



## Testing

### Life Testing

- (a.) Thirty (30) samples are selected at random and tested to verify conformity to design specifications. They are evaluated on appearance, speed, current draw, start-up voltage and noise (dB). Data is then recorded for each fan to establish baseline performance.
- (b.) The samples are then run at rated voltage in a temperature chamber at 55C. Samples are reevaluated and data recorded at 24 hours, 48 hours, 96 hours, 192 hours, 384 hours, 500 hours, 1000 hours, 1500 hours, 2000 hours, 3000 hours, 4000 hours and 5000 hours.
- (c.) Data for each fan is plotted on a graph to verify normal operation. If any abnormality is detected during the testing process the sample fan in question is immediately removed and tested separately. A 30% drop from baseline RPM is defined as failure and the sample fan is removed from further testing.

<b>Mechanical Protection</b>	ORION / Knight Electronics fans have integrated protection against rotor lock. Fans shall suffer no damage to winding or electrical components after 72 hours in rotor lock condition.
<b>Drop test</b>	Fans will withstand a 30cm drop on any face onto a 10mm thick wooden board.
<b>Environmental Operating temperature</b>	20 C ~ +70 C at 75% RH (High temperature [90C] and waterproof fans are available.)
<b>Storage temperature</b>	Fans will operate normally after 500 hours storage at -40 C ~ +70 C at 75% RH with a 24 hour acclimation time at room temperature.
<b>Humidity</b>	Fans will operate within specifications after 96 hours in 95% RH at 40 C per MIL-STD-202F, method 103B.
<b>Thermal Shock</b>	Determined per MIL-STD-202F, method 107D.
<b>Measurement Parameters Rated Current</b>	Current is measured after 30 minutes of continuous operation at rated voltage.
<b>Rated Speed</b>	Speed is measured after 30 minutes of continuous operation at rated voltage.
<b>Startup Voltage</b>	Minimum voltage required for fan startup.
<b>Input Power</b>	Input power is measured after 30 minutes of continuous operation at rated voltage.
<b>Locked Current</b>	Locked current is measured after 30 minutes of continuous operation and within one minute after rotor is locked.
<b>Airflow</b>	Airflow and static pressure is measured in accordance with AMCA standards or DIM 24163 specifications in a double-chamber test with intake-side measurement.
<b>Noise level</b>	Noise level is measured in accordance with DIM 45635 standards in an anechoic chamber with the microphone positioned 1 meter from the air intake.