

Where to next with bag-on-valve technology?

Bag-on-valve technology has revolutionised the aerosol industry. In this article, Kashif Choudhry of LINDAL Group explores the future of bag-on-valve

Bag-on-valve (BOV) technology has become synonymous with the LINDAL Group – a reputation driven by the dispensing expert's longstanding commitment to the technology it believes holds competitive sustainability benefits and valuable differentiators for brands. Lindal's marketing manager, Kashif Choudhry, outlines the continued relevance of the technology and how the company is extending its BOV offering to address the more explicit and diverse needs of customers.

Why BOV?

The BOV aerosol system has long established itself as an effective alternative to hydrocarbon-based aerosol dispensing systems. BOV works by using compressed gas that acts on the outside of the bag, inside the can, to establish pressure, keeping the product separate from the propellant. Filling takes place directly into the bag, through the valve, further increasing pack pressure and generating a squeezing force on the outside of the bag. When the actuator is activated, the product, be it a spray, cream or viscous gel, is forced out of the pack evenly, with up to a 96-98% evacuation rate, depending on the product viscosity.

BOV's use of compressed gas prevents volatile organic compounds (VOCs) from being released into the atmosphere during dispensing, if deployed with water-based

formulations, making genuine VOC-free dispensing possible with this aerosol technology.

In addition, the technology's fundamental principle of separating a product from the propellant eliminates any incompatibility issues between the two, and unlike other hydrocarbon-based aerosols, it achieves a spray action through a mechanical break-up insert. This means of dispensing makes it a highly versatile system suitable for products of varying viscosity, for example foam textures, sprays, gels and creams, as well as adding usability value to the end-user experience.

With BOV, brands are also given greater product dispensing options because, by virtue of the separation technology, the product is not only isolated from the propellant but also the atmosphere, until point of use. This means the product is protected from harmful oxidants and other degrading compounds that may compromise product stability, hence significantly extending the product's shelf life.

Bag-and-bag opens the door for greater brand creativity

The advantages of eliminating VOCs with this technology will become more relevant as we enter a new era, where being sustainable is standard and not simply a means of differentiating. However, despite BOV's availability with male and female valves, its

compatibility with a wide range of Lindal actuators and most can sizes and types available on the market, it is not able to tackle every packaging scenario. For instance, where two products are used but cannot be combined before dispensing, a different aerosol system is needed. This is where the uniqueness of bag-and-bag (BAB) technology comes to the fore. Like BOV, BAB is a pressurised packaging system comprising not one, but two product chambers inside the same can. The intersection where the two products combine occurs at the time of use, through the dispensing system or after application, depending on the end-customer requirements and the actuator technology applied.

Not only does BAB afford the same advantages as BOV, but it has its own distinct capability to package and dispense two incompatible formulations in the same pack. Similar to BOV, it is compatible with tin plate, thermoplastics elastomer and aluminium cans; however, it is enhanced by the ability to customise product dispensing using each product individually or together, depending on customer preference. Furthermore, because flow limitation is managed in the actuator and not in the valve, a fast-filling speed through the valve is possible.

BAB makes way for cosmetic, medical, technical and food brands to be more creative with product packaging and offer greater dispensing options to consumers for



Bag-on-valve (BOV)



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Bag-and-bag (BAB)



LinRoc

products that may traditionally require far greater application expertise at the point of use.

Solutions for highly viscous products

In terms of highly viscous products, BAB and BOV are not always suitable systems. To offset this, Lindal offers two solutions, namely bag-on-collar (BOC) and LinRoc. LinRoc is a piston-in-can system designed with the functionality to dispense highly viscous products that are typically challenging to deliver through a traditional aerosol system. Its pressurised packaging system, which can be used with liquefied or compressed gas, uses a double piston to separate the container into two different compartments, allowing a product to be stored separately from the propellant. LinRoc extends the core advantages of BOV and also benefits from a fast filling speed, which is completed before the valve placement during assembly.

Developing the benefits

An alternative to LinRoc is BOC, a solution that combines the benefits of both BOV and LinRoc. With BOC, the bag is welded on to an open aperture or collar that sits on the can opening, and not directly onto the valve. The BOC can be filled through the collar prior to crimping the valve to the can. In this instance, the collar acts as a gasket, sealing the BOV to both the valve and the can.

BOCs are used with Lindal high delivery valves to dispense viscous formulations that



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previously were difficult or even impossible to dispense via conventional aerosol packs. It is a versatile technology suitable for cosmetic, technical and food-based products, often utilised in collaborative projects, to develop bespoke solutions previously never attempted in aerosol-based systems.

BOC, BAB, LinRoc and BOV have all transpired as a result of Lindal's continuous research into aerosol dispensing technology and through listening closely to customers. The company's barrier pack portfolio reflects the need for diverse dispensing solutions and innovative designs; an approach Lindal extends further through the collaborative projects it undertakes with partners. However, the merits of BOV in relation to sustainability are arguably of greater importance to brands. The technology's elimination of hydrocarbon propellant will become an ever-more crucial value proposition, helping to greatly support a brand's environmental initiatives and objectives.

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Bag-on-collar (BOC)