

# HPD IQ3000

Fully Automated Cryogenic Wafer Probing at 4 K

000111100010

## ➤ Overview

The HPD IQ3000 is a high precision fully automated probe station for 150 mm and 200 mm substrates in a 4 K environment. To accelerate the realization of commercial quantum and superconducting computers, we provide chip developers with the tools they need to intelligently iterate on their designs. The IQ3000 integrates configurable DC and RF cabling, with custom probe cards available for ultimate flexibility of test configurations. A robust design with integrated magnetic shielding provides the stable environmental conditions necessary to ensure the highest quality data for the most sensitive superconducting devices. Fully automated wafer loading and the sophisticated Velox software suite allows for high throughput testing and unattended operation for rapid time to data. FormFactor's longstanding probing expertise and decades of precision cryogenic experience come together in this system to take superconducting device test and measurement out of the lab into fab.



## Features

- **Fully automated:** The complete software suite and sophisticated systems design allows for fully automated probing from room temperature down to 4 K
- **High-speed probing:** A rigid motion structure and a solid granite base allows for rapid die-to-die movement with fast settling times
- **Customizable probing:** Large RF and DC signal capacity and customizable probe cards enable full configurability to meet any probing needs
- **High resolution vision:** The complete camera package allows for precision positioning of probe tips over dies
- **Magnetic shielding:** Active field cancellation and cryogenic magnetic shielding ensures a low magnetic environment during cooldown and probing
- **Cryogen control system:** A fully integrated solution provides flow control, safe exhaust, and recirculation preparation for liquid cryogenics including liquid nitrogen and liquid helium
- **Dry system upgrade\*:** The use of closed cycle cryocoolers eliminates the need to flow liquid cryogenics

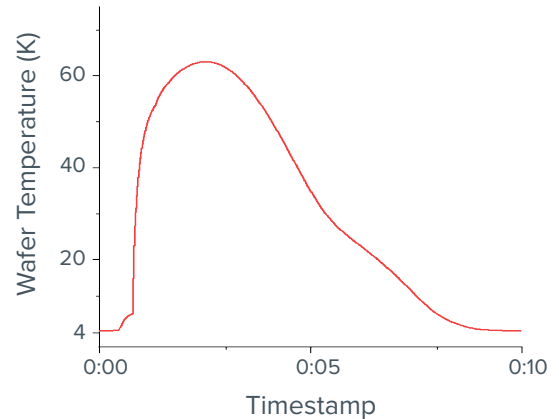
\*Contact us for more information on the dry system option



## Design Specifications

- 150 mm and 200 mm wafers
- +/- 112 mm XY, 0 – 13 mm Z, +/- 10° Theta motion
- <1  $\mu\text{m}$  XYZ motion resolution, <.0001° Theta resolution
- Up to 25 mm/s XY travel speed
- 50 mm XYZ microscope travel with a <3  $\mu\text{m}$  resolving power
- Wafer temp <4.5 K with 44 RF probes in contact
- Base 56 RF connections (up to 18 GHz) and 520 DC lines expandable and configurable depending on heat load
- 25 wafer capacity with <15 minute exchange time between wafers
- Quiescent magnetic field <200 nT

Wafer Exchange Cooldown



© Copyright 2022 FormFactor, Inc. All rights reserved. FormFactor and the FormFactor logo are trademarks of FormFactor, Inc. All other trademarks are the property of their respective owners.

All information is subject to change without notice.

**FormFactor Boulder**  
4601 Nautilus Court South  
Suite 100  
Boulder, Colorado 80301  
Phone: 303-447-2558  
[www.formfactor.com](http://www.formfactor.com)

HPD-IQ3000-DS-0122