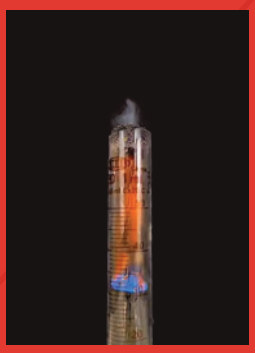
Flame Arrestors

ERG materials & aerospace

How does it work?

Flame arrestors are designed to prevent flame propagation while allowing overpressure gases to vent.

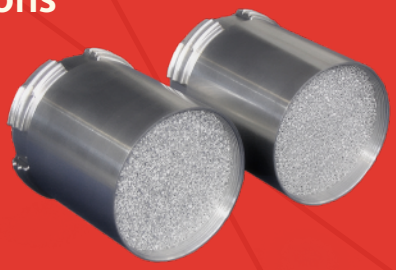
- Duocel® metal foam can be customized to meet pressure drop requirements and maximize surface area in a thin and light-weight component
- Duocel® foam has high structural integrity, allowing it to easily integrate into any system



with Duocel® foam

without foam

Applications

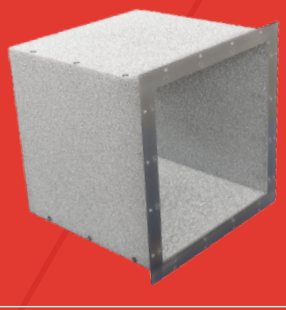


Vent/Breather Plug

- Prevents overpressure
- Allows gases to vent
- Prevents flame propagation

Great for use in:

- Battery storage boxes
- Electronics boxes
- Vents for housings
- Aftermarket solutions for aircraft interiors



ERG can customize Duocel® to different designs

- Controllable pressure drop
- Range of foam specifications
- Integrated housing for easy installation

Platforms

Duocel® flame arrestors are used on the Boeing 777x, Lockheed C-130, and various other missile and commercial aviation platforms.

More About Duocel®

Duocel® is an open-celled rigid foam with solid ligaments and customized properties.

Base material

controls conductivity & compatilbility


Aluminum

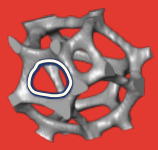

Copper


Carbon


Silicon Carbide

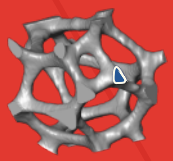
Pore Size

controls surface area & pressure drop



Ligament cross-section

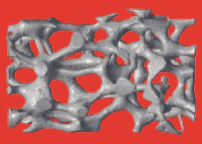
controls material volume fraction, conduction area, surface area & strength



Relative Density

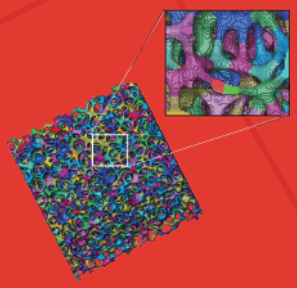
Compression

controls conduction area, surface area & pressure drop


Uncompressed

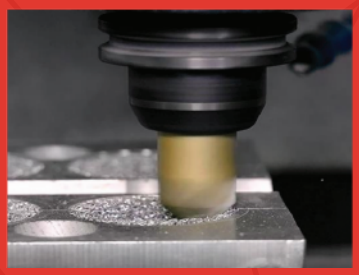

Compressed

Manufacturing Advantage



Better strength and conductivity

Unlike metal foam produced through other methods, Duocel® ligaments have fully developed grain boundaries.



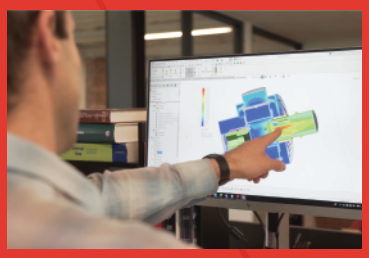
Flexible fabrication

Duocel® metal foam can be machined, formed, brazed, soldered, anodized, and coated.

ERG Engineering

With over 50 years of expertise designing and manufacturing foam components, we tailor Duocel® to get the most out of your project.

- 3D CAD
- CT Image Processing
- Correlation and Optimization
- Conjugate CFD
- Structural FEA



- Compressive and tensile testing
- Shock and random vibration
- Proof and burst pressure
- Thermal cycling
- microCT scanning
- Single phase and two-phase pressure drop
- Single phase and two-phase heat transfer

Flight Proven

ERG Aerospace has produced Duocel® foam components for thousands of projects, from heat exchangers on the ESA ExoMars lander to carbon foam for bone regeneration therapy research.

- UTC Supplier Gold
- 2019 Pratt & Whitney Most Innovative Supplier
- 2018 IHI Supplier of the Year
- 2017 Pratt & Whitney Service-Disabled Veteran Owned Supplier of the Year

sales@ergaerospace.com
www.ergaerospace.com

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