ELECTRONICS
FANS+ACCESSORIES

SPECIFICATION FOR APPROVAL

CUSTOMER :

DESCRIPTION : **AXIAL AC FAN**
(Thermal Protection)

DIMENSIONS : **150x172x38 mm**

M O D E L : **S178-2-XXX** **S178-1-XXX**

P/N :

APPROVED NO :

APPROVED BY (AUTHORIZED) :

Please copy, sign, stamp and return to:

IMS-TIGER electronics, Industriestr. 20, D-61381 Friedrichsdorf
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SPECIFICATION FOR APPROVAL S178

This specification defines the electrical and mechanical characteristics of an AC-Tubeaxial fan used for cooling.

Important Information: TIGER electronics AC+DC-Fans are designed for installation in OEM equipment. The international safety regulations reg. each application must be observed.

1. ELECTRICAL SPECIFICATION

X = H/L (High or Low speed)
B=Ball Bearings (S=Sleeve Bearings)

- Fan Type (model number)	S178-2-XWB S178-2-XTB	S178-1-XWB S178-1-XTB	W=Wire-Leads
T=Terminals			
- Nominal Voltage (V AC)	230V	115V	
- Frequency	50/60Hz	50/60Hz	
- Rated Speed (rpm) (rated speed shall be measured after 30 min. of continious rotation at rated voltage)	2.850/3.400 H 1.400/1.700 L	2.850/3.400 H 1.400/1.700 L	
- Airflow as per performance curve acc. to DIN24163 and AMCA standards (m^3/min.) „double chamber test stand, intake side measurment"	5,00/6,00 H 2,4/2,9 L	5,00/6,00 H 2,40/2,90 L	
- Static Pressure performance curve acc. to DIN24163 and AMCA standards (H_2O)	17,0/19,0 H 4,5/6,5 L	17,0/19,0 H 4,5/6,5L	
- Rated Current (A) (shall be measured after 30 min. of continous rotation at rated voltage)	0,11/0,11 H 0,08/0,07 L	0,25/0,23 H 0,17/0,15 L	
- Locked Rotor Current (A)	0,66/0,56 H	0,66/0,56 H	
- Input Power (W)	27/26 H 27/26 H	29/28 H 29/28 L	
- Direction of rotation	Clockwise, viewed from the air discharge with label side facing up. The same direction is also indicated by an arrow mark on side of the housing.		
one			
- Motor position	Regardless of the axis direction when ball bearing fan is used. Vertical application/mounting when sleeve bearing fan is used, horizontal mounting possible with „hanging" rotor.		
- Motor	Reliable internal shaded-pole motor, class E.		
- Overload protection	By Impedance or Thermal protected		
- Operating temperature	From -40°C to + 70°C ball, from -20°C to +60°C sleeve		
- Storage temperature	From -40°C to + 80°C (100h)		
- Internal protection / DIN 40050	IP54		
- Protection Class / VDE 0730	III		
- Insulation class / VDE 0530	A (E), motor manufactured to class E		
- Application Class / DIN 40400	GNE		
- Insulation resistance	Over 100 MEG Ohms at 500V DC between lead wire and		
housing			
- Dielectric strength	1500V AC 50/60Hz for 1 min. between lead wire and housing		
- Noise level acc. to DIN 45635 and CNS 8T 53 -dB(A)- (to be measured in an anechoic chamber with a microphone positioned 1m from the air intake, testing fan shall be hang in free, clean air.	54/58 H 38/44 L	54/58 H 38/44 L	
- Life expectation acc to DIN 622	Ball: 50.000 hrs., sleeve: 20.000 hrs. @ 25°C room temperatu re and room humidity. The life is deteriorated when speed fluctuation exceeds -30% more than initial speed value at rated voltage @ room temperature and RH.		

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2. MECHANICAL SPECIFICATIONS

- Dimensions	as per attached drawing
- Housing material	Aluminium alloy (ADC12) die casting
- Impeller material	Glass fiber reinforced Fiber, PBT; UL 94-V0, self extinguishable
- Electrical connections	- Wire leads 300mm +/- 15mm long, CSA TR-64, 22 AWG, UL AWM 1007 with stripped and tinned ends - Terminals 2 flat pins 3 x 0,5mm
- Shaft material	Stainless steel
- Bearing-system	Ball bearing + oil impregnated, oil less sinter metal sleeves
- Surface protection	Electrophoretic Black RAL 9005
- Weight	720g approximately
- Vibration	To be judged by tactile comparision with limited sample
- Safety approvals	UL-File No. GPWV2.E146359, CE

3. ENVIRONMENTAL SPECIFICATIONS

- Vibration Test	Fan under test withstands 2mm, 1.000 CPM amplitude over frequency sweep for 30 minutes in each X.Y.Z. - axis
- Shock test	Dropping with minimum package on the 10mm thick wooden plate from 30cm height
- Locked rotor test	15 days (360 hrs.) locked rotor under conditions 25°C +/-1°C and 55RH +/-5%. During this test, winding temperature is below 140°C. After 72 hrs. from the beginning of the test, the motor withstands an electric strength of 1.000V AC 50/60Hz for 1 min. At the end of the test, the leakage current between the winding and the housing is measured at a voltage equal to twice the rated voltage. Its value doesn´t exceed 2mA. Restar ting is automatic as soon as any constraint to rotation has been released.
- Humidity	After 96 hrs., 95%RH, 40°C +/-2% per MIL-STD-202F, method 103B humidity test, the measured data on insulation resistance and dielectric strength shall meet the specification

4. ACCESSORIES

- Metal fan guard	G172-10H
- Metal Mesh Filter	--
- Plastic fan guard	G172P
- Filter Kits	FK-175-(45/30/15)
- Connecting Cable / plug in cord	C109-180, lengths: 1m, 1.5m, 2m, 3m, etc.

5. QS / QUALITY CONTROL

- As per attached flow-charts
- All values are determined acc. to SI units, as per DIN 24 136
- All fans shall meet the quality inspection under sampling plan MIL-STD-105D as follows: Critical...0,25%, Major.....1,00%, Minor.....2,50%

- Double AQL is applied:
  a) ingoing components quality control
  b) Flying quality control
  c) outgoing quality control proceeded under ambient temp. 20°C +/-5°C and air density of „rho" = 1,2Kg/m³ after a free running time of 5 min. All values are dtermined according to SI-units as per DIN 24 163

6. REMARKS

- Connectors (JST, AMP, Molex, DuPont, etc. ..) can be fitted to the fan on customers request

- Non standard wire length can be worked out unde request

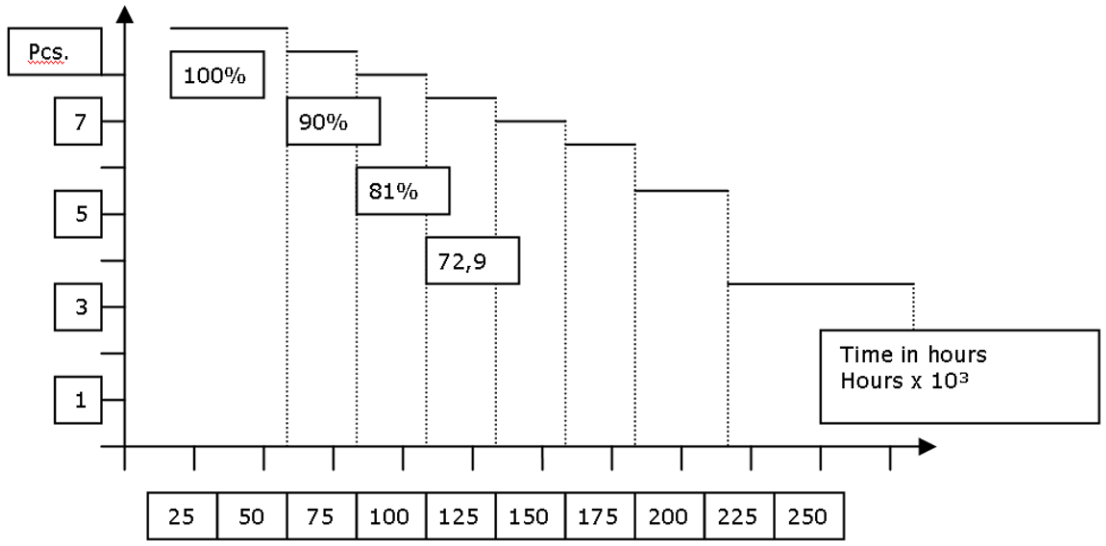
7. CAUTION

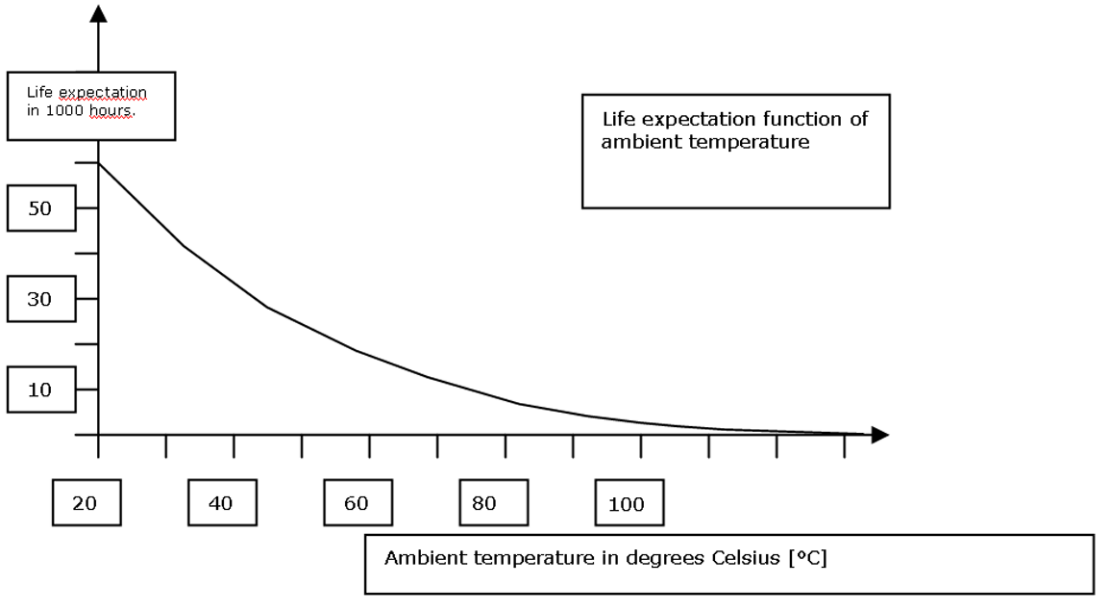
- Avoid storing in high temperature, humidity and corrosive gas environment

- Soldering of lead wires should be done within 2-3 seconds.

8. MTBF - DIAGRAMM

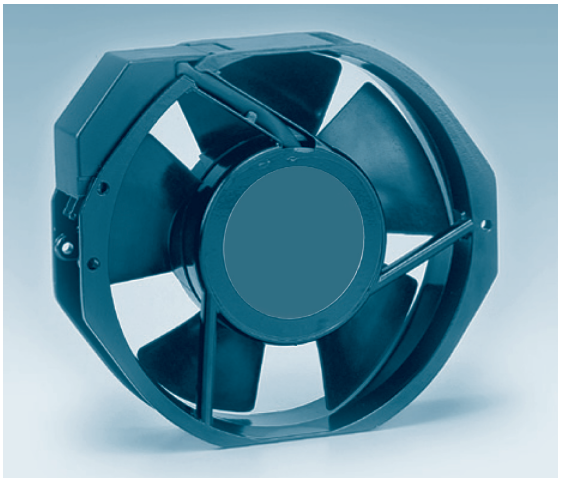
- The meantime before Failure is based on the running time, afterwhich 10% of set fans fail, and therefor 90% of them continiue running (reg. DIN 622)





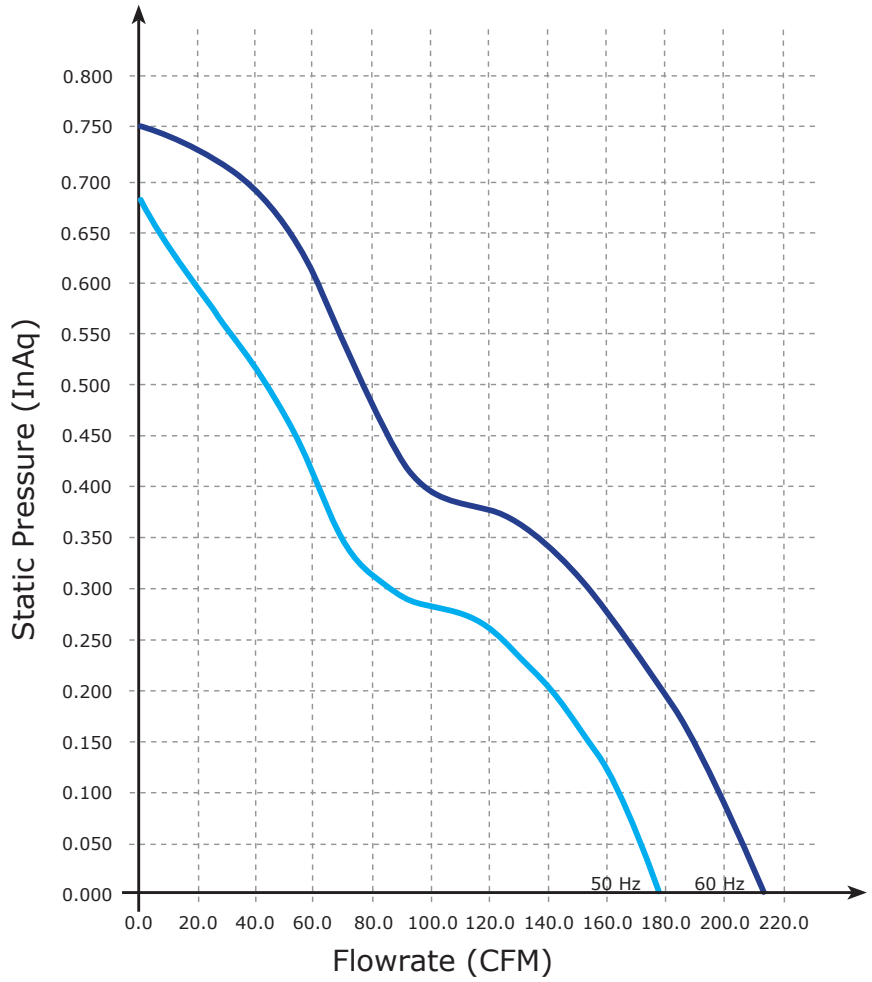
9. APPLICATION

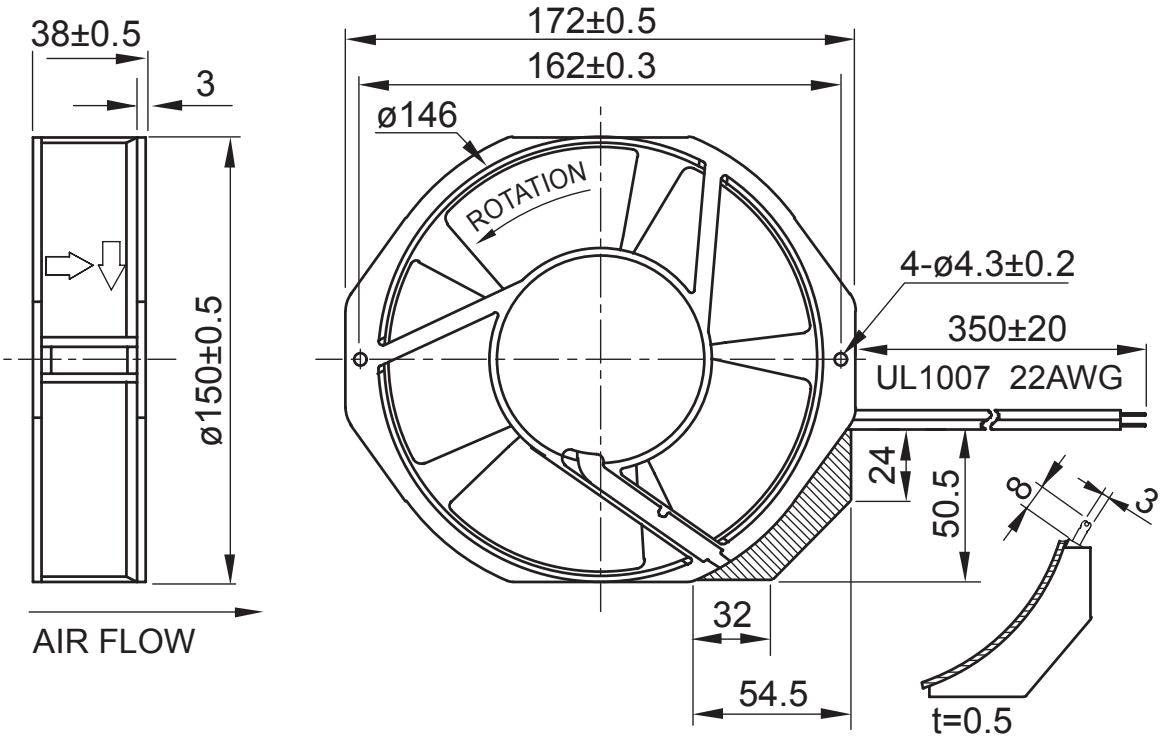
- As long as the specifications are satisfied, the material and construction may be subject to partial technical changes.
- Any problems concerning this specification sheet or change in the specifications, if any, should be settled and decided through the mutual agreement of both parties.



9. CURVES + DRAWING

Fan Performance Curve





1. TIGER electronics will not guarantee the products if the application conditions exceed those set out in this specification.

2. A written request should be submitted to TIGER electronics prior to acceptance if deviation from this specification is required.

3. Caution should be exercised when handling the fan. Damages may be resulted when apply pressure to the impeller or hold the fan by the lead wires.

4. No guarantee on the products against the safety problem or failure caused by powder dust, drop of water or insect.

5. This specification sheet precedes all other information and should be used as the principal reference for the product to which it refers.

6. To satisfy the TIGER electronics Management Information System, please indicate SPEC. NO. on every order.

7. It is important that the correct polarity is established before connecting the fan to the electrical supply. Black (0V) , Red(+V) for DC-Fans. If caution is not taken, immediate damage may occur on fans that do not have polarity protection.

8. TIGER electronics fans are not suitable to be used in an environment that contains aggressive or corrosive fluids.

9. Always ensure that fans are stored according to the storage temperatures specified. Do not store in an environment with a high humidity level. If the fans were stored for longer than 6 months, it is highly recommended to apply functional testing before shipping.

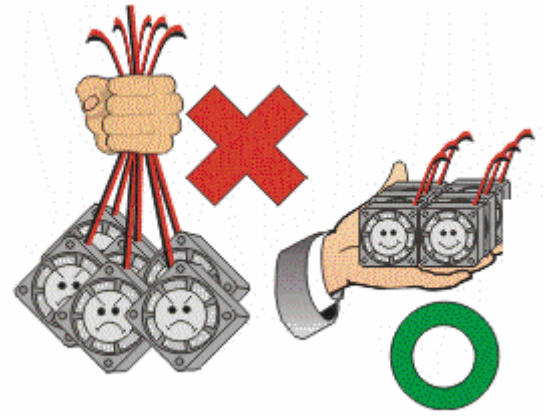
10. Some Fans don´t incorporate the Lock Rotor Protection feature. For fans that do not incorporate this feature it is important not to prevent the rotation of the impeller. Doing so, will lead to failure.

11. During installation, caution should be taken when mounting the fan. Incorrect mounting can cause excess resonance, vibration and noise.

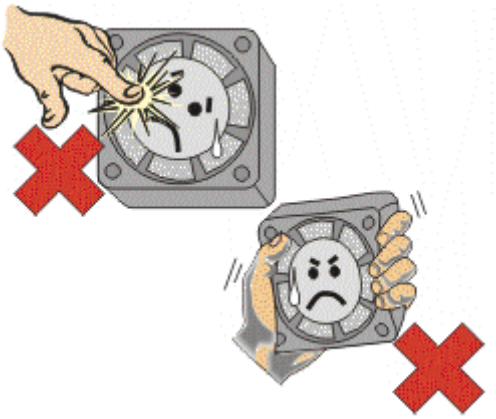
12. During testing it is important to consider safety at all times. A suitable guard should be fitted to the fan to prevent personal injury.

13. Unless otherwise stated, all tests are carried out at relative temperature and humidity conditions of 25°C, 65%.

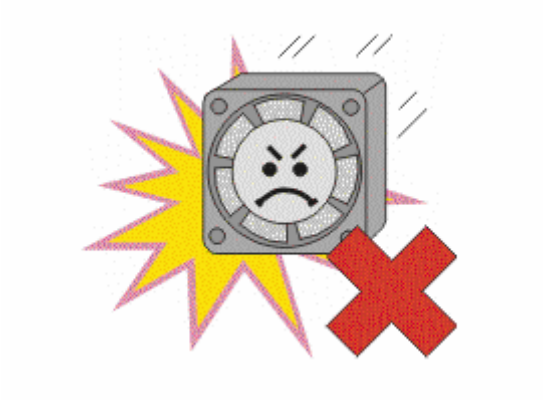
1.Hold the fan by frame side. Do not hold lead wires to support the fan.



2.No touching or pressing on the impeller hub. Avoid crushing the frame side.



3.Do not drop on the ground. Do not pound on the frame side.



4.Connect leads properly and apply voltage according to specification.

