



Barrett Medical™
http://www.barrettmedical.com

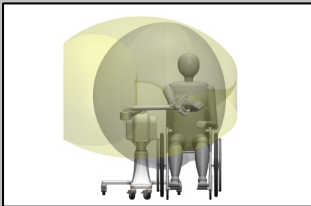
PRELIMINARY DATA SHEET

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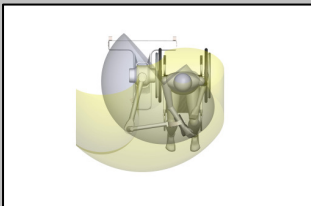
Bimanual Force-Feedback



Workspace: Front View



Workspace: Side View



Workspace: Top View
Dark area: Human reach
Light area: Robot reach

APPLICATIONS

- Neurorehabilitation research
- Haptically-enabled control
- Workspace scaling
- Force scaling
- Process engineering
- Human-machine interaction
- Teleoperation



3D Force Control, Big Workspace, Compact Form

With a workspace nearly overlapping the full range-of-motion of an adult's arm, Proficio was designed to be the haptic device of choice for those who desire high-fidelity force feedback throughout a human-sized work volume.

In the Clinic

Help patients regain functionality after a stroke using proven, established techniques for rehabilitation. Proficio's streamlined, easy-to-use therapist interface offers the ability to create and manage patient-specific rehabilitation profiles. Choose engaging games that address the patient's unique needs, then customize the game parameters to provide an appropriate level of challenge, and track patient progress over time.

In the Lab

Explore new modalities for upper extremity rehabilitation. Develop and assess robot-assisted therapies using the latest neurorehabilitation theories such as error augmentation, deficit fields, negative viscosity, active impedance, and intention remediation. Use Proficio's high-resolution force and position datalogging capabilities to help analyze motor functions from a data-driven perspective. Proficio's wiring was designed to support custom endpoint attachments with your own actuators and/or sensor signals.

Easy as P-I-E

- **Portable:** Proficio's low weight and compact size allows it to be moved and installed wherever it is needed.

- **Intuitive:** It is quickly and easily adaptable to different body types, and for right or left-handed operation.

- **Effective:** With transparent dynamics, low inertia, and high fidelity, Proficio is designed to be unobtrusive while giving center-stage to your force-enabled task.

Proficio {prō·fis'·ē·ō};
1. To make progress, push forward, advance. 2. To be of use, assist, help.

Proficio™

Research Edition

Robot-assisted Rehabilitation Large-workspace Haptics

Safety and Reliability

Built on over 25 years of proven technology, Proficio's gearless drives operate with the safety of natural backdrivability that comes from using pure *impedance control*. Proficio's low-power actuators are able to apply sufficient forces without the dangers of high-powered ball screws, geared drives, and delicately-calibrated sensors found in *admittance control* devices. Plus, a robust and intelligent safety system continuously monitors force and velocity. If any safety limits are exceeded, Proficio shuts down gracefully and allows full freedom of movement.

Two is better than one

Use two Proficios to create a bimanual system with force-coupled overlapping workspaces unlike anything else on the market.

Open source, Open mind

Proficio's control library runs on Linux, and it is completely open source. You have direct access to everything from low-level motor torques in realtime to high-level motion and force control with C++ and Python bindings. You can use ROS to leverage a huge library of robot code from path planning to vision and beyond. Set your mind free to develop your own revolutionary force-enabled applications!

SPECIFICATIONS

Power Requirements	Single-phase 110/220V 50-60Hz
Reach	1.05 m
Workspace	960 liters
Total System Mass	11.5 kg
Max force	Safety-limited 45 N
Max velocity	Safety-limited 1.5 m/s
Mechanical stiffness	5000 N/m
Control stiffness	2500 N/m
Position resolution	200 μm
Force resolution	5.6E-3 N
Operating temperature	Min 0 °C
	Max 85 °C

TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE
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