

On-Board[®] Cryopump Systems

*The pumps that launched
the vacuum revolution*



UTI-CRYOGENICS
ELIX TECHNOLOGY CORPORATION

On-Board[®] Cryopump Systems

When our CTI-Cryogenics On-Board cryopump systems were introduced, they launched a revolution in vacuum productivity that continues today.

On-Board cryopump systems featured fast regeneration, greatly reducing downtime between production cycles. They were the first to deliver enhanced temperature control, for improved consistency in vacuum pumping speeds and higher productivity. And they were the first to offer remote monitoring and control of pumps scattered around large facilities or even around the world.

The pumps that launched the vacuum revolution

Today, Brooks' first-generation On-Board® cryopump systems continue to offer a perfect blend of productivity, reliability, vacuum consistency, central monitoring and price.

CTI-Cryogenics On-Board cryopump systems from Brooks: still delivering high productivity around the clock, around the world.



On-Board[®] Cryopump Systems

- Fast Regeneration and multipump control reduces downtime and increases productivity
- Consistent vacuum performance that adapts to changing process conditions
- Remote monitoring enables predictive maintenance and higher productivity
- On-Board configurability – seemingly endless choices
- Backed by GUTS[®] and TrueBlueSM Service Agreements

CTI-CRYOGENICS
HELIX TECHNOLOGY CORPORATION
ON-BOARD[®]
FastRegen[™] Control
Sputtering

AUX TC

REMOTE

RELAYS
24V

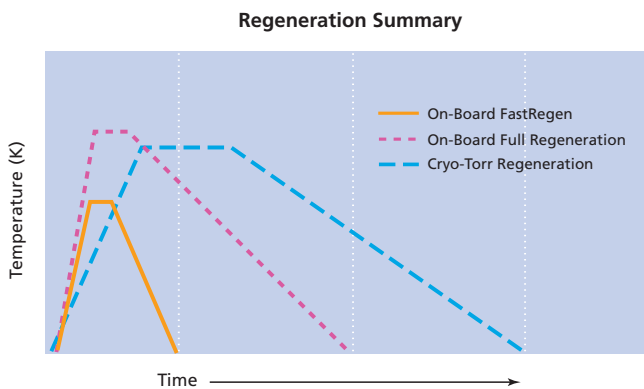
NETWORK

Fast Regeneration

Answering the call for greater uptime

Although capable of pumping enormous quantities of gas, cryopumps must eventually be “regenerated” to allow frozen gases to be removed, renewing their vacuum capabilities.

Enabled by integrated controls, On-Board® cryopumps regenerate in one-half to one-third the time of traditional cryopumps. Not only are On-Board’s “full” regenerations faster, its highly sophisticated control system also assures that the regeneration process is truly complete, maximizing tool or process productivity.

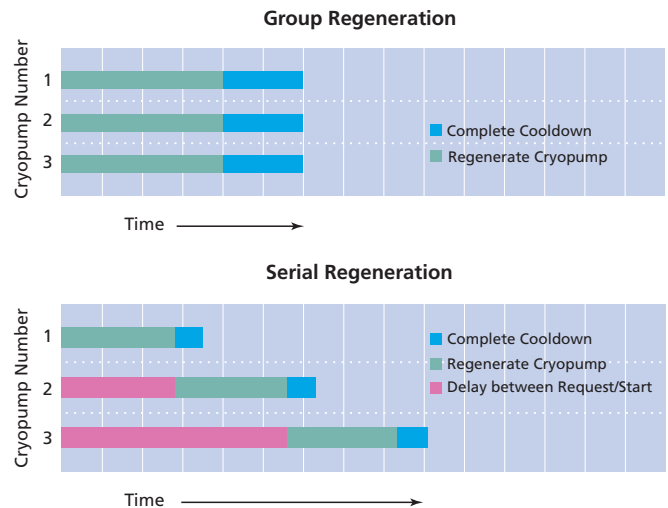


Moreover, On-Board’s FastRegen® capability further increases uptime by swiftly removing only the process gasses, restoring its performance in a fraction of the time required by a full regeneration.

Coordinated Multi-pump Regeneration

Boosting productivity through networked intelligence

For multiple cryopump systems, On-Board’s pump-to-pump communications network can be used to link cryopumps together and regenerate them in “groups” rather than “one-at-a-time.” By coordinating the regeneration tasks between pumps, On-Board’s group regeneration capability can return multiple pumps to full productivity in only slightly more time than what would take to regenerate a single, “non-intelligent” cryopump.



More Consistent Vacuum Performance

Vacuum consistency when process conditions aren't

We design each CTI-Cryogenics On-Board cryopump to deliver consistent vacuum performance even when the process conditions are not as stable as you’d like them to be. On-Board cryopumps control the temperature of their primary cryogenic arrays to maintain vacuum pumping capability despite moderate variations in the vacuum environment – a capability not possible on traditional cryopumps. The result: More consistent vacuum.

Remote Monitoring

Enable predictive maintenance – and higher productivity

On-Board® cryopump systems were the first to offer built-in monitoring capabilities. Thanks to the On-Board cryopump system's integrated, networked control system, deviations that represent even the slightest trends away from nominal performance can be detected early and acted upon before up-time can be adversely affected.

On-Board cryopumps monitor performance histories including overall operating hours, recent regeneration histories, and more, enabling you to watch closely the performance of each On-Board pump over time – and achieve superior performance in the future. Knowing in real time when a system starts to deliver even slightly off-key performance enables you to plan downtime conveniently – either to coincide with scheduled maintenance, or at another appropriate time. Parts that start to deliver off-spec performance can be replaced quickly, assuring ongoing productivity. The bottom line: On-Board systems all but eliminate surprise disruptions in system performance.

Through our varied Global Support service options, a connection to our GOLDLink monitoring capabilities creates a virtual presence in the fab, enabling predictive “JIT” maintenance practices. The results are increased vacuum availability, improved process certainty, reduced wafer scrap, and lower cost of ownership.



On-Board® Configurability

Seemingly endless choices

Brooks was first to offer both a “flat” CTI-Cryogenics cryopump configuration for low-profile applications, and a “straight” configuration for traditional applications.

On-Board cryopump sizes range from 4-inch to 400mm flange inner diameters (ID). Chances are that we stock precisely the configuration your application requires.

Your choices, however, don't end with the selection of cryopumps. From a complete line of highly-reliable helium compressors to flexlines of nearly every shape and length, our extensive family of CTI-Cryogenics accessories is designed to meet virtually every vacuum requirement.

Backed by GUTS®

Regardless of your application, one thing is certain: when you need vacuum, you don't need unplanned downtime. That's why we invented GUTS – Guaranteed Up-Time Support.

You can call our GUTS line around the clock, around the world to get knowledgeable help in a hurry. We'll either get you up and running through phone support, or we'll take steps in 59 minutes or less to get a part, a pump, or an experienced service engineer on-site to help.

Every call to our GUTS line is answered by a capable, empowered Brooks employee with the resources to diagnose customer problems quickly and accurately. Our commitment is to get your system back on-line quickly.

On-Board Cryopumps

| On-Board Pump Model | | 4F | 8 | 8F | 250F | 10 | 10F | 400 |
|-----------------------------|-----------------------------|----------|----------|----------|----------|----------|----------|----------|
| Configuration | | Flat | Straight | Flat | Flat | Straight | Flat | Straight |
| Vacuum Flange ID | (Metal Seal, ANSI, and ISO) | 100 mm | 200 mm | 200 mm | 250 mm | 290 mm | 300 mm | 400 mm |
| Gas Pumping Speeds | | | | | | | | |
| | Water Liters/Sec | 1,100 | 4,000 | 4,000 | 6,500 | 9,000 | 9,500 | 16,000 |
| | Air Liters/Sec | 370 | 1,500 | 1,500 | 2,200 | 3,000 | 3,600 | 6,000 |
| | Hydrogen Liters/Sec | 370 | 2,500 | 2,200 | 3,200 | 5,000 | 6,000 | 12,000 |
| | Argon Liters/Sec | 310 | 1,200 | 1,200 | 1,800 | 2,500 | 3,000 | 5,000 |
| Gas Capacities | | | | | | | | |
| | Hydrogen Standard Liters | 3 | 17 | 12 | 16 | 24 | 24 | 42 |
| | Argon Standard Liters | 210 | 1,000 | 1,000 | 1,000 | 2,000 | 2,000 | 2,500 |
| Throughput | | | | | | | | |
| | Argon Sccm | 700 | 700 | 700 | 700 | 1,500 | 1,500 | 500 |
| | Argon Torr-Liters/Sec | 9 | 9 | 9 | 9 | 19 | 19 | 6 |
| Crossover | | | | | | | | |
| | Torr-Liters | 100 | 150 | 150 | 150 | 300 | 300 | 300 |
| Full Regeneration (Typical) | | <1.4 hrs | <2.7 hrs | <2.7 hrs | <3.3 hrs | <2.2 hrs | <2.2 hrs | <3.8 hrs |
| Fast Regeneration (Typical) | | <0.7hrs | <1.0 hrs | <1.0 hrs | <1.5 hrs | <1.0 hrs | <1.0 hrs | <1.6 hrs |
| Cryopump Weight | | | | | | | | |
| | Lbs | 47 | 55 | 52 | 58 | 95 | 100 | 170 |
| | Kg | 21 | 25 | 24 | 26 | 43 | 45 | 77 |

Standard products shown. Please contact Brooks for custom cryopump configurations and specifications.

Brooks: *Delivering The Power of Blue*

Why is it that Brooks vacuum systems deliver more dependable production hours worldwide every day than everyone else combined? Perhaps it's our innovative, extraordinarily productive technology—whether it's a CTI-Cryogenics cryopump or Granville-Phillips vacuum gauge. But we think it's *The Power of Blue*: our total corporate commitment to deliver not only superior technology, but also unmatched performance, world-class global support, products and infrastructure and an expectation of “no surprises” — ever.

Our commitment to excellence begins the first time we speak with you and *that commitment never changes*. When you buy ‘the blue label’ you get a powerful global infrastructure of competent, committed support to ensure that all Brooks products deliver the performance and reliability you expect — always. Let our Brooks cryogenic vacuum pumping and measurement experts show you first-hand what total customer satisfaction is all about.

At Brooks Automation Global Customer Support, meeting your expectations is never enough. Our mission is to exceed expectations in all areas of customer responsiveness. From the industry standard of GUTS® to the pioneering e-Diagnostic implementation of GOLDLink® Support, Brooks is committed to serving you with the most advanced, innovative, highly productive tools available.

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