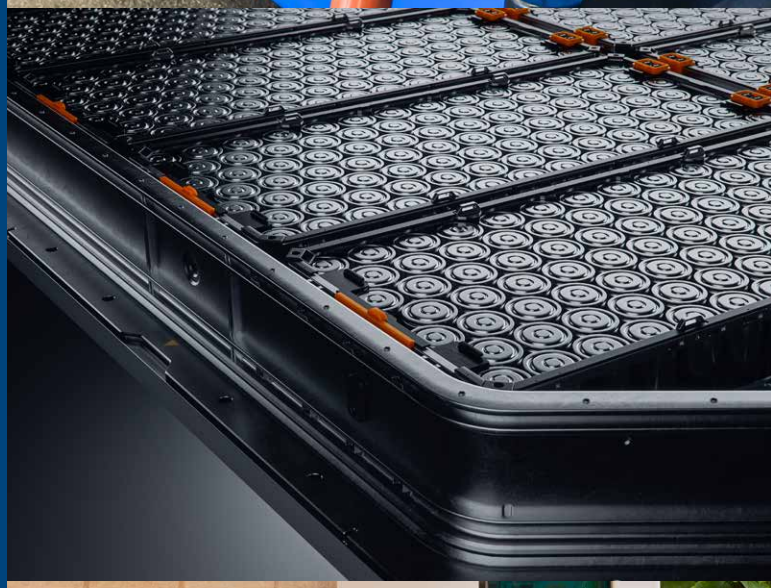
Donaldson
FILTRATION SOLUTIONS

Vehicle Electrification
Battery Pack Protection

Protection Under Pressure



As battery and battery pack technology continues to evolve, manufacturers are under increased pressure to ensure their products operate safely and efficiently. Today's more complex and powerful batteries require even greater attention and management under normal operating conditions than their predecessors.

Effectively vented battery packs can help ensure consistent pressure equalization, protection from the elements, and rapid degassing. The right venting solution can contribute to extended battery life cycles and limit component failure or damage to additional cells in the event of a thermal runaway event.

Donaldson offers engineering and design support as well as customization of its integrated venting solutions for multiple industry applications including:

- Battery Electric Vehicles
- Hybrid Electric Vehicles
- Heavy Duty Vehicles
- Battery Energy Storage Systems
- Commercial Battery Packs

Venting Solutions

Donaldson's selection of dual-stage venting solutions provides manufacturers with innovative options capable of meeting their operational needs.

Our dual-stage vents feature proprietary hydrophobic and oleophobic Tetratex® expanded polytetrafluoroethylene (ePTFE) membranes for increased performance and protection.

Dual-Stage Jet

The dual-stage Jet takes battery safety to a new level with the industry's fastest degassing capabilities. Engineered to provide optimal pressure equalization and ingress protection during normal operating conditions, the Jet will jettison its cap and poppet in the event the internal pack pressure exceeds the opening pressure. The rapid degassing occurs at roughly **100 liters/second @ 100 mbar**, greatly reducing potential damage to additional cells.

+ Screw-Fit or Bayonet Interface
+ Minimum Airflow of 97 liters/hour @ 10 mbar
+ Opening Pressure of 115 mbar

100 L/s

@ 100 mbar

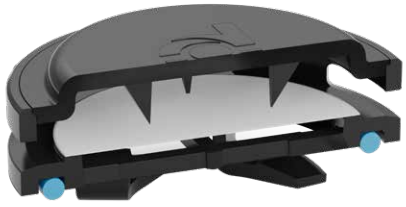
Dual-Stage Burst

The dual-stage Burst vent provides consistent pressure equalization while keeping the battery pack sealed from external contaminants. The low-profile vent features a protective body and retention cap with burst pins that pierce the membrane providing quick pressure relief at a rate of **25 liters/second @ 300 mbar**.

+ Screw-Fit or Quarter-Turn Bayonet Interface
+ Minimum Airflow of 17.8 liters/hour @ 10 mbar
+ Opening Pressure of 250 mbar

25 L/s

@ 300 mbar



Twice the Protection

Dual-stage venting has proven effective in meeting the needs of EV batteries.

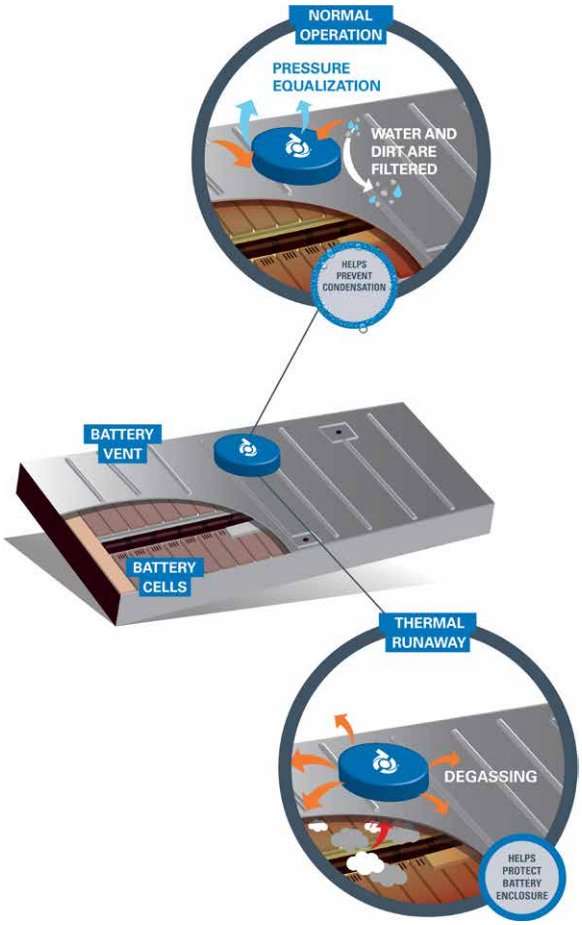
01

The first stage of dual-stage battery venting is pressure equalization. Our Tetratex ePTFE membrane allows air and other gases to move in and out of the battery pack during normal vehicle operation, due to changes in altitude and temperature.

02

In the case of rapid pressure and heat buildup, the second stage helps maintain internal enclosure pressures by allowing gases to escape by either by bursting the membrane or jettisoning the protective cap.

Dual-stage venting systems are the key to handling a wide range of battery venting needs.



Protection from the Inside Out

All Donaldson dual-stage battery vents incorporate our proprietary Tetratex ePTFE membrane technology. Manufactured in-house, the membrane is comprised of small, randomly connected fibrils that create a permeable water barrier, which provides continuous pressure equalization, ingress protection against water, dirt, and other contaminants. The membrane's unique oleophobic treatment also helps the filter media repel oils, providing additional protection.

CONTACT YOUR DONALDSON REPRESENTATIVE TO LEARN MORE

Donaldson
FILTRATION SOLUTIONS

donaldson.com/venting

Donaldson Company, Inc.
Minneapolis, MN, USA

CONTACT US

Brochure No. F111712 ENG (06/24) Battery Pack Protection.