

CASE HISTORY 23

BioArchive Biological Cryostorage System

Market

Human Cell Banking

Client Type

Established equipment OEM (ThermoGenesis)

Unmet Need

The optical periscope is used for cryogenic specimen storage and retrieval, and to read specimen barcodes in the tank. The set up and alignment of obsolescent optical and imaging components required many hours in production and could not be efficiently replaced in the field.

Approach

Redesign a previous generation device to improve optical performance, reduce cost, and ensure supply chain.

Product Features

This cryogenic periscope is used to store and retrieve human cell specimens from a vessel full of liquid nitrogen at -320°F. The extreme low temperatures – and radical *changes* in temperature as the periscope is inserted and withdrawn from the liquid nitrogen bath – presented unique mechanical and optical challenges. A new imaging and barcode reading system was developed using a combination of catalog optical components and custom machined parts. The system provided major improvement in image quality, and reduced assembly and alignment time from several hours to under ½ hour.

Services Provided by OTI

- Optical design and engineering
- Mechanical engineering, including opto-mechanical mountings
- Development of custom fabrication and assembly methods
- Complete documentation set, including all drawings and test objects
- Prototyping, verification testing and transfer to manufacturing

Client Comment

Optimum demonstrated excellent service and exceeded our expectations. Their network of specialized engineers demonstrated their competence by providing efficient solutions to meet our criteria. Collaboration of OTI and our engineering/project management ensured the overall project success – and within schedule and budget constraints.

- Husam Al-Esawi, R&D Project Manager



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