

# ON-BOARD<sup>®</sup> CRYOPUMP SYSTEMS



# THE PUMPS THAT LAUNCHED THE VACUUM REVOLUTION

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.

Today, Edwards' 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 Edwards: still delivering high productivity around the clock, around the world.

CTI-Cryogenics vacuum products and tailored solutions provide the flexibility, superior reliability, and precise performance that are essential for a broad range of applications:

## Semiconductor

Metrology  
Physical Vapor Deposition  
Chemical Vapor Deposition  
Atomic Layer Deposition  
Etch  
Implant  
Thermal Processing  
Lithography

## Data Storage

Magnetic/Optical Media  
Read/Write Heads

## Flat Panel Displays

## Thin Film Coatings

## Analytical

Ionization  
Electron Beam

## Education/Government

Accelerators and Synchrotrons  
Space simulation  
Fusion research  
Surface science  
Atomic Physics

## Industrial

Vacuum furnaces  
Heat treat furnace

## FEATURES & BENEFITS

- **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®**

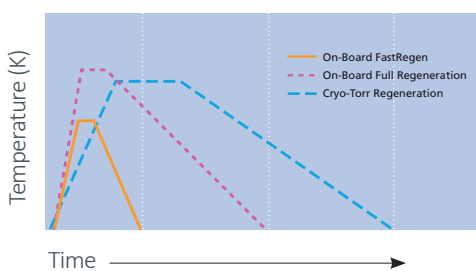
## Fast Regeneration

### 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.

### Regeneration Summary



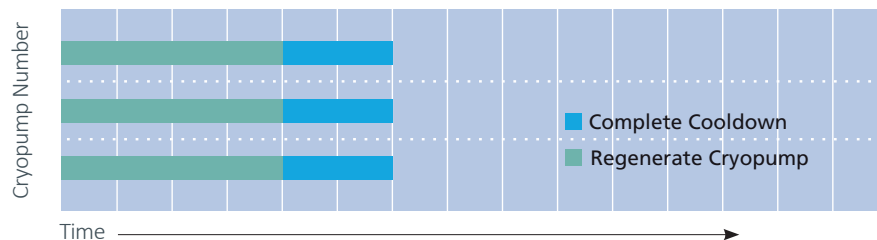
Moreover, On-Board’s FastRegen® capability further increases uptime by swiftly removing only the process gasses, restoring its performance in a fraction of the time required by a full regeneration.

## Coordinated Multi-pump Regeneration

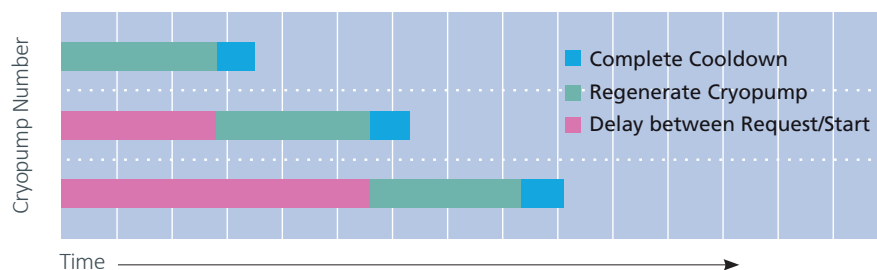
### Boosting productivity through networked intelligence

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.

### Group Regeneration



### Serial Regeneration



# SPECIFICATION

## On-Board® Configurability

### Seemingly endless choices

Edwards 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). We can provide the right configuration that meets your application requirement.

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

immediate steps 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 Edwards 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
<b>Gas Pumping Speeds</b>							
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
<b>Gas Capacities</b>							
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
<b>Throughput</b>							
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
<b>Cryopump Weight</b>							
Lbs	47	55	52	58	95	100	170
Kg	21	25	24	26	43	45	77

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





## GLOBAL CONTACTS

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