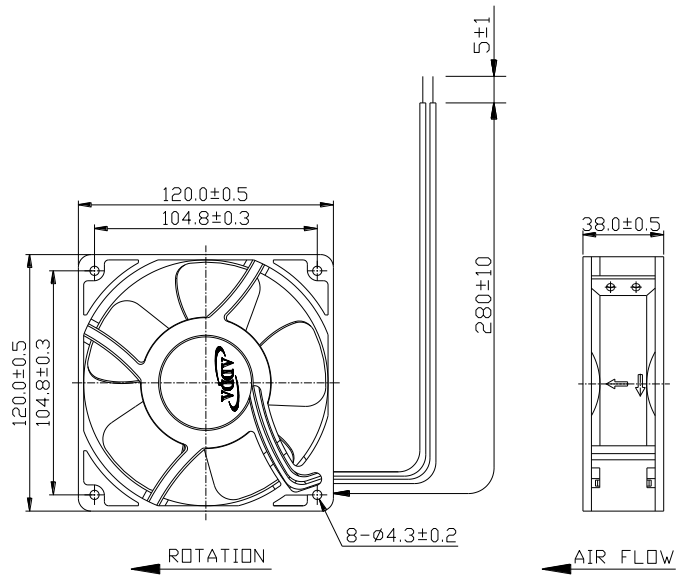
8.0 REMARKS

8.1 Material and construction are subject to change without advance notice. The changes should be within specification.

8.2 All fans shall meet the quality inspection under sampling plan MIL-STD-105E as follow:

Critical	0.25%
Major	1.00%
Minor	2.50%

9.0 OUTLINE STYLING & DIMENSIONS



LEAD WIRES : UL 1007, AWG24 , L = 280±10 mm
Red = positive ; Black = negative.



10.0 Notes:

10.1 Please do not touch and push Fan Blade with fingers or others, fan blade and ball bearings may be damaged and it causes noise defect.

10.2 Do not carry the fan by its lead wires.

10.3 If the fan does not have the polarity protection function, the connection of the colored wires should be red + red, and black + black, or else the fan will be damaged in no time.

10.4 For the models without reverse connection of polarity protection, please do not connect the lead wire in reverse

10.5 Please don't install this fan in series with 2x voltage inputs. For example, if a single fan rated at 12V, then don't install two of them in series with 24V input.

10.6.Every specific fan is designed for its certain application (project). Therefore, if you want to use this fan in other application (project), please inform ADDA first so that we can confirm whether there is any issue which might be incurred from the reason of this different application (project) or not.

10.7 The"Life Expectancy" of this fan has not been evaluated for use in combination with any end application. Therefore,the Life Expectancy in the Test Reports(L10 and MTTF Report) that relate to this fan is for reference only and shall not construe any kind of warranty of ADDA to the life of any specific fan,either expressed or implied.

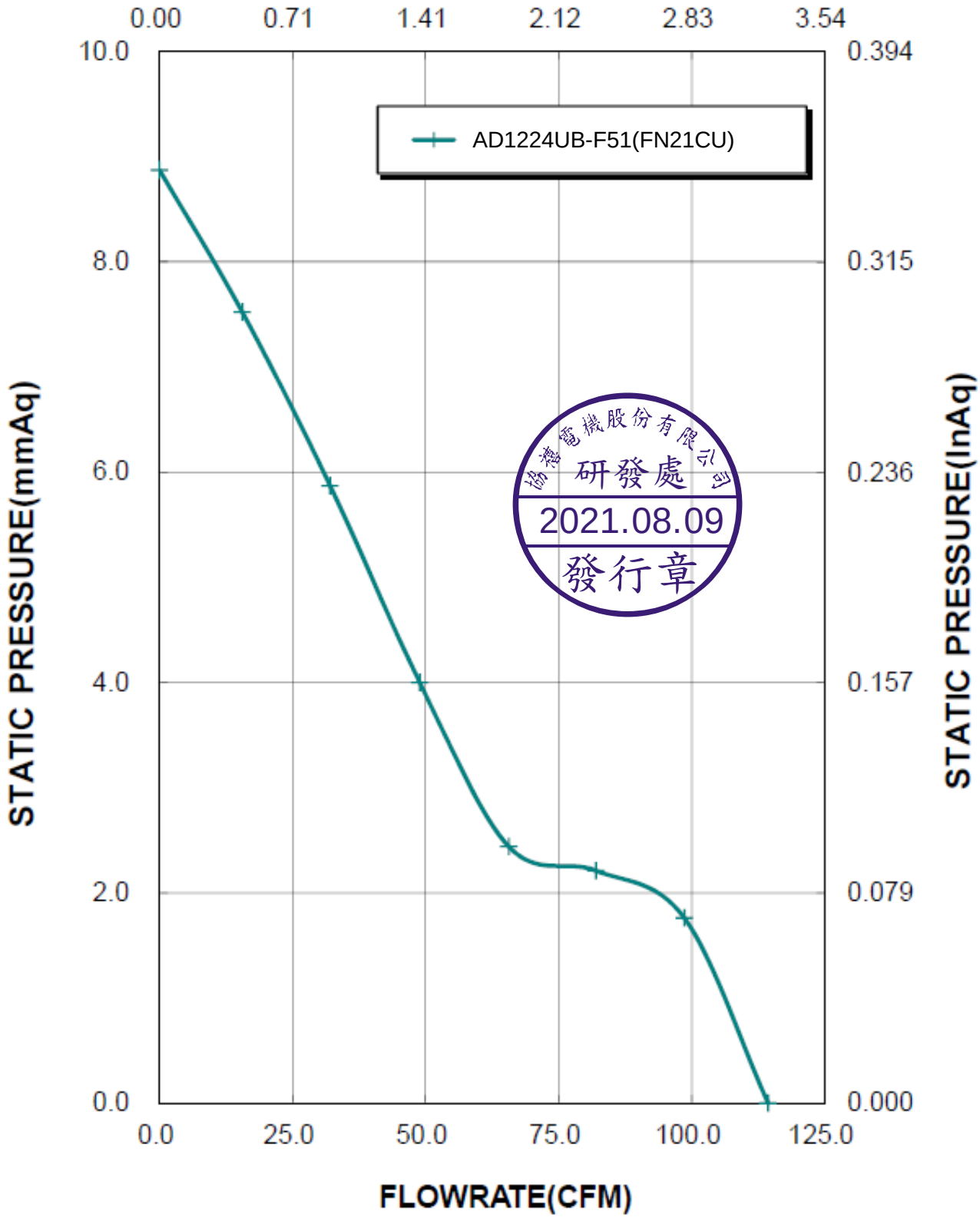
10.8 The period of product warranty,unless otherwise agreed by ADDA in written,shall be 12 months starting from the date of production.

10.9 In Lead Wire, there is a possibility to come off from frame.

10.10 In order to avoid abnormal bumping or interference caused by deformed impeller when fan is fastened ,suggested distance of at least 0.5mm is strongly reserved in front of the frame (the sight from the impeller face).

10.11 Hot swapping or Hot plugging is not allowed to cause damage to fans . Notice in advance is strongly requested if design for Hot swapping or Hot plugging is needed.

Fan Performance Curve



協禧電機股份有限公司 研發處 2021.08.09 發行章

Zertifikat *Certificate*

TÜV

Zertifikat Nr. *Certificate No.*
R 50013944

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0028

Ihr Zeichen *Client Reference*	**Unser Zeichen** *Our Reference*	**Ausstellungsdatum**	*Date of Issue (day/mo/yr)*
12033898	ZTW2-MRC- 11001040 029	15.08.2005	

Genehmigungsinhaber *License Holder*
Adda Corporation
6, East Section, Industry 6 Road
Pingtung City 900
Taiwan, R.O.C.

Fertigungsstätte *Manufacturing Plant*
Adda Corporation
6, East Section, Industry 6 Road
Pingtung City 900
Taiwan, R.O.C.

Prüfzeichen *Test Mark*

TÜV Rheinland Product Safety | BAUART GEPRÜFT / TYPE APPROVED

Geprüft nach *Tested acc. to*
EN 60950:2000

Zertifiziertes Produkt (Geräteidentifikation)
Certified Product *(Product Identification)*

Lizenzentgelte - Einheit
License Fee - Unit

Ventilator (DC Fan)

Wie Blatt (As Page) 01		
Ergänzung (Addition)		
Bezeichnung	: AD12Z1Z2Z3-F5Z4	1
(Type Designation)	AD2512Z5Z3	1
Z1 steht für (stands for)	: 12, 24 oder (or) 48	1
Z2 steht für (stands for)	: U, H, M, L oder (or) D	1
Z3 steht für (stands for)	: B, S oder (or) X	1
Z4 steht für (stands for)	: 1, 2 oder (or) 3	1
Z5 steht für (stands for)	: M oder (or) L	1
Nennspannung	: siehe Anlage	
(Rated Voltage)	(see Appendix)	
Nennstrom	: siehe Anlage	
(Rated Voltage)	(see Appendix)	
Max. Umgebungstemperatur	: 55°C	
(Max. Ambient Temperature)		

研發處 2021.08.09 發行章

7

ANLAGE (Appendix): 1.23

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde.
Das Produkt entspricht den o.g. Anforderungen, die Herstellung wird überwacht.
This certificate is based on our Testing and Certification Regulation. The product fulfills above-mentioned-requirements, the production is subject to surveillance.

Zertifizierungsstelle

TÜV Rheinland Product Safety GmbH, Am Grauen Stein, D-51105 Köln

Tel.:(+49/221)8 06 - 13 71 Fax:(+49/221)8 06 - 39 35 e-mail: Althofff@de.tuv.com

Dipl.-Ing. W. Feuker

Zertifikat *Certificate*

TÜVRheinland®

Zertifikat Nr. *Certificate No.*
R 50013944

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0060

Ihr Zeichen *Client Reference*	Unser Zeichen *Our Reference*	Ausstellungsdatum	*Date of Issue* (day/mo/yr)
12086425/ST	ZTW1-YML- 11001040 060	14.04.2016	

Genehmigungsinhaber *License Holder*
Adda Corporation
6, East Section, Industry 6 Road
Pingtung City 900
Taiwan, R.O.C.

Fertigungsstätte *Manufacturing Plant*
ADDA Electric Machinery Technology
(Kunshan), Co., Ltd.
No. 88, Jiangfeng Road
Zhangpu Town
Kunshan City, Jiangsu Province
P.R. China

Prüfzeichen *Test Mark*

TÜVRheinland ZERTIFIZIERT
Bauart geprüft
Sicherheit
Regelmäßige Produktions-überwachung
www.tuv.com
ID 2000000000

Geprüft nach *Tested acc. to*
EN 60950-1:2006+A11+A1+A12+A2

Zertifiziertes Produkt (Geräteidentifikation)
Certified Product *(Product Identification)*

Lizenzentgelte - Einheit
License Fee - Unit

Ventilator (DC Fan)

wie Blatt (as page) 01

Änderung
(Change)

Prüfgrundlage : siehe oben
(Test Requirement) (see above)

研發處 2021.08.09 發行章

ANLAGE (Appendix): 1 - 1.38

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.
This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

Zertifizierungsstelle

TÜV Rheinland LGA Products GmbH – TÜVRheinland – Zertifizierungsstelle

Dipl.-Ing. (FH) A. Klinker

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg
Tel.: (+49/221)8 06 - 13 71 e-mail: cert-validity@de.tuv.com
Fax: (+49/221)8 06 - 39 35 http://www.tuv.com/safety

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Zertifikat *Certificate*

TÜVRheinland®

Zertifikat Nr. *Certificate No.*
R 50013944

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0064

Ihr Zeichen *Client Reference*	Unser Zeichen *Our Reference*	Ausstellungsdatum	*Date of Issue (day/mo/yr)*
238014414	ZTW1-YML- 11001040 063	10.12.2020	

Genehmigungsinhaber *License Holder*
Adda Corporation
6, East Section, Industry 6 Road,
Pingtung City 900
Taiwan, R.O.C.

Fertigungsstätte *Manufacturing Plant*
ADDA Electric Machinery Technology
(Kunshan), Co., Ltd.
No. 88, Jiangfeng Road
Zhangpu Town
Kunshan City
Jiangsu
P.R. China

Prüfzeichen *Test Mark*

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Sicherheit
Regelmäßige Produktionsüberwachung
www.tuv.com
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Geprüft nach *Tested acc. to*
EN 62368-1:2014+A11

Zertifiziertes Produkt *Certified Product* **(Geräteidentifikation)** *(Product Identification)*

Lizenzentgelte - Einheit *License Fee - Unit*

Ventilator (DC Fan)

wie Blatt (as page) 01

Änderung
(Change)

Prüfgrundlage : siehe oben
(Test Requirement) (see above)

Vermerke: Dieses Netzgerät ist auch geprüft und Klassifizieret als MS3 in Tabelle 35 von Abschnitt 8.2.1 in Standards EN 62368-1:2014+A11:2017. Wenn nicht anders angegeben, anders angegeben, liegen die klassifizierten Bedingungen unter der Nennspannung und der normalen Drehzahl des Lüfterblatts(Remark: The equipment is also tested classified as MS3 according to Table 35 of sub-clause 8.2.1 in standard EN 62368-1:2014+A11:2017.
Unless otherwise stated the classified conditions are under rated voltage and normal rotational speed of the fan blade.)

ANLAGE (Appendix): 1-1.40

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.
This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg
Tel.: (+49/221)8 06 - 13 71 e-mail: cert-validity@de.tuv.com
Fax: (+49/221)8 06 - 39 35 http://www.tuv.com/safety

Zertifizierungsstelle

TÜV Rheinland LGA Products GmbH TÜVRheinland Zertifizierungsstelle

Dipl.-Ing. (FH) A. Klinker

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