



Technical Note:

Bellco Glassware Customization Options

Introduction

Unlike polymer based single use bottles, vessels, and carboys, Bellco's complete range of glass vessels lend themselves to customization of the basic design without having to invest heavily in new tooling and new molds. This reduces the cost to the customer, significantly shortens the lead time for a custom product, while allowing for relatively small production runs of products that meet our customers' specific needs, without them having to commit to a large inventory.

There are many ways in which a glass vessel can be customized that are detailed below. Bellco has master glassblowers on site that allow almost any customization of a standard design, or a 100% custom design to be produced inhouse by Bellco.

Addition of extra ports and tubing connectors

The types of ports that can be added include but are not limited to the following.

- Barbed hose connections of any size. Common sizes include 1/4", 3/8", 1/2" and 5/8".
- Threaded port connections, with or without caps. Common sizes include 18mm, 24mm, 38mm and 45mm

Different neck sizes and types

Depending on the application and the size of the vessel Bellco can supply glass vessels with multiple different neck types.

- Open necks to fit a variety of stopper sizes ranging up to a size 14 stopper
- Threaded necks of 45mm, 70mm, 83mm and 100mm diameter. Caps can also be supplied if required.

Safety coating

Any size glass vessel can be safety coated with a propriety PVC based safety coat of between 0.3 – 0.5mm thickness.

- The safety coating is designed to retain glass shards and vessel contents in the event of breakage.
- The safety coating also provides additional grip on the outside of the vessels that allows easier handling of the vessel by gowned, and gloved operators

PLEASE NOTE. Threaded necks and barbed hose connections cannot be safely coated.

Amber coating

Amber coating can be provided on the outside surface of any vessel to help protect light and/or UV sensitive products from degradation during storage, operation or transit.

Water jackets.

- Bellco can provide water jackets on almost any vessel configuration or size.
- Water jackets typically are provided with 2 hose barb connections (1 high and 1 low on the water jacket) for attachment of tubing to recirculate the solution that is controlling the internal temperature of the vessel.
- Exceptions are
 - Vessels with side arms that are close to or at the bottom of the vessel cannot have a water jacket added.
 - Vessels with side arms that are close to the top of the vessel can have a water jacket added up to the position of the side arms.



2D Bar Coding.

Bellco can apply 2D barcoding to any vessel requiring full traceability. 2D bar codes are also known as matrix codes, examples include QR codes, GS1 Data Matrix and PDF417 codes, They encode data horizontally and vertically, which allows them to hold large amounts of information, including text, URL's and product information.

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