Nash Vacuum Pumps for Glass Container Manufacture

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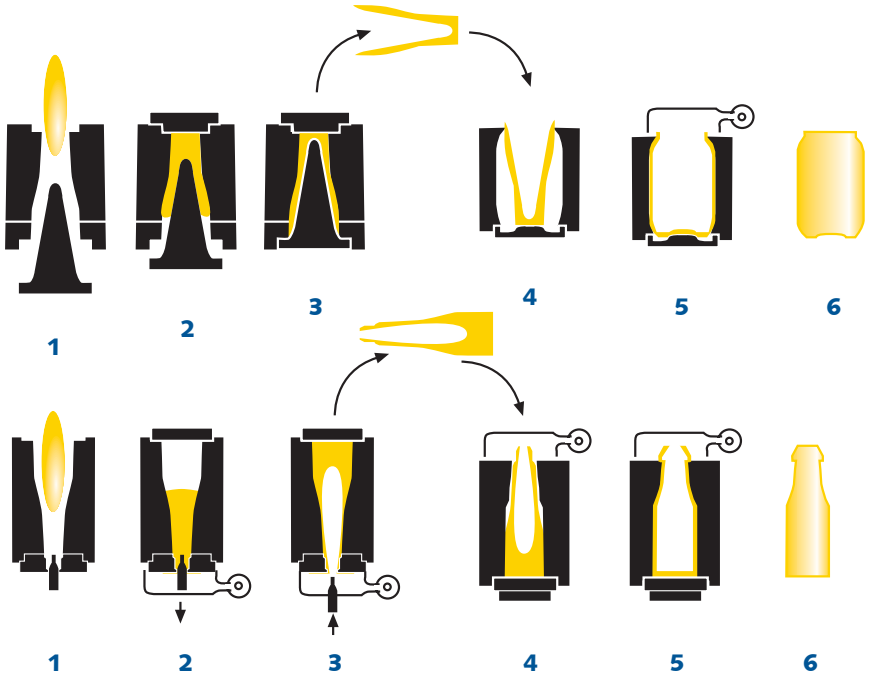
Vacuum is used for both speeding up the process of filling the mold and for controlling the liquid glass' distribution in the mold.

Making Glass Bottles

Almost all glass bottles today are made by IS (Individual Section) machines. These can function as either a "press and blow" process or a "blow and blow" process. In both cases, an automatic feeder separates molten glass into individual "gobs." These are dropped into molds and shaped into what looks like a short bottle with thick walls, and is called a parison. The parison is transferred to a final mold made of iron, which clamps around the glass. Air is then blown into the glass until it acquires the final shape of the mold.



Press & Blow Process

1. Gob dropped into blank mold
2. Plunger presses blank shape
3. Blank pressed
4. Blank shape is transferred to blow mold
5. Final shape is blown (with vacuum pulling from the outside and compressed air blowing inside)
6. Finished jar

Blow & Blow Process

1. Gob dropped into blank mold
2. Neck is formed (using vacuum)
3. Blank blown (using compressed air)
4. Blank shape is transferred to blow mold
5. Final shape is blown (with vacuum pulling from the outside and compressed air blowing inside)
6. Finished bottle

Compression and Vacuum

Compressed air powers the forming machines and a typical glass works will have several large compressors, typically cooled by water. Bottles that will hold carbonated products (which must withstand a higher pressure than non-carbonated) need to have glass that is even and compactly formed on the surface of the mold, which gives the bottle extra strength. Other industries that use vacuum are jars for preserved foods and wide-mouthed containers in general. Also, if a logo or other design is to be molded into the glass, the vacuum greatly improves its quality.

To achieve the extra strength, vacuum inside the mold is used in addition to the traditional method of blowing the gob into the mold with compressed air. Vacuum is used for both speeding up the process of filling the mold and for controlling the liquid glass' distribution in the mold. **Liquid ring vacuum pumps are an excellent choice for this application, because they are very reliable (and glass factories run non-stop), they can handle any carryover of glass particulate debris or mold lubricants without problem, and because water is natural to the liquid ring pump's system, so it fits naturally into a water-cooled process.**

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