

## Benefits

- Specifically designed for ion implant applications
- Optimized for tool throughput
  - 33% increase in hydrogen capacity
  - 10% increase in hydrogen pumping speed
  - Meets existing safety guidelines
- Intelligent “self adjusting” technology
  - Automatic cryogenic heat load compensation
  - Variable speed motor and control system with reduced vibration
- Lower cost of ownership
  - More pumps per compressor
  - Energy savings with no compromise in productivity
  - Variable-speed motor for maximizing pump operational life
- Increased uptime
  - IntelliPurge power failure pump management

The On-Board® IS 320FX Cryopump, developed specifically to address the challenges of today’s Ion Implant processes, provides enhanced hydrogen pumping speed and capacity while maintaining all the quality, performance and reliability benefits you’ve come to expect from the On-Board® IS 320FE cryopump.

The On-Board IS 320FX cryopump is designed to deliver the highest hydrogen vacuum pumping speed and capacity possible for improved product yield and tool throughput. Building on Brooks’ extensive cryogenic pump design expertise, this cryopump outperforms all other comparably sized pumps while meeting stringent safety guidelines.

Intelligent system controls deliver better process quality, vacuum consistency and up-time, while providing real-time system knowledge for optimized motor speed and cryogenic temperature. Automatic adjustment for changing heat/gas loading conditions enhances vacuum consistency and improves inter-wafer recovery time. These cryopumps also adjust for accumulation of process-related coatings without compromising reliability or productivity.

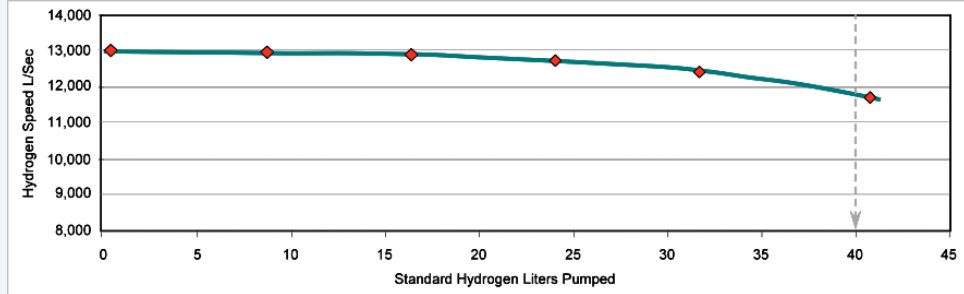
The On-Board IS system ensures full use of system-level helium resources for any operational condition. A patented control system continuously regulates the helium allocation per pump, thereby increasing the pump-to-compressor ratio for reduced cost of ownership. In addition, On-Board IS cryopump systems reduce power and cooling water consumption.

A state-of-the-art cryogenic array design with higher capacity brings about longer run times between regeneration and reduces the impact of ion implant residuals for longer pump life. “IntelliPurge” power management reduces unexpected pump regeneration due to a short-term power failure and ensures safety during an extended power outage. Proprietary regeneration sequences shorten regeneration time and ensure pump performance consistency after regeneration.

An integrated TC gauge and gate valve interlock eliminates the need for additional controllers, while integrated rough/purge/vent valves and controls simplify installation and improve system reliability.



Maximum Vacuum Performance between Regenerations



Performance Specifications

On-Board IS 320FX	
<b>Gas Pumping Speeds*</b>	
Water	11,000 L/Sec
Air	3,600 L/Sec
Hydrogen	13,000 L/Sec
Argon	3,000 L/Sec
<b>Gas Capacities</b>	
Hydrogen	40 L
<b>Crossover</b>	
	300 Torr-L
<b>Typical Regeneration Times (includes 20 min. extended purge time)</b>	
Full (First and Second Stage)	150 Minutes
FastRegen™ (Second Stage Only)	75 Minutes
<b>ISO Vacuum Flange Inner Diameter</b>	
	12.6 inches (320 mm)

\* Measurements per: "Recommended Practices for Measuring the Performance and Characteristics of Closed-Loop Gaseous Helium Cryopumps,"

Physical Features

Features for On-Board IS 320FX

**Integrated Controls**

- Pump-mounted, Field-replaceable Module
- Motor Drive Electronics
- Host Communication Interface (RS-232C, DB-9 Connector)
- First Stage Temperature Control
- Helium Management
- Service Communications Port
- Remote Display Option
- Gate Valve Control

**Integrated Accessories**

- First and Second Stage Temperature Sensors
- First and Second Stage Heaters
- Purge Valve
- Roughing Valve
- Vacuum (T<sub>C</sub>) Gauge
- Pressure Relief Valve
- Exhaust Purge Valve
- IntelliPurge System

Pump Motor	Variable Speed (3Ø, Low Vibration)
Power	200/230 VAC 50/60 Hz 1Ø, (5A)
Compatible Compressors	On-Board® IS-2000V, On-Board® IS-1000V

Backed by GUTS®

All CTI-Cryogenics products are backed by the GUTS® (Guaranteed Up-Time Support) rapid response network, our unique, comprehensive global customer support program. When you call a GUTS® service center, you are guaranteed immediate, competent response and action by a vacuum expert from our worldwide technical support staff. We're at work for you 24 hours a day, 365 days a year. In the U.S., dial 1-800-FOR-GUTS (800-367-4887).

For more information, please contact your local Brooks Automation sales representative or visit [www.brooks.com](http://www.brooks.com).

