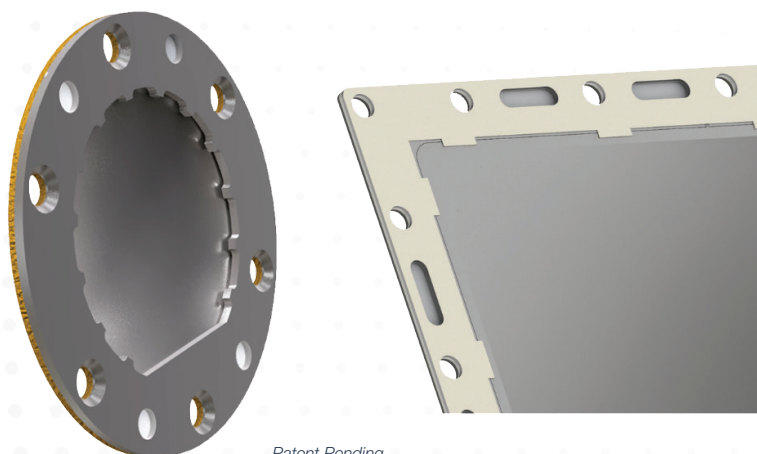


# DUAL-GARD

PRESSURE EQUALISATION AND RELIEF FROM A SINGLE LOCATION

*Dual-Gard integrates a **breathing membrane with a metal bursting disc or vent to combine pressure equalisation and pressure relief into a single device.***



Patent Pending

*Our standard design incorporates the tried-and-tested Pro-LP disc. The set values for the standard design only are summarised below. Full customisation outside of these values is possible.*

SIZE		MATERIAL	MIN BURST PRESSURE (barg)	MAX BURST PRESSURE (barg)	MFG RANGE	TOTAL TOLERANCE
DN (mm)	(inches)					
25	1	316 SS	1.37	2.06	+/- 0.13 barg	+/- 0.27 barg
40	1.5	316 SS	0.62	1.03	+/- 0.13 barg	+/- 0.27 barg
50	2	316 SS	0.27	0.62	+/- 0.06 barg	+/- 0.13 barg
80	3	316 SS	0.27	0.62	+/- 0.06 barg	+/- 0.13 barg
100	4	316 SS	0.27	0.62	+/- 0.06 barg	+/- 0.13 barg

Dual-Gard is our unique design solution for the challenges of pressure relief in new energy storage technologies. The dual-function device integrates a breathing membrane with a metal bursting disc or explosion vent to enable breathing and venting from a single location.

The additional breathing function prevents a build-up of gas and pressure, and guards against any swelling or contracting of the enclosure. In an emergency venting situation, the disc or vent will operate as usual to relieve overpressure quickly and safely.

The patent pending design is fully customizable and can be integrated into our range of metal discs and explosion vents.

**Let us help you with all your pressure relief questions.**

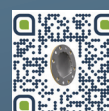
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**US office | Broken Arrow**

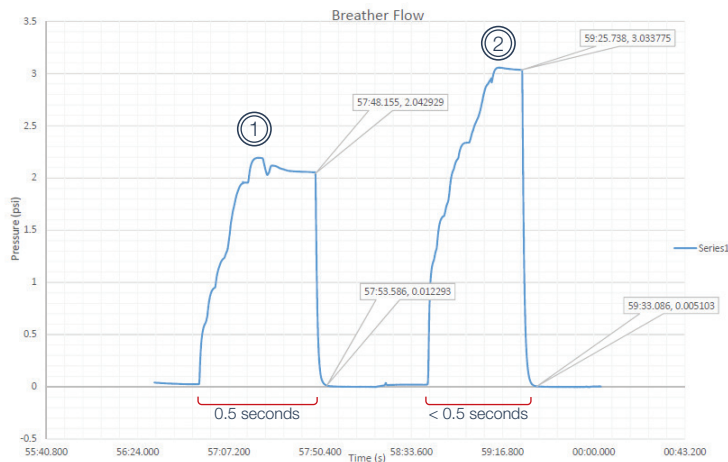
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## Breather Test

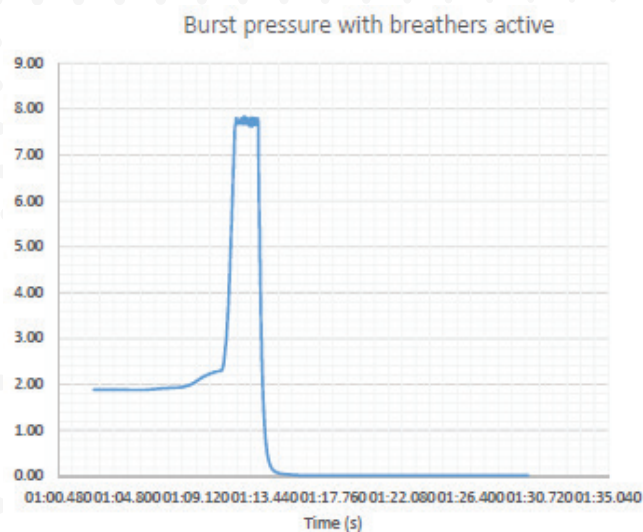


1. The enclosure was first pressurised to 2 PSI. The breather vent relieved all the excess pressure within 0.5 seconds.
2. The enclosure was then pressurised to 3 PSI. The breather vent relieved all the excess pressure, again within 0.5 seconds.

### Result:

- The breather vent is effective at relieving excess pressure for small pressure differentials
- Estimated average flow rate is 7.4ml/sec-psi
- A pressure differential of 5 psi would yield an estimated average flow rate of 2 liters/minute

## Burst Test (Emergency Venting)



The test disc was rated for a burst pressure of 7-9 psi. This is the standard configuration with the PRO-LP disc, as pictured on the front page.

The disc was first tested under normal working conditions, with the breathers active and allowing air to pass through them.

The disc burst in specification at 7.84 psi, activating within milliseconds of the pressure reaching a critical level.

### Result:

- The addition of a breather vent does not affect disc performance.

The disc was then tested as if the breather vent had become clogged or blocked and was not working. Again, the disc burst within milliseconds and in specification at 7.87 psi.

### Result:

- The disc will continue to activate as expected, regardless of the state of the breather vent.

