


No.	Property	Nominal Value	Test Method
1	Component(s) Type of Component	Fan Motor for Air Cleaner H600 Serie Electrical commutated Motor with low voltage and internal Rotor	
2	General		
2.1	Material	All used materials according to Directive 2011/65/EU (RoHS).	
2.2	Yearly Quantity	10'000 pcs	
2.3	Purchasing Price	approx. EUR 20,--	
3	Electrical Requirements		
3.1	Supply Voltage Supply Quality	24VDC – 48VDC External Switching Power Supply	
3.2	Power Consumption At min. Load At max. Load	5W – 10W 70W	
3.3	Speed Min. Max.	200 – 500 min ⁻¹ 1400 – 2100 min ⁻¹	To be defined To be defined
3.4	Efficiency	Min. 82%, Target > 88%	
3.5	Torque At 25W At 70W	0.11 – 0.19 Nm 0.27 – 0.41 Nm	To be defined To be defined
4	Noise Requirements		
4.1	A single sound noise (often at block commutated motors) is not acceptable.		
4.2	Noise Level @ 500 min ⁻¹ Noise Level @ 800 min ⁻¹ Noise Level @ max. Acceptable Noise Level Rise until life time expectancy	< 22dB(A) < 30dB(A) < 38dB(A) Max. +6dB(A)	Measured on soft ground and 1m distance of motor.
5	Commutation Type		
5.1	Because of the noise requirements a sinus-commutated solution is necessary. Duty cycle min. 20kHz (also for babies not audible).		
6	Mechanical Layout		
6.1	The motor must be enclosed with a waterproof housing (see protection class). To reach the target noise level PLASTON AG recommend to use a motor with two bearings with long distance to each other. The durability of the bearing must be verified with > 35'000 hours. Active force quality of the load (Plastic Fan with 220mm diameter) <20mm/s (for identification of the radial load for the verified durability of the bearing). Active force quality of the rotor <5mm/s according to ISO 1940.		
6.2	Fixation of motor housing	Elastomer coupling without any	

		mechanical fixation to the unit itself.	
6.3	Mounting position	Axis horizontal	
6.4	Active force quality of the load	< 20 mm/s	Plastic fan with ø 220mm
6.5	Active force quality of the rotor	< 5 mm/s	ISO 1940
6.6	Shaft end	To be defined.	

7	Overall Size		
7.1	Diameter	Max. 110 mm	
	Length/Thickness	Max. 80 mm	
	Protection Class	IP43	
	Climate Requirements	-20°C to 70°C, 10% rel. Humidity to 95% rel. Humidity	
	Typ. Working Condition	23°C with 85% rel. Humidity	
	Typ. Storage Condition	-10°C/40°C with 95% rel. Humidity	
	Life time corrosion protection	10 years without any loss of functionality	
7.2	Connection Wire Length	Ca. 300 mm	
7.3	Wire	To be defined.	
7.4	Board Connector	To be defined.	

8	Air Ventilation / Cooling		
8.1	The motor parts (Stator and Rotor) are embedded in an enclosed elastomer coupling which is almost air-proof. The fixation and heat transmission is guaranteed with the form-fit plastic housing which is located in an air-flow caused by the rotating plastic fan. So the cooling is only defined over the heat transmission and the air-flow of the fan.		
8.2	Convection	Inside the motor housing	
8.3	Maximum Temperature of motor plastic housing	120°C	
8.4	Insulation Class:	B to F	

9	Control		
9.1	The motor control is integrated in the motor housing, e.g. Printed Circuit Board inside the motor housing		
9.2	EMC-Compatibility	Considered in the motor control	
9.3	Speed Control	<ul style="list-style-type: none"> - PWM (Pulse-Width Modulation) - or Voltage Signal 0 – 5VDC - or Frequency Signal 	
9.4	Feedback Motor	<ul style="list-style-type: none"> - Error indication - Actual Speed (Frequency Signal) 	
9.5	The individual placement of different filter mats and the changeable back pressure (depends of more or less polluted filter mat) causes different load characteristics. This fact should have no influence on the maximum power point (to be defined). At other selected power steps the speed need to be constant as well (no power control).		

10	Bar code label	Code Type 128, foil-coated label ; dimension and position see fig. 1;	
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