

NASA SBIR/STTR Technologies

H3.03-8856 - A Robust, Gravity-Insensitive, High-Temperature Condenser



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Identification and Significance of Innovation

Robust, reliable, compact dehumidification condenser for regenerative life support systems and in-situ resource utilization systems

Robust, gravity-insensitive condenser for effective dehumidification of a warm humid gas stream

- All metal construction for robustness and high temperature operation
- Hydrophilic, lightweight capillary structures with high biofilm growth resistance for reliable operation in microgravity environment
- Removable capillary structures to allow simple regeneration

Benefits

- Compatible with challenging operating environments
- Reliable, long service life
- Compact and lightweight

Estimated TRL at beginning and end of contract: (Begin: 2 End: 3)

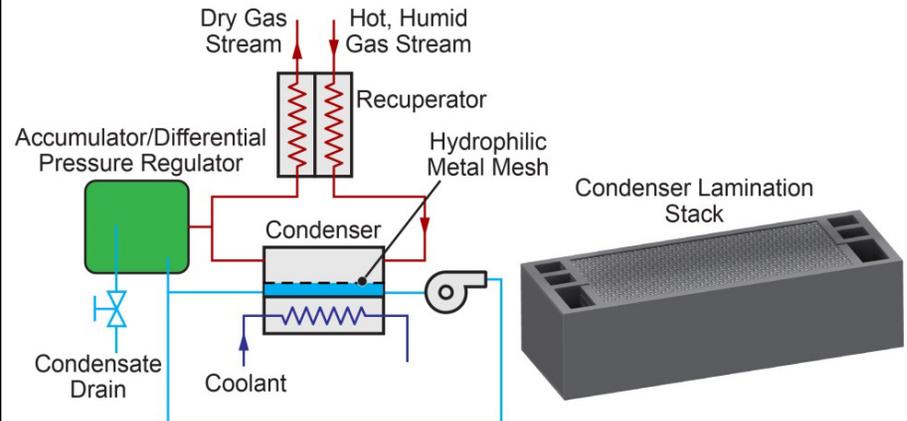
Technical Objectives and Work Plan

Technical Objectives:

- High dehumidification performance, low flow resistance, and long-service life
- High resistance to biofilm growth
- Condensing system design that is reliable and simple to operation

Phase I Work Plan:

- Determine design specifications
- Demonstrate reliable operation of condenser
- Develop water condensing system design



A Robust, Gravity-Insensitive, High-Temperature Condenser.
The capillary structure is resistant to biofilm growth and removable for simple regeneration

NASA Applications

- Regenerative life support systems and in-situ resource utilization systems
- Solid waste oxidation and water recovery system
- Sabatier systems for cabin oxygen and water regeneration

- Fuel cell systems

Non-NASA Applications

- Aircraft environmental control systems and fuel cell systems
- Cryogenic distillation systems

Firm Contacts

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NON-PROPRIETARY DATA