

Pharmaceutical research company seeks elegant solution to weigh single-use bioreactor feed bottles



Dennis Hodgson

Biotech Product
Manager,
Agilitech Group

Mason Pawsey

Biotech Operations
Manager,
Agilitech Group

Trey Peters

Lead Biotech Mechanical
Designer,
Agilitech Group

Dr. Michael J Morgan, PhD

Chief Innovation Officer &
Executive Director of Biotech,
Agilitech Group

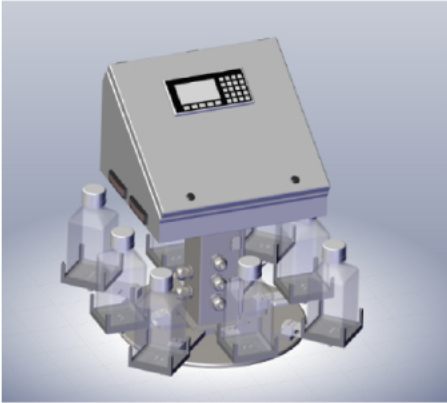
Challenge

A pharmaceutical research lab had eight bioreactors, each fed with four peristaltic pumps. The pumps were controlled via a theoretical volumetric flow rate and the customer wanted to more accurately weigh bioreactor transfer feed bottles without sacrificing valuable benchtop space.

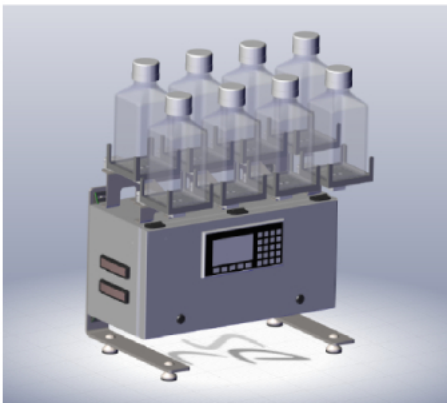
The challenge: we needed to provide an accurate bottle-weighing solution with a minimal footprint that could be easily integrated into their existing DeltaV infrastructure.

Approach

We knew our constraints were to maximize versatility while minimizing footprint. We wanted a bottle holder design that could adapt to a range of sizes in one mount. The overall system would need to accommodate eight bottles in as little space as possible.



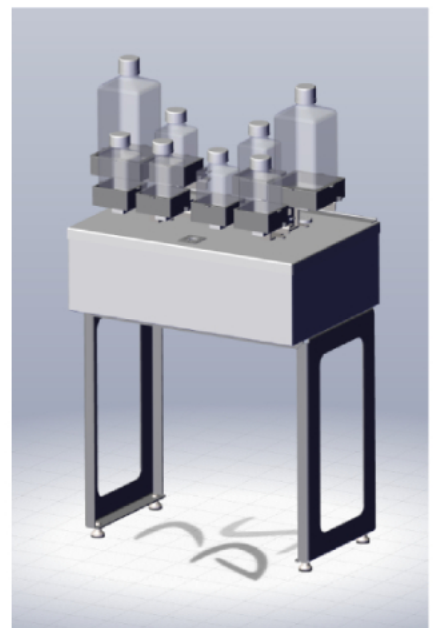
Our design started with a carousel-style bottle holder with the enclosure mounted above. This bi-level approach allowed us to weigh up to eight bottles in a relatively compact space, but bottles in the rear would be difficult for operators to access.



Our second design mounted load cells to the top of the enclosure. This ensured full access to all bottles, but still occupied too much bench space.

Our final design incorporated the enclosure-mounted load cells from our second design, but included a stand that elevated the enclosure above the existing pump towers, minimizing the bench space that our scale solution required by utilizing unused vertical space.

The bottle holders that we designed were 3D printed from nylon using SLS technology, making them robust and economical. The holders could adapt to multiple bottle sizes, ensuring the operators had full access to a wide range of bottle sizes.



Solution



A: This bottle holder inserts into the carrier (C) and holds a 500mL bottle

B: This bottle holder inserts into the same carrier (C) and holds a 1L bottle

C: This carrier gets mounted to a load cell on the enclosure and can accept a holder for a 500mL or 1L bottle



Both bottle holder inserts fit into the same carrier, allowing the operators to quickly and easily change what size bottle they want to feed into their bioreactors. The carriers also feature a clip to secure the tubing to help reduce tubing pulsations from the peristaltic pump and help keep the benchtop space neat.

The impact of a solutions partner

Our custom scale system provided an accurate and versatile solution in a small footprint that allowed our customer to achieve their goal of increasing the accuracy of feeding their bioreactors.

Our customer was particularly impressed with our ability to design and manufacture the custom enclosure legs, the adaptable bottle holders, and integrate the load cells into their existing DeltaV control system.

What can we design for you?



About Agilitech

We believe in the power of science and medicine to solve health problems and make lives better – today and in the future. As a pioneering partner to the biotech industry, we help to drive this progress by designing and implementing state-of-the-art equipment for biotech

labs through to full-scale manufacturing, along with providing game-changing bioprocess engineering and automation services.

In a fast-moving industry that is constantly evolving, we have the flexibility and experience to tailor our offerings to the specific requirements of each and every customer. We ask the right questions and take the time to understand both what you're doing and where you're going, so that we can offer fresh perspectives and develop custom solutions to real problems.

Our goal is to exceed your expectations, to offer you the full benefit of our industry insights and expertise and to establish a long-term business relationship built on trust and proven results.

Agilitech Corporate Headquarters:
8800 Crippen Street
Bakersfield, CA 93311

Customer Support:
661.381.7950
info@agilitech.bio

Service & Repair:
661.381.7950
service@agilitech.bio

A RADICAL & TRANSFORMATIVE APPROACH



TRANSFORMATIVE
BIOPROCESS
PRODUCT
DESIGN



COLLABORATIVE
DESIGN &
CO-CREATION



UNMATCHED
FLEXIBILITY



BRAND
AGNOSTIC
FOR SEAMLESS
INTEGRATION



THE FREEDOM
OF OPEN
PLATFORM