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# **Bag-on-Valve Technology**

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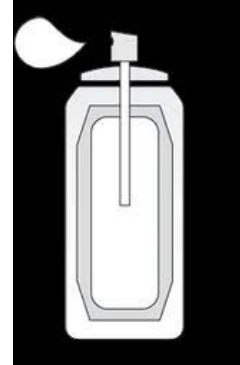
# Bag on Valve is a “Bag in Can”



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- The system consist of a **valve** (male or female specification) sealed with a **bag**. (Rolled)
- The bag consist of **multilayer films** which provide a barrier:
  - PET or nylon,
  - aluminium,
  - PP
- Valve and Bag are Heat Bonded plus  
100% inspection against any bag defects.



# Bag On Valve – Advantages



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- **Total separation** of product from propellant thereby allowing **pure product filling and dispensing**.
- The film laminates of the bag and valve components coming in contact with the product are **compatible with water and solvent based formulations**.
- Compatibility and Stability **Testing required**



# Bag On Valve – Advantages



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- Product **evacuation ranges 95 – 99%**.
- The **airless bag precludes oxygen contact** with a product, allowing colors and fragrances to remain stable for longer period of time.
  - Products shelf life is extended. The percentage of fragrance essences to add, can be reduced.



## Bag On Valve – Advantages



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- BOV has a **quiet and non-chilling spray**;
  - provides continuous spraying under all angle positions.
  - High evacuation rates.
- BOV can be used with both: **liquid and viscous** products, water- or solvent based. The absence of propellant in product dispensed, minimized fire or explosion risks.
  - Ideal for areas where a product needs to be applied on heated objects or in warm or heated rooms.



## Bag On Valve – Advantages



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- The absence of propellant results also in **larger droplet size of the sprays** (20 – 130 micron) and eliminate the danger of any health damaging inhalation of particles.
- The system can be supplied with **tinplate or aluminum** valves to fit any standard size tinplate or aluminum aerosol can. Standard actuators can be applied.



## Bag On Valve – Advantages



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- BOV aids in the requirement to **reduce VOC** usage and content in aerosol packaging. Basically No VOC.
- BOV conforms to requirements for most **food and pharmaceutical** products. It is suitable for sterilization by irradiation.



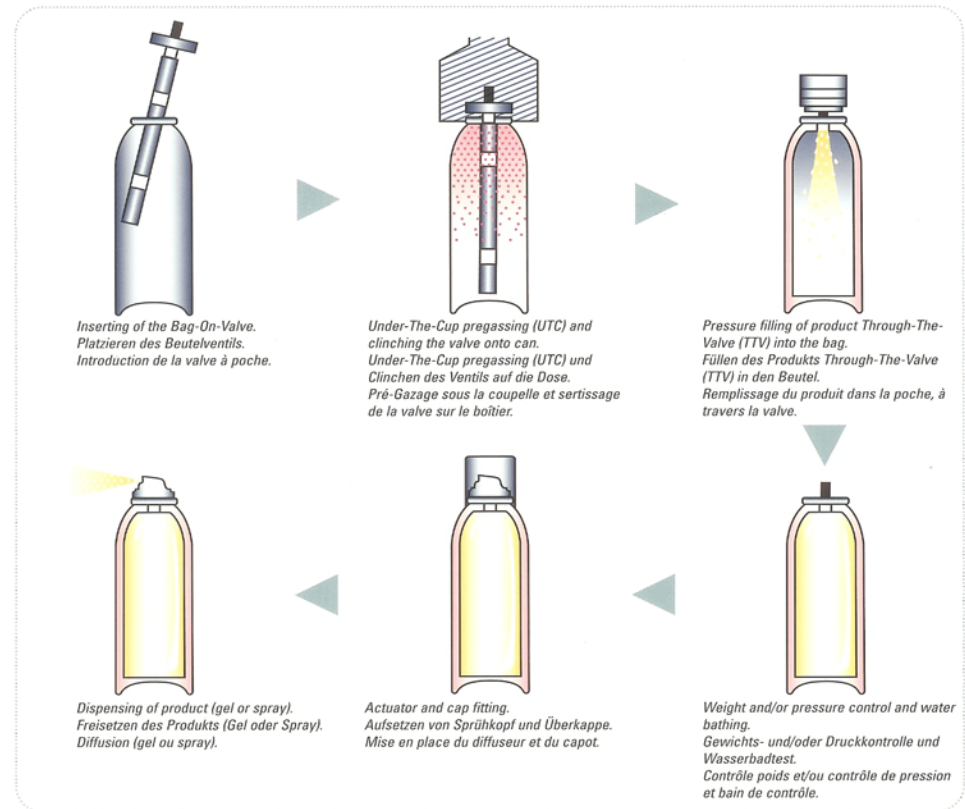
## How it works

- The pressurization agent – either **compressed air or nitrogen** – surrounds the product-filled pouch.
- When the actuator is depressed, the air or nitrogen **exerts pressure** on the pouch providing the force required to discharge the product.
- All the air remains in the container and is not released into the atmosphere.



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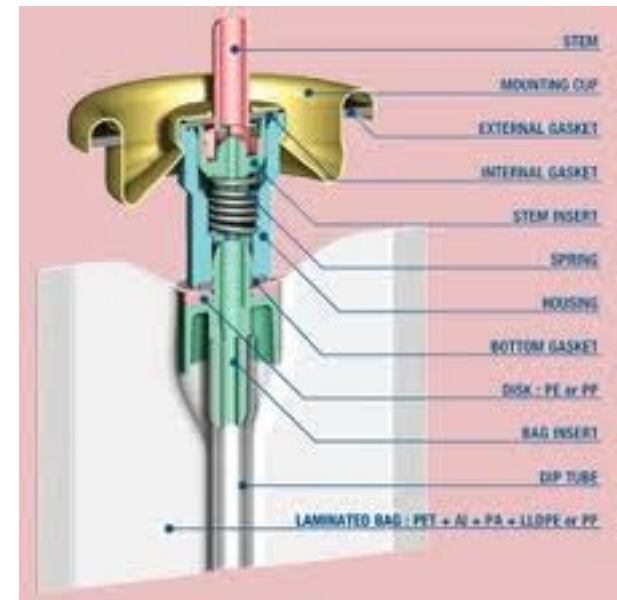
# Bag On Valve – Specification



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- Designed Heat Seal welding method assures a gas / product tight seal.
- Valve (Male or Female) / Housing
- The bag has a shaped design, provides improved bottom, better stability in the can optimal volume ratio.



## Bag On Valve – Specification



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- In their various capacities they can serve product fills from **20 to 600 ml**, thereby using 60 to 70 % of the total can volume.
- **Pressure loss** is on par with conventional aerosols: 0,3 bar / year.



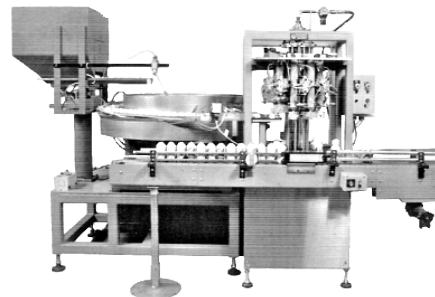
# BOV – Filling Technology



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- **Separate Filling Room is not Required**
  - Flammable propellants do not need to be used
- **Still requires a Hot Bath**
  - But...can get DOT exemption
- It is STILL an AEROSOL Package!
  - Some are calling it a “Non-Aerosol” and is being labeled as such.



# Bag On Valve – Product Uses



## Personal care:

- Post-foaming hair and shave gel, shampoo and conditioner.
- Liquid soap, hand and body creams and lotions. Sun creams and sprays, tanning creams, body oils, deo's.
- Depilatory creams, facial scrub gels-lotions, facial mist.
- Toothpaste.

## Animal care / veterinary:

- Medicines and animal care product.
- Insecticide, grooming sprays, shampoo etc.



## Bag On Valve – Product categories



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### Household products:

- Window cleaner, oven and ceramic plate cleaner.
- Shoe sprays.
- Insecticide sprays, citrus air fresheners.
- Plant sprays, furniture polish.



### Industrial / automotive:

- Personal fire extinguishers, automotive air conditioners.
- Lubricants, oils, waxes, fats, cleaners, toners.
- Leak detectors, PU-foam, anti-spatter weld sprays, surface cooling sprays for welding.



## Bag On Valve – product categories



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### Food:

- Whipped cream, vegetable pan sprays, mustard, chocolate paste, puddings, toppings, cheeses, concentrated food flavors etc.



### Pharma / medicine:

- Nasal sprays, syrups, vitamin gel.
- Based on enzymes odor removers
- Wound gels and sprays.
- Dental products.
- Eye contact lens products, ultrasonic gel.



# BOV Food Applications



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## ➤ Food

- BOV = Bag on Valve. 100% pure product being dispensed from Bag inside Can (Air or Gas compressed)
- Could be use with all the below actuators and all our std Lindal actuators ( as previous slide)
- Possible sterilisation
- 360° use





## Market trends



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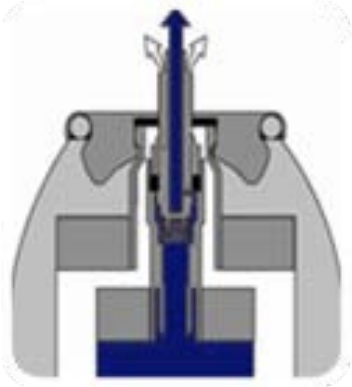
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- **Replacing** typical pump and dispensing sprays (Saline water)
- Can replace many typical aerosol and or non-aerosol products
  - Less force needed
- **Advantage in food** products due to “pure” product dispensing and protection against oxygen (increasing shelf life)
- Global **volume increases** from year to year
- **Increased Contract Filler** availabilities and capabilities
- Slow but **growing consumer awareness**



### ■ Improved Bag-on valve

- Click-in stem to switch from male to female
- No blowby (within normal filling conditions)
- Stronger valve housing (drop test)
- Improved housing//bag seal with larger sealing area



- **Bi-Power valve**

- Two different mediums may be filled separated from each other into a three-chamber-system
- Mixing is effected while spraying or by the user after application



### ■ Dosage Bag-on valve

- Possible dosages are from 100mcl to 5ml
- Guaranteed number of uses for the end consumer
- Same product quality from first dosage to the last



- **Next Generation BOV's:**
  - Expect New Innovative ways to manufacture BOV
  - Reduced welding – Time and Surface area
  - Higher speed manufacturing vs 60/min+
  - Laminate Developments for more compatibility
  - Decreasing the amount of laminate layers

**BOV: The better Aerosol...**



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**Thank you for your attention!**

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