

VERSA® Handle System

New Ergonomic Handle System

VERSA® is not just a new telmanipulator, it is the culmination of decades of designs and new innovative development.

We took your needs seriously to create and manufacture products that are customizable to any application. Extensive user assessments and ergonomic data were compiled to help us redesign and improve this handle system to accommodate all aspects of how you use our telemanipulators to complete your work.

VERSA® Handles are ergonomically designed and developed to be fully customizable for each operator. The VERSA® Handle System allows for optimal performance and overall ergonomic benefits to the operator while providing the most comfortable operator experience possible.



VERSA® Handle System
(VR8 Opposed Grip shown)

Application Solutions:



POTENT



ASEPTIC/POTENT

LIFE SCIENCE



R&D/D&D



RADIOPHARMA



MATERIAL TRANSFER

NUCLEAR

Features & Benefits

- Most adjustable and customizable handle available from CRL
- Designed for comfortable positioning of second hand to add support during operation
- Almost infinitely adjustable for maximum operator comfort
- Removable handle system allows for change between different handle types to support specific operation
- Allows each operator to have an individually, custom fitted handle
- Designed for quick detachment without tools to easily perform maintenance off the telemanipulator
- Quick release pins allow for quick and easy access to inspect moving components

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Ergonomics Assessments

CRL Control Handles for Telemanipulators

Challenge

One aspect of the VERSA® development process involved the redesign of the handle. As the handle is the interface between operator and telemanipulator, CRL spent significant resources and time focusing on this component.

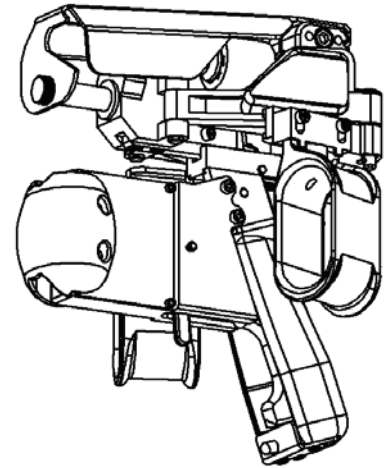
Approach

CRL asked that ergonomics experts from SRI•Ergonomics provide technical assistance on ergonomics issues surrounding these telemanipulators.

Three different efforts were conducted in order to evaluate any ergonomics issues surrounding the design and use of telemanipulator handles:

- Using relevant ergonomics design principles for tool handles to evaluate those controlling the telemanipulators
- Applying important anthropometric (i.e., body size) data to the handles, to ensure they are appropriate for most potential users
- Studying biomechanical issues of the hand/wrist joint as they pertain to both handle design and common work functions using the telemanipulator

8 Ergonomics Principles were also applied and tested on four different CRL telemanipulator handles. Below is one example of an improvement based on this effort.



Design Improvement Highlight: Handle Length & Shape

Ex: Handle Length and Shape

- **Handle Shape** – Tool handles that are cylindrical or oval in cross-sectional shape allow for optimal gripping and torque-generating ability.
- **Handle Length** – The length of a tool handle dictates the number of fingers that can be used to hold or activate the tool. In addition, if handles are too short, they can dig into the middle of the palm and compress the hand's superficial nerves located there, as well reduce blood flow.

Results: New handle was redesigned with longer handle and hilt on bottom for hand stop position.

Ex: Handle Button Controls

- **Sharp Edges** – The tool handle, or its controls, should not dig into or compress any part of the hand or fingers.

Results: New handle was redesigned with oblong, rounded edge buttons for optimal operator use.



Assessment and technical data provided by **SRI • Ergonomics at**  **THE OHIO STATE UNIVERSITY**