

Helicopter Dehumidification System (HDS)

Background

The helicopter dehumidification system developed by WIT addresses the critical issues associated with high relative humidity (R_h) and condensation forming on sensitive avionic components within aircraft while they are on standby. Research has shown that R_h values in excess of 65% have a major negative effect on the reliability and longevity of the aircraft. This inevitably leads to significant additional maintenance costs, reduced aircraft availability, a shorter working life and critical safety issues.

Engineers at WIT have researched, developed and invented an innovative dehumidification system (Figure 1) which has been prototyped and patented (patent no. P111765GB00). The team have produced a ready-for-market system which directly interfaces with helicopters while on standby. This system can be installed and activated in less than 10 seconds, with a similar removal time. The rapid deployment and removal of the system is a unique and key advantage in many sectors of the helicopter industry (e.g. military and SARS).



HDS Removal in less than 10 seconds

Figure 1

Key Benefits of the System

- **Reduces component failures by up to 50%.**
- **A patented counter-balanced mechanism** allowing the system to interface with aircraft without the need for any mechanical fixings or alterations to the aircraft.
- **Extremely fast setup and removal times** - essential to time-sensitive industries (Search and Rescue, Military, Off Shore Oil & Gas) while also increasing the likelihood of regular usage due to the simplicity of using the system.
- **The dehumidifier is not inside the aircraft** - reducing risk to the aircraft, and simplifying insurance and approval issues.





- **Low running costs** - power consumption under 1kW.
- **Reduces delays in take-off time** - due to issues associated with damp electronic systems.
- **Increases MTBF for aircraft systems.**
- **Reduces corrosion.**
- **Automatically compensates for vertical movement of aircraft** - i.e. during refuelling and maintenance.
- **Improves aircraft availability.**
- **Eliminates fungus and mould** - e.g. on upholstery, fabrics and safety restraint systems within the aircraft.
- **Adaptable for cabin temperature control in extreme environments** – heating aircraft in cold environments and cooling aircraft in hot climates. This has benefits for both crew and aircraft.
- **System is very portable and of modest cost** - small size making it suitable for use on confined helipads.

Market Opportunity

A recent independent assessment of the market opportunity of the system (based on the Sikorsky S92 aircraft) has estimated the market at 1 million euro annually. Furthermore, the system is compatible with all aircraft with under floor external vents.

IP Status

The device is patent-protected in all major markets (P111765GB00)

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