

COMPRESSED AIR IN THE GLASS INDUSTRY

By Rich Huguenor



It's something most of us use every single day but don't necessarily think about it: glass.

From flat glass and container glass, to glassware and other glass products, the glass product manufacturing market is abundant. Compressed air is vital in the glass industry, and I will profile how compressed air plays a key role in the production of flat glass and container glass, the two largest sectors of glass production.

Flat Glass

Flat glass (float glass), a sheet of glass, is typically used for windows, glass doors, transparent walls and windscreens. Flat glass is made by floating molten glass on a bed of molten metal, typically tin. This method gives the sheet uniform thickness and very flat surfaces.

Flat glass facilities require an oil free compressor system feeding clean, dry air into the instrument and plant air system. Oil free air is preferred due to potential contact with high temperatures and possible product contamination. Approximately 3000 – 4000 cfm at 125 psig is required for each glass ribbon line for actuation of pneumatic cylinders and actuators. A glass plant furnace must run continuously for 10 – 15 years, so reliability and redundancy is critical. It is not possible to shut down the flow of glass.

Container Glass

In contrast to flat glass, container glass is the production of glass containers, such as bottles, jars, drinkware and bowls.

The blow molded container glass process uses compressed air to inflate a molten “glob” of glass into a hollow vessel. The most common method uses a two-step process called “blow, blow” to first form the neck and closure of the bottle, while the second step forms the final shape. The bottles are then cooled slowly for strength and a coating is applied to the exterior to obtain a smooth finish.

Bottle glass facilities require two separate compressed air systems:

- A high pressure (HP) system of 100 – 120 psig for instrument and actuation air
- A low pressure (LP) system of 50 – 70 psig to inflate the bottles

Approximately 2000 – 3000 cfm of low-pressure air and 1000 – 1500 cfm of high-pressure air is used per bottling line, with most plants using between three and 10 bottling lines. A glass plant furnace must run continuously for 10 – 15 years, so reliability and redundancy is important. It is not possible to shut down the flow of glass.

For manufacturers of container glass, oil free air is necessary, as compressed air directly or indirectly contacts the product being manufactured. This means the bottling holding food or beverages.

In Summary

With the proliferation of craft beers and other alcoholic beverages, along with a societal focus on reducing plastic consumption, the glass industry will continue to grow. Reliability and energy savings are crucial for these users. Large oil free air – such as centrifugal compressors – should be considered, as the units offer increased efficiency with master controllers.

To hear from a Sullair customer in the glass industry, view the Arglass Yamamura customer testimonial.