

Stream Wise Vortex Fire Extinguisher for Space Environments

This technology offers a new type of fire extinguisher for use in microgravity environments. This system can mitigate fire in space by using vortex generators to quench flames with sufficient speed and strength.

What is the Problem?

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Fire extinguishers are essential safety equipment in low-Earth orbit and beyond, as humans make progress in space exploration. Unlike fires on Earth, fires in space and similar microgravity environments are unusual in shape and can spread in any direction due to low gravity and the movement of air in space stations or spacecraft cabins, making fires in space highly dangerous. Although the best method to fight fire in space is prevention, mitigation methods (such as the use of CO₂ and H₂O) are currently available in space stations. However, these mitigation methods are quite laborious and contaminate the atmosphere, creating a hazardous breathing environment for crew members after the fire is extinguished.

What is the Solution?

The solution is a new type of fire extinguisher for use in microgravity environments that bypasses potential breathing risks to crew members when mitigating a fire in space. This technology, in the shape of a modern hairdryer, uses vortex generators to generate air vortices of sufficient speed and strength to quench flames. This technology is intended for class A and C fires, particularly those started in microgravity environments. This technology may be broadly useful beyond space as fire mitigation equipment in environments where people are confined in small spaces.

What is the Competitive Advantage?

Current solutions create a hazardous breathing environment for crew members after the fire is extinguished. This technology bypasses potential breathing risks to crew members when mitigating a fire in space.

Patent Information:

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Category

Hardware/Other
Selection of Available
Technologies

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