



BESPAK

THE WORLD'S FAVOURITE pMDI VALVE READY FOR HFA-152a AND HFO-1234ze



TRUSTED VALVES OPTIMISED FOR THE NEW ERA

Bespak® valves have been optimised during a five-year research and development programme, and are ready for testing with formulations incorporating both of the new low Global Warming Potential (GWP) propellant candidates. As a result of extensive elastomer studies, physical stability testing and aerosol performance modelling, we are also able to help guide the selection of critical components using our proprietary Bespak valve/actuator selector tool.

TRUST THE LOW CARBON pMDI LEADER

Bespak is a world leader in pMDI valves and actuators, with more than 60 years of experience in helping millions to breathe more easily. Built on a legacy of excellence and ready for the future, our portfolio includes valves and actuators optimised to work with a wide range of formulations and today's low GWP propellants.

Our BK357 valve platform is firmly established as the world's most trusted dosing valve, approved in more pMDI products, in more markets, than any other valve. The BK357 owes its popularity to the fact that it was developed to work with a wide range of formulations, has low levels of extractables and leachables, and is consistent in its quality and performance.

Our valves and actuators have been trusted for decades to deliver medication reliably, and they are ready for the next generation of propellants.

BK357 VALVE TECHNOLOGY

The Bespak BK357 is trusted by branded pharmaceutical companies to deliver their innovations, and by generic companies for reliable product approvals. We have manufactured over four billion valves to date, and demand keeps growing. Our range has now been expanded to ensure compatibility with suspension and solution formulations using both traditional HFA propellants, and lower GWP propellants HFA-152a and HFO-1234ze.

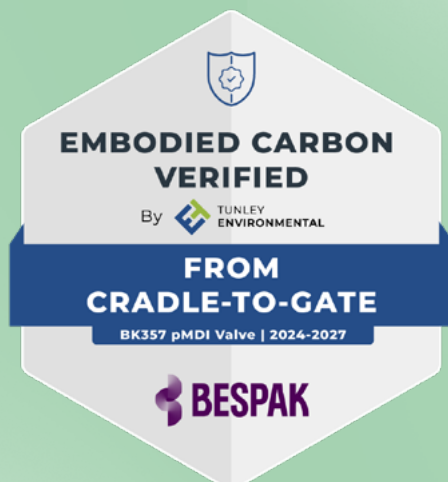
GAS	SEAT	GASKET	CHAMBER SIZE	VALVE CODE
HFA-152a	EF327	EF207	25µl	357000400MT
			50µl	357000500MT
			63µl	357000600MT
HFO-1234ze	EF327	EF327	25µl	357000100MT
			50µl	357000200MT
			63µl	357000300MT

All valves customisable to achieve desired shot weight.



pMDI VALVE LIFE CYCLE ASSESSMENT

Bespak achieves sustainability milestone with first life cycle assessment for BK357 pressurised Metered Dose Inhaler valve.



bespak.com

TRUSTED, OPTIMISED AND ADAPTABLE TO YOUR FORMULATION



BK357 retention valve

- designed for performance

Our proprietary design, careful materials selection and manufacturing excellence ensure dependable performance with the widest range of pMDI formulations.

- Suitable for both solution and suspension-based formulations
- Compatible with ethanol-containing and ethanol-free formulations
- Compatible with all pMDI filling techniques
- Inverted or upright use with dip tube
- Range of standard dose sizes from 25-63 μ l
- Low levels of extractables and leachables

Customisable features:

- Leakage performance
- Shot weight
- Emitted dose
- Compatibility with active ingredients/excipients
- Compatibility with standard rolled edge canisters in stainless steel or aluminium, and with plasma, FEP or PTFE coating; also with cut edge canisters
- Compatibility with press & breathe or dose counting actuators



BK361 easifill valve

- designed for adherence

Our Easifill valve is specially designed to optimise patient adherence by removing the need for initial priming and re-priming before each use. The engineered 'fast fill and drain' design ensures complete filling of the metering chamber after actuation or storage to eliminate loss of prime, while the easy-to-use, patient-centric design enhances dosing convenience.

- Fast fill and drain
- No priming required – simply invert and shake
- Sleek, economic design, ideal for suspensions with high deposition – minimises loss of dose due to drug adhesion in the chamber
- Improved chamber agitation compared to capillary retention valves
- Ideal for use with breath-actuated devices as well as standard press-and-breathe



At Bepak, we're committed to lowering our industry's environmental footprint. That's why we're taking a proactive approach to the upcoming green transition and adapting ready for proposed changes of legislation, as well as supply challenges.

OUR AREAS OF EXPERTISE

1. Formulation evaluation and development

- we are studying the effects of switching propellants on the drug product in key formulations, and offer services to support propellant change or new product development.

2. Analytical method development and validation

- we have a track record of success with challenging pMDI data collection and drug product characterisation methods.

3. Optimisation of container closure system

- we combine mathematical modelling and optimisation of new generation propellants with our Bepak pMDI valves, actuators and dose counters.

4. Extractables and leachables - we design comprehensive studies that consider both device and drug product.

5. Manufacturing - we are capable of clinical and commercial-scale manufacturing with conventional propellants, and process modification for next-generation propellants.

6. Drug product characterisation and IVBE

- we design and execute drug product characterisation and *in vitro* bioequivalence to meet regulatory requirements in the target market.

7. Propellant release and CoA verification

- we have experience with currently used propellants HFA-227 and HFA-134a, as well as the new generation of propellants, HFA-152a and HFO-1234ze.

8. Regulatory experience - we are at the forefront of global compliance requirements for inhalation products.



A seamless, specialist service from feasibility through to commercial supply



The specialist inhalation CDMO

Bespak brings a legacy of excellence to help drive your innovations forward. We offer a fully integrated service for developing and manufacturing inhaled and nasal drug products, devices and components for the global pharmaceutical market. Our expertise spans pressurised Metered Dose Inhalers (pMDIs), Soft Mist Inhalers (SMIs), Dry Powder Inhalers (DPIs), unit dose and multi dose Nasal Sprays.

Work with us to get your next product to market sooner.