Technical Note:

What to Look for When Selecting a Custom Glassware Manufacturer

Introduction

Selecting a manufacturing partner to produce the custom glassware that you need can be an unnerving and challenging process. This technical note is designed to provide guidance on what questions to ask and what manufacturing and quality parameters to look for in your selected supplier.

Custom glassware can bring many benefits including.

1. Enhanced performance, improved data accuracy, enhanced repeatability
2. Improved workflow efficiency
3. Specialized equipment that is tailored for a specific application
4. Reduction in risk of contamination
5. Reduced risk of breakage during use.

Step One: Define and Document the Requirements

- This document is also called a User Requirement Specification or URS.
- Does not have to be a complex document, but it must include all of the critical requirements that are required to allow the product to perform the function it is being made for.
- These requirements can include, but are not limited to the following
    - Volume and dimensions
    - Quantities
    - Type of joints (ground glass, threaded, flanged)
        - If threaded connections, what type of caps and gaskets are supplied or are available.
    - Material (borosilicate, quartz, sapphire)
    - Pressure and temperature tolerances
    - Accessories required (probes,
    - Compatibility with chemicals or solvents

Step Two: Material Selection

- It is critical to identify the right choice of glass for an application.
- Borosilicate Glass has:
    - Excellent mechanical properties
    - Excellent chemical resistance and durability
    - Thermal resistance and the ability to withstand significant temperature swings
    - Type 1, Class A borosilicate glass is approved for use with all biological compounds (USP<660>, revised 2023).
    - For these reasons it is the main choice for use in general laboratory and cell culture applications.
- Quartz Glass has:
    - High purity
    - High temperature stability
    - Optically transparency
    - Is the glass of choice for use in optical instrumentation and high temperature applications

- Sapphire Glass has:
    - Extreme hardness
    - Optical transparency
    - Is the glass of choice for high pressure applications and use in optical systems

Step Three: Select a Manufacturer

- Choose a manufacturer who can provide the following
    - Certifications such as ISO, ITAR etc.
    - Significant experience in the manufacture of scientific glassware
    - The ability to custom fabricate, specifically ask for examples or previous projects
    - The ability to produce prototype systems
    - Has the ability to repair glassware in event of damage
    - Who has the capacity to meet the demand from a volume perspective
    - Who is willing and able to scale production if needed
    - Has open communication channels and provides regular project updates

Step Four: Review

- Drawings
- Prototypes
- Tolerances
- Delivery and payment terms

Step Five: Finalize

- Final product specifications
    - Dimensions, glass thickness, pressure and temperature tolerances
- Tolerances
    - Specifically, around wall thickness, height, width, and joint / connection dimensions
- Pricing
    - Per unit
    - Volume breaks
- Lead times for small and large quantities
- Packaging specifications

Summary

Following this process and obtaining answers to the questions asked during the initial discussions with your selected glass manufacturers will allow you to assess each company, and will help you make an informed decision on which custom manufacturer to work with.

Bellco Biotechnology
340 Edrudo Drive
Vineland, NJ, 27006, USA
Tel: +1 856 691 1075
Fax: +1 856 691 3247
Web: www.bellcoglass.com