

Air Sterilization Unit (ASU) for ATVP



Accumulation of microorganisms in a closed ecosystem leads to spread of infectious diseases and allergies among crew members apart from production of toxic metabolites, damage of materials and degradation of environmental hygiene. DEBEL has successfully developed air sterilization unit (ASU) for submarine application. The system works on the principle of UV irradiation and can be continuously used for 8000 h. The Electronic Control Unit has been designed to display the working of UV bulbs. The system achieved 99.999% reduction of bacteria (endospores of *Bacillus subtilis*) and virus (T7 bacteriophage). The developed ASU is a promising system not only for use in submarines but spinoff of technology can be effectively used in bio-defence deployable shelters, CBRN bunkers and mobile laboratories. Moreover, civilian applications like hospitals and amphitheaters can also benefit from the developed system.

Salient Features

- Compatible to the already available ducting system.
- Operational Conditions: 20 to 40 °C; RH 45 – 95 %.
- Ensures Sterility Assurance Level (SAL): >4 log .
- Outlet temperature: ~ +2 °C of inlet air temperature.
- Storage condition: 25 °C and 60 % RH.
- In-duct with the airflow: 140 ± 10 m³ per hr.
- Shelf life 10 years
- Power consumption: < 100 W.

Current Status: Under Environmental Qualification Testing. Accepted in principle for introduction. Witness trial was carried out at NABL accreditation lab.

Patents filed/ Granted: Filed- 2Nos.