

Leak Detection Fundamentals: Leak Testing HDPE Containers Produced by the Extrusion Blow Molding (EBM) Process



Maintain production efficiency while ensuring the integrity of each container you produce.

Extrusion Blow Molding (EBM) is known for being the most common and simplest type of blow molding process. EBM offers several advantages, including cost-effectiveness, high production rates, and the ability to create containers with intricate shapes and sizes.

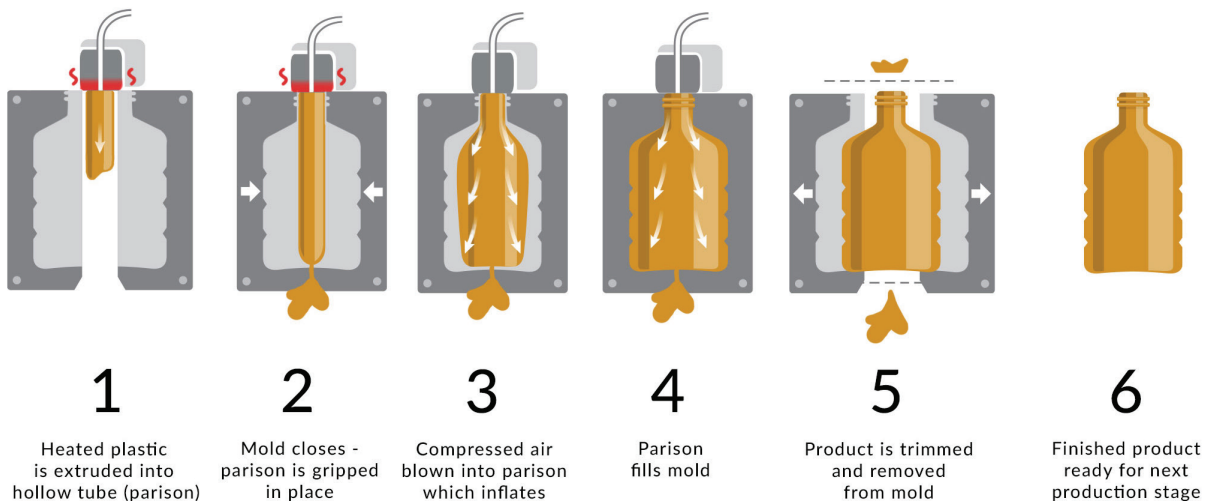
Production Method

The EBM process involves taking plastic material, such as **High Density Polyethylene (HDPE)**, typically in the form of granules or pellets, and putting it through a specialized machine called an extruder.

The extruder uses friction to heat the plastic into a molten form, which is then forced into a hollow tube called a “parison.” A mold is closed around the parison. Pressurized air is then blown into the parison, inflating the molten plastic to conform to the mold’s shape. This process creates a hollow object with a desired wall thickness. After cooling and solidification, the mold is opened, and the newly formed plastic container is ejected.

Any extra material remaining on the container is trimmed before the container is positioned onto the conveyor. At this stage, a dependable leak detector can identify any potential defects.

Extrusion Blow Molding Process



Fundamental Facts

Integrating a reliable leak inspection system into your EBM production line can help identify production problems early, preventing waste and saving time and money. Because every container is tested, in-line inspection protects you from random quality issues that may lead to product leaking or contamination.

This helps you achieve a higher quality assurance for every container you produce.

Types of Containers Produced via EBM

The EBM process is most commonly used for HDPE materials and less commonly with PET.

Due to its versatility and efficiency, EBM is ideal for manufacturing containers with different shapes and sizes across various industries, including **household and industrial applications used in everyday life.**

Examples that can all be made using the EBM process are:

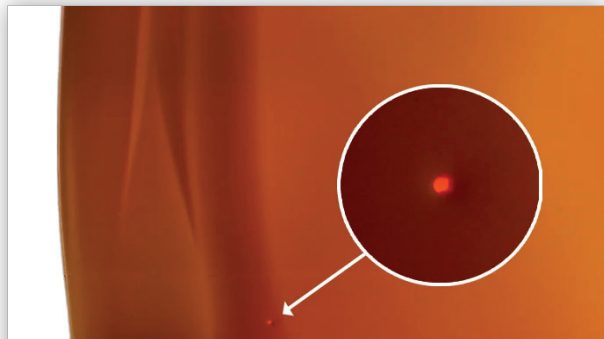
- Oil containers
- Laundry detergent containers
- Shampoo bottles
- Milk jugs
- Cat litter containers

Its ability to shape intricate designs ensures every container meets stringent quality and functional requirements.



Common Defect Types in EBM HDPE Containers

Many different types of defects can occur in HDPE containers during the EBM process, including:



Holes

Holes can result from improper material distribution, trim operations, handling, or contamination in the resin (the foreign material hinders the plastic's ability to stretch uniformly during molding).



Finish Trim Defects

The blade or trimmer cannot properly remove excess plastic at the top of the container or leaves little cuts or "hangnails" on the sealing surface of the container.



Cocked Necks

Uneven distribution of material within the neck or shoulder area of the container. Consequently, one side of the container cools and contracts unevenly in comparison to the other side, leading to a misaligned or crooked neck appearance.



Choked Necks

Restriction within the neck of the container leads to problems filling the container.

[Learn about the different types of plastic container defects and how defect analysis testing can help ensure you have the best leak detector for your manufacturing line.](#)

How Can ALPS Help?

Even the smallest defect can produce negative outcomes, including poor or inconsistent product quality and brand reputation. Early identification of defects in your EBM process can help protect your inventory by correcting production errors and avoiding unnecessary waste during the production process.

ALPS Inspection leak testing equipment is engineered to identify every potential container defect commonly seen in EBM HDPE container production.

Leak Testing Solutions Designed To Make Your Job Easier

- Seamlessly integrate into your production line.
- Included feasibility testing to ensure the chosen solution meets your unique production requirements.
- Built to fit your exact specifications, including container shape and size, testing methodology, and line speed.

Whether you need to keep product contents sealed in, like in industrial chemical applications, or looking to keep moisture out, like from a cat litter container, we are here to understand your individual inspection and manufacturing needs.

Reliable Leak Testing Solutions

While every one of our innovative machines can test EBM products, QuickCheck® and FlexPitch® are ideal cost-effective leak testing solutions for the speeds and containers run on many EBM lines. These testers can be integrated into your existing production line to maintain or increase efficiency and confirm quality in every HDPE container you produce.

Learn more about QuickCheck and FlexPitch on the next page.

QuickCheck Leak Tester

The [QuickCheck leak tester](#) is designed for optimal handling of small and large containers to ensure the most accurate leak test possible as well as the highest speed capacity on a single test station. Typical leak inspection speeds range from 2 to 30 containers-per-minute (CPM) for larger containers (e.g. 4 to 5L), to 60 to 100 CPM for single-serve containers (e.g. 0.5L), and as high as 180 to 200 CPM for the very smallest pharmaceutical bottles (e.g. 10 to 40mL).

Ensure product integrity on all your HDPE products with this leak testing system's user-friendly controls, easy-to-navigate HMI, and quick container changeover capabilities.



FlexPitch Leak Tester

The [FlexPitch leak tester](#) is a multi-moving head, high speed leak tester that detects defects in a wide range of bottle types. The tester mounts over an existing conveyor, so no line modifications or bottle transfers are required. The innovative design of FlexPitch maximizes flexibility, as test heads can be preset to the required pitch, enabling one-touch changeover between containers of varying diameters and making it particularly suitable for unusual container shapes.

The machine is available in 2, 3 or 4 moving heads that offer 100 % leak testing and top seal surface defect detection at speeds up to 250 CPM.

ALPS Inspection is proud to be a market leader in manufacturing in-line leak inspection equipment for Extrusion Blow Molding processes.

Our team of experts provides expert advice and unparalleled service and support, ensuring total packaging integrity.

Please contact us to discuss the best inspection solution for your rigid containers.



**Call us today at 1 (800) 325-8717
or Request a Quote online today**

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INSPECTION