



Project Profile

Homogenizer Bag Racking System

Project Overview

PROJECT OVERVIEW

PCI was engaged to design and engineer a custom homogenizer rack station with integrated lift assist to support a customer's existing gravity-fed process. The objective was to eliminate unsafe manual handling while improving ergonomics, flexibility, and overall workflow efficiency when handling 20-liter liquid bags

THE CHALLENGE

The customer's existing process required operators to manually lift 20L bags overhead and load them into a racking system that was not originally designed for the application. This off-the-shelf solution did not align with the customer's actual workflow and presented several challenges:

- Excessive overhead lifting and ergonomic risk for operators
- Limited adjustability to accommodate different user heights
- Poor compatibility with varying bag sizes and configurations
- A rigid design that constrained process efficiency and safety

The customer needed a solution that would reduce physical strain, improve safety, and seamlessly integrate into their gravity-fed homogenization process.

THE SOLUTION

PCI designed and engineered a custom homogenizer rack station with lift kit, tailored specifically to the customer's operational requirements. Every aspect of the design was considered—from operator interaction to process flow—to deliver a system that prioritized comfort, safety, and usability. The resulting lifting station allows operators to load bags at ergonomic working heights, eliminating overhead lifting. Once the bag is safely positioned, the lift mechanism raises the bag to the required elevation to support the customer's gravity feeding process.

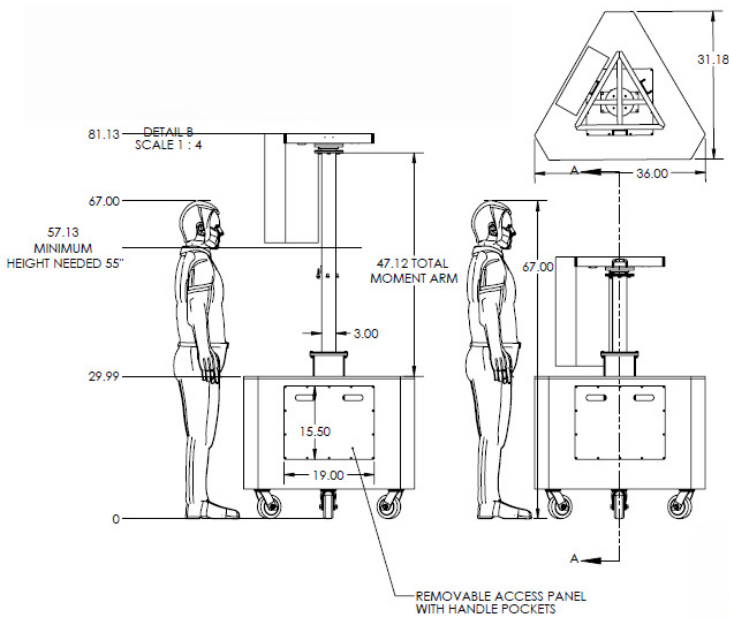
RESULTS

The custom homogenizer rack station transformed the customer's workflow by replacing an unsafe, inefficient lifting process with a purpose-built solution. Operators can now load 20L bags safely and comfortably, while the system maintains full compatibility with the customer's gravity feed requirements. By moving away from a standard off-the-shelf rack and toward a fully engineered solution, PCI delivered a lifting station that improves safety, enhances efficiency, and supports long-term operational flexibility.

Final Product & Conclusion

FINAL PRODUCT

The attached image shows the completed homogenizer rack station with lift kit, featuring a suspended liquid bag securely positioned above the base unit, integrated lift controls, and a compact footprint designed for real-world laboratory and production environments.



CONCLUSION

This project exemplifies PCI's commitment to delivering engineered solutions that go beyond standard, off-the-shelf equipment. By fully understanding the customer's process, ergonomic challenges, and workflow requirements, PCI developed a custom homogenizer rack station with lift assist that significantly improved operator safety, comfort, and efficiency. The final system eliminated unsafe overhead lifting, accommodated a wide range of bag configurations, and seamlessly integrated into the customer's gravity-fed process. The result is a purpose-built lifting station that not only resolves immediate operational concerns but also provides long-term flexibility and reliability—demonstrating the value of thoughtful, application-driven design and engineering.

