Одноступенчатые крионасосы, водяные крионасосы, крионасосы CTI-Cryogenics IS On-Board

Технические характеристики

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эл.почта: ewc@nt-rt.ru || сайт: https://edwards.nt-rt.ru/

On-Board® IS 320F XVS Cryopump

The solution for today's demanding Ion

Reach new levels of cryopump performance

The CTI-Cryogenics On-Board IS XVS 320F Cryopump maintains Edwards' tradition of delivering the most reliable and best performing implant cryopumps on the market.

The On-Board® *IS* 320F XVS cryopump is designed to deliver the highest hydrogen pumping performance for improved process yield and throughput, offering the perfect answer to today's Ion Implant applications challenges. The intelligent system control integrated in the cryopump ensures better process quality, vacuum consistency, and uptime, while providing real-time system information for optimum control of array temperatures. Vacuum quality is enhanced by automatic adaptation to changing thermal/gas loading conditions.

Features and benefits

Stable Vacuum Performance

- Reduced H2 Pumping Speed Variation between Regenerations
- Reduced Impact to H2 Pumping Speed due to Photoresist Contamination
- Optimized stable array temperatures

Enhanced Vacuum Performance

- High H2 Pumping Speed-15,500 L/S
- High H2 Capacity – 40 STD-L

System Compatibility

- On-Board *IS* Cryopump systems
- *IS*-1000, *IS*-2000V, *IS*-1800 XVS Compressors

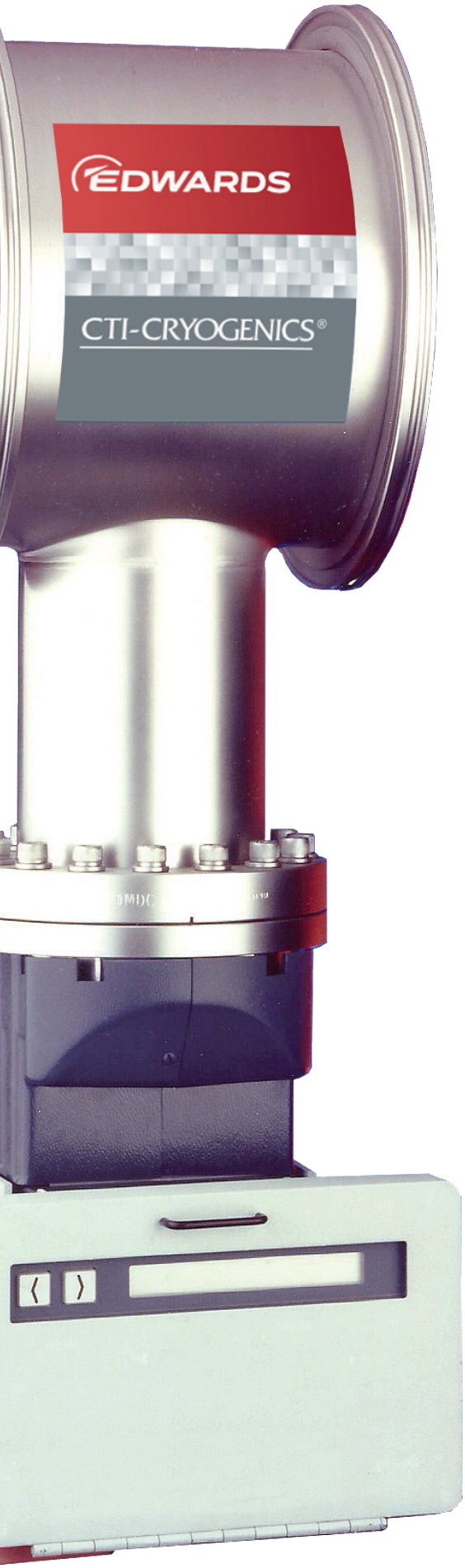
ON-BOARD® WATERPUMPS

ON-BOARD® WATERPUMPS

On-Board® Waterpumps are high performance vacuum pumps which increase water vapor pumping speed, providing substantially improved system throughput and better process results. They are available in several distinct configurations to fit any application. And they provide the field-proven reliability, the process flexibility, and the advanced productivity and performance of CTI-Cryogenics®' On-Board® family of high vacuum pumps.

FEATURES & BENEFITS

- **50% to 75% reduction in time to base pressure**
- **Higher yields through reduced water vapor and lower contamination.**
- **Full pumping speed down to 10^{-11} Torr, water vapor partial pressure of 10^{-13} Torr**
- **Temperature control for selective water vapor pumping. No gate valve required.**
- **The flexibility of three standard configurations, in a complete range of sizes, to fit any application or system**
- **Low cost installation and operation. The compressor can be located remotely, with no cold refrigerant lines.**
- **CTI-Cryogenics®' cryocooling technology, proven clean and reliable in over 20 years of demanding applications.**
- **Advanced On-Board® control system for process optimization and monitoring, predictive maintenance, networked pump management, and ease of use.**
- **Compatibility with other On-Board® pumps including common user interface, compressor, and communications protocol.**



HIGH SPEED WATER VAPOR PUMPS TO FIT ANY APPLICATION....

Clean Operation

On-Board® Waterpumps use closed-cycle helium refrigeration to cool the pumping surface. There are no cold, dripping refrigerant lines – lines that can be potential sources of refrigerant or vacuum leaks.

Small Footprint

Refrigeration takes place at the pump, so the compressor can be located remotely instead of consuming valuable space near the processing system. And, since water vapor is selectively pumped, an expensive gate valve is not required.

Consistent Vacuum

Integrated microprocessor control optimizes On-Board® Waterpump performance. The On-Board® microprocessor monitors the temperature of the refrigerator and maintains it at a user-adjustable set point, optimizing pumping performance.

Easy Integration

The pump can be operated either directly from the keypad mounted on the pump, or over a data bus using standard communications protocols. This enables automatic control of the pump by the vacuum processing systems' main controller, or by a PC running CTI-Cryogenics®' On-Board® Central Control software.

Flexible Configurations

On-Board® Waterpump systems are available in three flexible configurations, to suit your specific vacuum system and application requirements.

Inline Configuration

For installation 'In Series' with a turbopump or a diffusion pump to increase water vapor pumping speed, or as a high-conductance alternative to a cooled baffle. The hollow tube cryopanel maximizes the conductance from the chamber to the throughput pump.

In Situ Designs

For installation in process chambers, transfer chambers, or load locks. Provides maximum water vapor pumping speed through a large surface area. A line of standard cryopanels is available, and custom designs can be provided for specific applications.

Appendage Configuration

For installation in process chambers or load locks or as a booster pump in large chambers with high water loads. Includes fully integrated purge valve, roughing valve, and TC gauge for automatic operation through the On-Board® microprocessor.

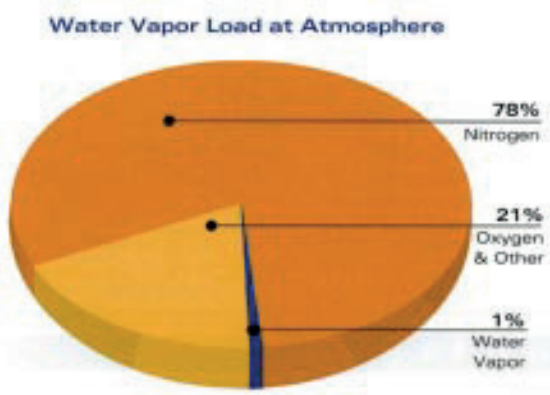
VACUUM UPTIME IS PROCESS UPTIME...

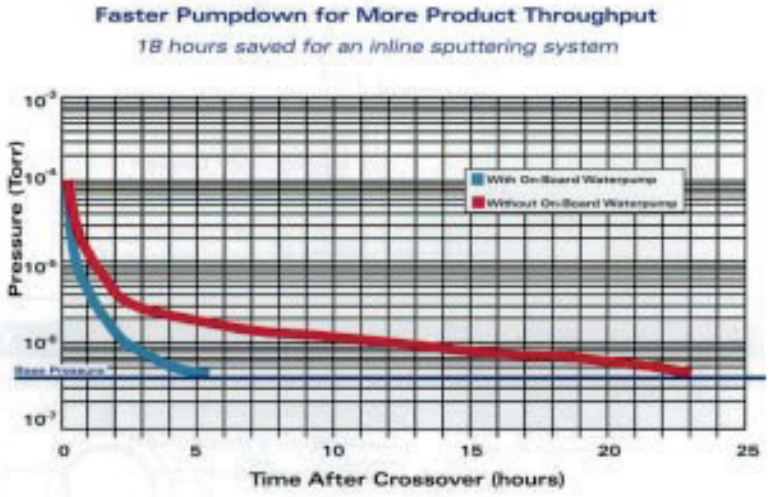
Because water outgasses slowly from vacuum chamber walls, water vapor comprises over 97% of the residual gas load at 10^{-3} Torr and below. It creates the primary impediment to reaching desired base pressure, and it is detrimental to the chemistry and yield of many processes. To maximize process throughput and yield, it is important to maximize water vapor pumping speed.

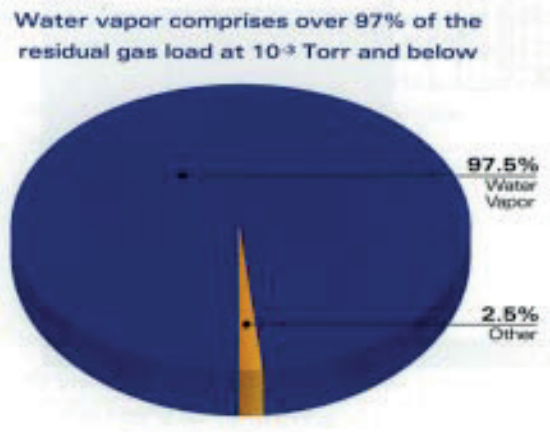
On-Board® Waterpumps are an effective and economical way to add high water vapor pumping speed to turbopumped, diffusion pumped, and cryopumped processes. They significantly reduce pumpdown time to base pressure for more throughput, while reducing the amount of residual water vapor in the process chamber, for improved process performance.

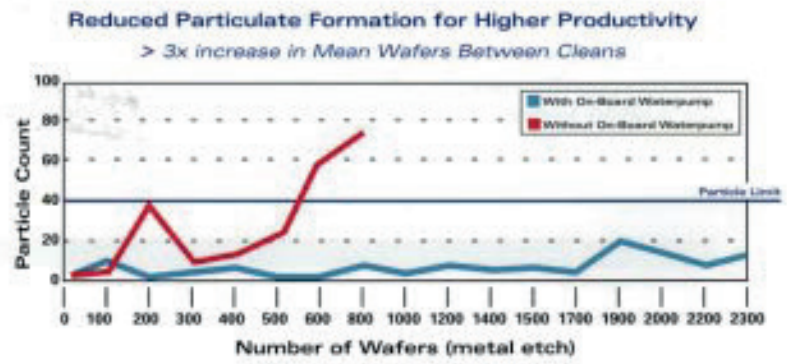
The low operating temperature of 107K results in water vapor partial pressure of 10^{-13} Torr. This allows full pumping speed down to 10^{-11} Torr, applicable even in ultra-high vacuum applications. And operating temperature is user-adjustable, allowing selective pumping of water vapor. For example, sputter gases are not pumped, and no expensive gate valve is required.

On-Board® Waterpumps feature all the unique productivity-enhancing benefits of On-Board® Cryopumps, made possible through comprehensive microprocessor-based performance monitoring and control. As with On-Board® Cryopumps, they can be fully integrated with the rest of the vacuum system. In fact, they share the same user interface, compressor hardware, and communications hardware and protocol.









...AND ON-BOARD® MAKES IT BETTER

- **Ease of Use**
  Comprehensive monitoring and control is easy, from a keyboard mounted on the pump or on an accessory rack, a remote NetLink terminal, or by On-Board® Central Control, an intuitive, PC-based graphical user interface.

- **Consistent vacuum, with process monitoring and control**
  Continuous, real-time monitoring and control of refrigerator temperature gives stable base pressure, and provides data readout for correlation with process lots.
  Temperature is adjustable above 107K, allowing selectable pumping of water vapor.
  Programmable alarms allow you to respond quickly to any unexpected process variations.

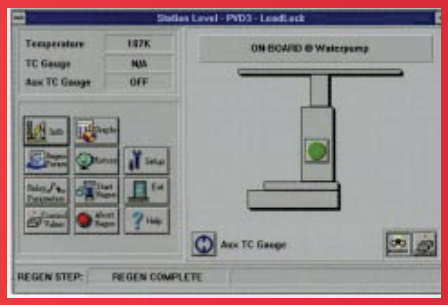
- **Predictive Maintenance**
  Comprehensive pump performance data and graphical trend analysis allow you to track system performance and to plan corrective action before the need becomes critical. This avoids costly unscheduled downtime.

- **More efficient process operations**
  On-Board® Waterpumps can be networked with other types of On-Board® pumps, allowing uniform, centralized monitoring, control, and maintenance of all pumps in the process area via On-Board® Central Control software.

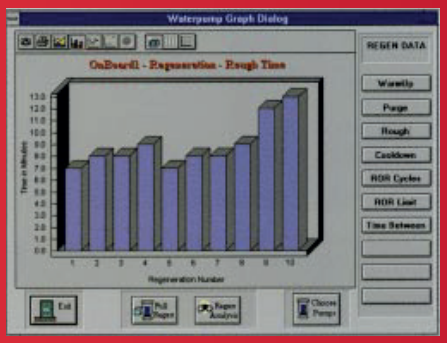
  Within the network, pumps associated with multi-pump process tools can be controlled as groups by On-Board® Central Control software, as well as by each process tool's controller. Modem access capability allows remote operation and maintenance.

- **East upgrades and process tailoring**
  Upgrading your On-Board® Waterpumps to keep current with new product developments (for example, process-specific performance optimization) is accomplished quickly and economically by simple exchange of the removable module.

- **Complete retrofit performance package**
  On-Board® Waterpumps can be retrofitted to many existing process tools to improve uptime and performance. Both standard upgrade packages and custom solutions are available.



The On-Board® Central Control graphical user interface provides easy access to complete operation, monitoring and control capabilities.



Pump history data facilitates predictive maintenance. For example, increasing rough time can indicate increasing water vapor in the system (due to rising humidity, longer exposure to ambient, or a leak developing).

PERFORMANCE SPECIFICATIONS FOR ON-BOARD® WATERPUMPS

All models are available in standard metal seal or ISO flange configurations. Other configurations are also available.

Contact your CTI-Cryogenics® representative for assistance, and for detailed dimensional drawings for any configuration.

Backed by GUTS®

Like all CTI-Cryogenics® products, On-Board® Waterpumps are backed by GUTS® (Guaranteed Uptime Support) rapid response network, our unique, comprehensive global customer support program.

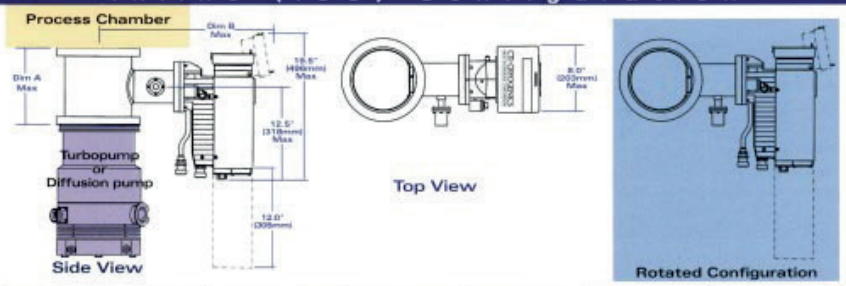
When you call a GUTS® service center, you are guaranteed immediate, competent response and action by a vacuum exert from our worldwide technical support staff. We're at work for you 24 hours a day, 365 days a year.

On-Board® Waterpumps Inline and Appendage Configurations

Pump Size	4"	6"	8"	10"	16"
(Inlet Flange) ISO Flange Metal Seal	100mm 6" OD	160mm 8" OD	200mm 10" OD	250mm 12" OD	400mm
Water Speed	1,100 l/s	2,500 l/s	4,000 l/s	7,000 l/s	16,000 l/s
Conductance (N_2 Inline configuration)	450 l/s	1,000 l/s	1,800 l/s	2,800 l/s	7,200 l/s

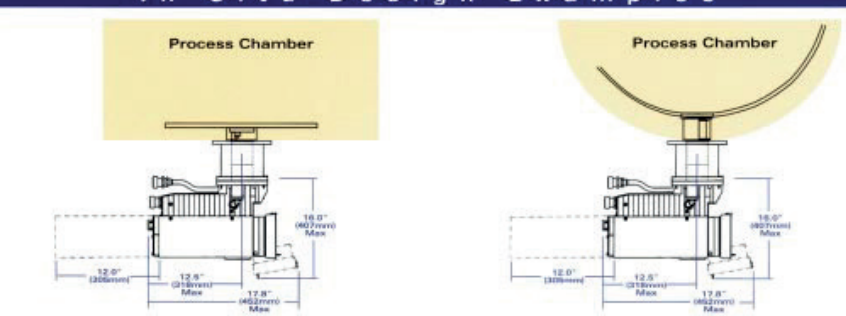
Water Speed	**In Situ Designs** For in situ designs, the water vapor pumping speed is proportional to cryopanel front surface area at 96 liters/sec/in². For example, 14,000 l/s can be achieved with a 10" by 15" panel. Standard in situ configurations are available. Custom cryopanels can be designed for any vacuum chamber.

Inline (ISO) Configuration

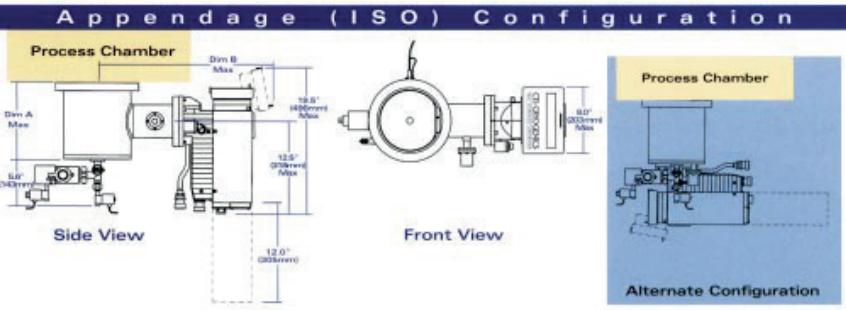


Pump Sizes	4"(100mm)	6"(160mm)	8"(200mm)	10"(250mm)	16"(400mm)
Dimension A	5.5"(140mm)	6.5"(165mm)	6.7"(169mm)	7.5"(191mm)	8.0"(203mm)
Dimension B	19.6"(499mm)	19.9"(505mm)	20.9"(531mm)	22.1"(560mm)	25.3"(641mm)

In Situ Design Examples



Appendage (ISO) Configuration



Pump Sizes	6"O.D.	8"O.D.	10"O.D.	16"O.D.
Dimension A	8.3"(211mm)	8.4"(213mm)	8.9"(225mm)	12.2"(308mm)
Dimension B	19.9"(505mm)	20.9"(515mm)	22.7"(576mm)	25.9"(657mm)

PRODUCT DATA SHEET

CTI-CRYOGENICS® ON-BOARD® LOWPROFILE™ WATERPUMP

CTI-Cryogenics®' LowProfile Waterpumps add significant water vapor pumping speed to turbopumped systems, while maintaining a small package and easy integration.

The "heart" of the waterpump is a highly reliable, long-life, closed loop refrigeration system. This cryogenic system uses safe, inert, easily available helium gas as the refrigerant.

Faster Pumpdowns

LowProfile Waterpumps are configured for applications where high water vapor pumping speed is required while maintaining a compact footprint. LowProfile Waterpumps increase water vapor pumping performance by nearly 500%.

During vacuum pumpdown, the light gases: nitrogen, oxygen, and hydrogen are pumped quickly regardless of the pumping scheme. Water vapor becomes the dominant gas load. Increasing water vapor pumping speed has a direct effect on pumpdown times and the ability to achieve ultimate base pressures.

Small Footprint

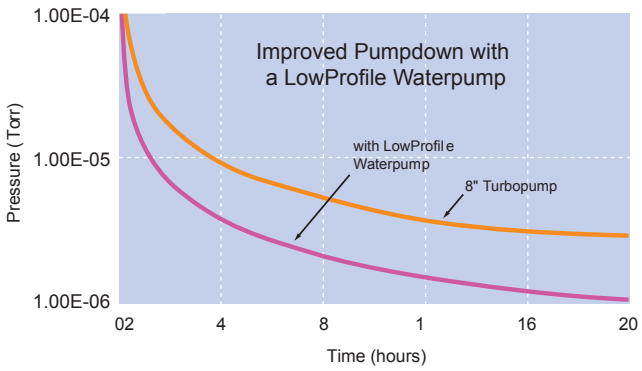
LowProfile Waterpump systems consist of a thin profile inline waterpump with a helium compressor, which can be conveniently remoted. The pump mounting flange is only 1" thick (25 mm) for ISO configurations, and 1.55" (39 mm) for metal seal, for easy installation into the pumping stack.

Low Profile Waterpumps, along with other CTI-Cryogenics® high vacuum pumps, can be operated simultaneously from CTI-Cryogenics® helium compressors. This assures cost effective retrofits and low cost of ownership. This simple, compact package is ideal for turbopumped applications such as loadlocks, transfer module or process chambers where fast pumpdowns and low water vapor backgrounds are required.

Features and Benefits

- Dramatic Increase in System Water Speed
- Up to 70% Faster Pumpdowns Increased Throughput
- Lower Base Pressures
- Higher Yields
- High Conductance to Turbopump
- On-Board® Platform for Communication, Control and Diagnostics
- Thin Profile, Small Footprint
- Standard Mounting Flanges
- Low Cost Installation and Operation
- Backed by GUTS® (Guaranteed Uptime Support)

Low Profile Waterpump Performance



Low Profile Waterpump Specifications

Pump Size	**4”**	**6”**	**8”**
ISO Flange	100 mm	160 mm	200 mm
Metal Seal Flange	6” O.D.	8”O.D.	10” O.D.
Low Profile Waterpump Water Vapor Pumping Speed	800 l/s	1900 l/s	3800 l/s
Total Water Vapor Pumping Speed (with typical Turbopump)	900 l/s	2100 l/s	4000 l/s
Air (N_2) Conductance	500 l/s	1150 l/s	2000 l/s

On-Board® Capabilities

Ease of use- Comprehensive monitoring and control is easy, from a keypad mounted on the pump or on an accessory rack, a Network Interface Terminal or by On-Board® Central Control, an intuitive, PC-based graphical user interface.

Consistent vacuum, with process monitoring and control- Continuous, real-time monitoring and control of critical parameters give stable base pressures, and provide data readout for correlation with process lots. Programmable alarms allow you to respond quickly to any unexpected process variations.

More efficient process operations- The On-Board® platform networks all types of On-Board® pumps, allowing uniform, centralized monitoring, control, and maintenance of all pumps in the process area via On-Board® Central Control software.

Within the network, pumps associated with multi-pump process tools can be controlled as groups by On-Board® Central Control software, as well as by each process tool’s controller. Modem access capability allows remote operation and maintenance.

Backed by GUTS®

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

EDWARDS

ON-BOARD® *IS* SINGLE STAGE CRYOPUMPS

Today, Edwards introduces the Next Generation in vacuum productivity systems, On-Board *IS*.

As always, the goal is to maximize tool throughput while maintaining the highest quality.

Each On-Board IS cryopump system delivers:

- Superior quality vacuum for higher yields.
- Fastest regenerations plus significantly longer run-time between regenerations for unparalleled productivity.
- Built-in intelligent system management /enhanced predictive maintenance features for unequalled dependability.
- Intelligent adaptive system performance for optimal results regardless of process.
- Energy efficiency with no compromise in performance for lower operating costs.

On-Board IS cryopumps, compressors, and accessories operate as a fully integrated system to deliver previously unattainable levels of process performance. The system features many advances including innovative cryogenic refrigerator technology, breakthrough "system-level" intelligence, increased pumping capacity, and much more.

Taken together, these performance advantages deliver one crystal-clear benefit: significantly improved productivity.

Selective Cryopumping Solutions for Improved Vacuum

Water vapor is 97% of the gas load at 10-3 Torr and below. Its presence degrades the ability of vacuum systems to reach base pressure rapidly, and it is detrimental to many production vacuum processes.

By increasing the ability of your vacuum systems to reduce water vapor dramatically, On-Board IS Single Stage Cryopumps greatly expand system uptime and overall productivity.

On-Board IS Single Stage Cryopumps maximize water vapor pumping speed economically. Used with turbopumped, diffusion pumped, and even cryopumped systems, they cut pumpdown time to pressure in half, substantially enhancing process throughput.

Their low operating temperature of 107K results in a water partial pressure of 10-13 Torr which allows full pumping down to 10-11 Torr, applicable even to ultra-high vacuum applications. Their user-adjustable operating temperature enables selective pumping of water vapor and other contaminating gases, without interfering with process gases. And expensive gate valves are not needed.

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

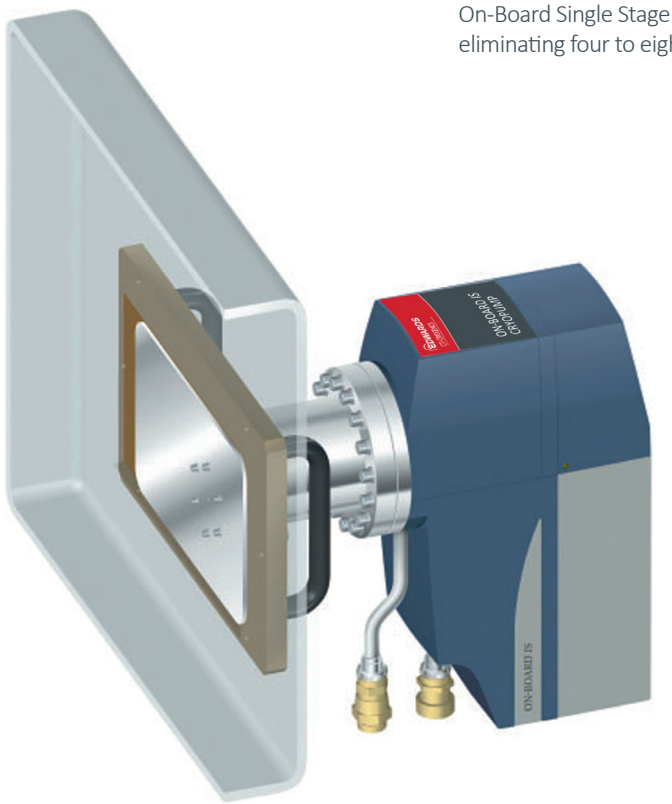
Industrial
Vacuum furnaces
Heat treat furnaces
General vacuum

Description

Achieving optimal productivity in a broad range of vacuum process applications requires high water-pumping speed. CTI-Cryogenics On-Board Single Stage Cryopumps from Edwards Technology Corporation increase the water pumping capacity of turbopumps by eight times, making possible significant advances in system throughput and process productivity whether they are used in transfer, in-line, or process chamber applications.

High water-pumping speed also enhances end-product quality in many vacuum processes, improving overall yields and sharply cutting both waste and the cost of production itself.

On-Board Single Stage Cryopumps are designed in a variety of configurations to meet most application requirements. They are available in both inline or insitu configurations in a variety of sizes.



Product Highlights

- **Pumps more than 24,000 liters per second of water vapor,** improving process quality and decreasing cycle time in a broad range of applications.
- **Pumps a wide variety of hydrocarbon gas contaminants,** delivering five to ten times higher contaminant pumping speed than turbopumps while reducing end-product defects.
- **Increases turbopump water vapor pumping speed by eight times** in load-locked transfer or process chamber use.
- **Lowest vibration** of On-Board cryopump family.
- **Operates at low-cost and with a minimal footprint,** since it does not require a large closely coupled compressor, it often can operate with existing helium system.
- **Available for *inline or insitu* configurations** in a variety of sizes to meet user requirements.
- **Installs easily.**

Key Application Benefits

The On-Board Single Stage Cryopump optimizes turbopump performance in SEM Metrology, Ion Beam Deposition, Flat Panel Displays, Roll-to-Roll Plastic Coaters, Batch Decorative Coatings, Optical Coating, and PVD Transfer Chambers.

- **Improves throughput** by decreasing cycle time.
- **Reduces pumpdown time by 50%** following system maintenance.
- **Improves deposition quality** by decreasing process contamination caused by residual hydrocarbon gas.
- **Prevents process contamination from water vapor** by lowering the system's water partial pressure.
- **SEM Metrology:** The presence of hydrocarbon contaminants can adversely impact the measurement performance of these tools. On-Board IS Single Stage Cryopumps significantly reduce the presence of a broad range of long chain hydrocarbon species.
- **Ion Beam Deposition:** Pumpdown time after maintenance is slowed by water vapor. On-Board Single Stage Cryopumps remove water vapor and cut pump downtime in half, eliminating four to eight hours of cooldown waiting time.
- **Flat Panel Displays:** Water vapor present during flat panel display manufacturing can react adversely with materials such as MgO and organic light-emitting films, reducing productivity. On-Board Single Stage Cryopumps reduce water partial pressure, cutting water vapor contamination and measurably improving yield.
- **Roll-to-Roll Plastic Coaters:** Evaporative processes such as plastic coating are subject to high water vapor loads because of the very large surface area of rolled plastics. Reducing the water vapor load maintains water partial pressure during process, significantly improving production consistency and yield.
- **Batch Decorative Coatings /Optical Coating:** Leveraging the On-Board Single Stage Cryopump for batch coatings results in approximately 50% faster pumpdown and greater throughput than with turbopumps alone.
- **PVD Transfer Chambers:** On-Board Single Stage Cryopumps cut pump downtime by 50%, eliminating hours of waiting. Process chambers are exposed to less water contamination at the time of substrate transfer.

SELECTIVE CRYOPUMPING SOLUTIONS FOR IMPROVED VACUUM

Single stage cryopumps are designed for easy integration with all On-Board Systems.

Additional Helium Compressors often not required.

On-Board IS Insitu Cryopump

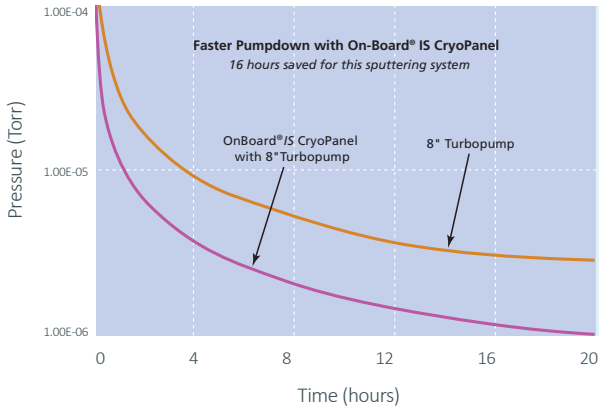
For installation in process chambers, transfer chambers, or load locks. Provides maximum water vapor pumping speed through a large surface area. A line of standard cryopanels is available, and custom designs can be provided for specific applications.

On-Board IS Inline Cryopump

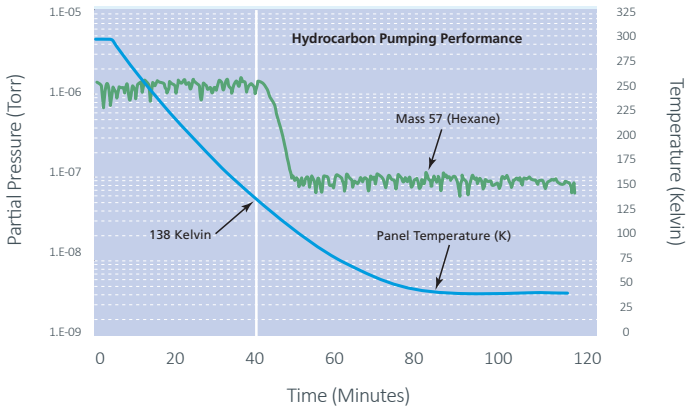
For installation "in series" with a turbopump or a diffusion pump to increase water vapor pumping speed, or as a high-conductance alternative to cooled baffle. The hollow tube cryopanel maximizes the conductance from the chamber to the throughput pump.

Technical Features

Water Vapor



Hydrocarbon Contamination



- **Reduces time to base pressure by 50% to 75%**
- **Delivers full pumping speed to 10^{-11} Torr and to a water vapor partial pressure of 10^{-13} Torr**
- **Delivers selective pumping of water vapor and other contaminant gasses through temperature control**
- **Eliminates the need for an expensive gate valve in many applications**

On-Board IS LowProfile Cryopump

For installation where space is at a premium "in series" with a turbopump or a diffusion pump to increase water vapor pumping speed, or as a high-conductance alternative to cooled baffle. The circular cryopanel maximizes the conductance from the chamber to the throughput pump.

On-Board IS Appendage Cryopump

For installation in process chambers or load locks or as a booster pump in large chambers with high water loads. Includes fully integrated purge valve, roughing valve and TC gauge for automatic operation through the On-Board control system.

Backed by GUTS®

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 gauge, a vacuum measurement system, a pump on site, or an experienced service engineer to help.

Our GUTS rapid response system delivers unsurpassed responsiveness worldwide to any vacuum problems. 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.

Performance Specifications for On-Board IS Single Stage Cryopumps

Inline and Appendage Configurations **Pump Size**	**4"**	**6"**	**8"**	**10"**	**16"**
(inlet flange) ISO Flange Metal Seal	100 mm 6" O.D.	160 mm 8" O.D.	200 mm 10" O.D.	250 mm 12" O.D.	400 mm
Water Speed Conductance (N_2, Inline Configuration)	1,100 l/s 450 l/s	2,500 l/s 1,000 l/s	4,000 l/s 1,800 l/s	7,000 l/s 2,800 l/s	16,000 l/s 7,200 l/s
Insitu Designs **Water Speed**	For insitu designs, the water vapor pumping speed is proportional to cryopanel front surface area at 96 liters/sec/in^2. For example, 14,400 l/s can be achieved with a 10" by 15" panel. Standard insitu configurations are available. Custom cryopanels can be designed for any vacuum chamber.				

All models are available in standard metal seal or ISO flange configurations. Other configurations are also available.

Clean operation. The pumping surface of On-Board Single Stage Cryopumps is cooled by a closed-cycle helium refrigeration system. There are no cold, dripping "special" refrigerant lines and no potential for refrigerant or vacuum leaks.

Small footprint. On-Board Single Stage Cryopumps selectively pump water, eliminating the need for an expensive gate valve. Refrigeration occurs at the pump, all compressors can be located remotely – hundreds of feet away if required, freeing expensive space near the point of vacuum processing.

Consistent vacuum. Pumping performance is extremely consistent, optimized by an automatic electronically controlled temperature system. The ability of the system to operate at 107K enables it to achieve water vapor partial pressures of 10-13 Torr.

PRODUCT DATA SHEET

ON-BOARD® *IS* 500 CRYOPUMP

The CTI-Cryogenics® On-Board® *IS* 500 Cryopump is a high performance, large-diameter (500mm) cryopump that delivers high pumping speeds and capacity and is optimized for gas species that are critical to most PVD, Evaporation and General Vacuum applications.

On-Board *IS* 500 is ideal for demanding applications that require consistent vacuum performance, including; Power Devices, Wireless, LED, MEMS, Photonics, Flat Panel Display, as well as optical coating, metal deposition, and space chamber applications.

Featuring field-proven, globally recognized CTI-Cryogenics On- Board *IS* technology, the On-Board *IS* 500 Cryopump delivers high pumping speeds for fast pump-down times. Programmable, first-stage temperature control (up to 100K) delivers more consistent, dependable vacuum performance. High-capacity refrigerator supports high heat load process applications as well as large gas loads to deliver superior vacuum performance and extended time between regenerations.

The plug-and-play On-Board *IS* 500 Cryopump technology is designed with integrated valves, sensors and heaters that are factory calibrated and tested which facilitates tool integration and delivers process control and consistency between systems.

Advanced microprocessor On-Board *IS* controller enables automated operation of critical process that can be controlled remotely, including:

- Regeneration
- Power fail recovery
- Process temperature control
- System diagnostics and historic data logging

Features and Benefits

- Precisely controlled vacuum performance with intelligent On-Board *IS* Controls
- Long time between regenerations due to high Ar and N2 capacity
- Significant energy savings on multi-pump systems when used with On-Board *IS*-2000V compressor
- Easier installation, 50% of the weight of the On-Board 500

Performance Specifications

	On-Board® *IS* 500
Intelligent Temp Controls	**Y**
Intelligent Regencycle Control	**Y**
Gas Pumping Speeds	
Water	30,000 L/sec
Air	10,000 L/sec
Hydrogen	12,000 L/sec
Argon	8,400 L/sec
Gas Capacities	
Hydrogen	15 Standard Litres
Argon	6,000 Standard Litres
Max Throughput	
Argon	1,000 sccm
Crossover	600 Torr-Litres
Full Regeneration Time	200 min

Physical Features

Cryopump Weight	138 lbs
Mounting Flange	ISO-K (500 mm)

PRODUCT DATA SHEET

EDWARDS CTI ON-BOARD® *IS* 250FE AND *IS* 250FX CRYOPUMPS

The harsh environment of ion implant processes requires consistent vacuum pumping that maximises tool availability and product yield.

Hydrogen gas is one of the principal by products of the ion implantation process and can cause detrimental effects on both product yield and tool throughput. The On-Board® *IS* 250FE and On-Board® *IS* 250FX cryopump systems are designed to deliver the highest hydrogen vacuum pumping speed possible, thus opposing the possible impact on tool throughput. Our breakthrough technology uses Edwards' extensive cryogenic pump design capability, enabling these cryopumps to outperform all other comparably sized pumps and still meet our rigorous safety guidelines.

Edwards' On-Board® *IS* 250FE and On-Board® *IS* 250FX cryopump systems use intelligent system controls to deliver better process quality, vacuum consistency and uptime. Intelligent system controls allow for real-time system knowledge for managing motor speed and cryogenic temperature. The On-Board® *IS* system automatically adjusts for changing heat/gas loading conditions, resulting in enhanced vacuum consistency and improved inter-wafer recovery time. In addition, On-Board® *IS* cryopumps adjust for accumulation of process-related coatings with no compromise in reliability and productivity.

The On-Board® *IS* system ensures full use of system level helium resources for any operational condition. This results in a substantial reduction in cost of ownership due to continuous optimisation of helium allocation per pump, thus increasing the pump-to-compressor ratio. Lower power and cooling water consumption can be achieved with our On-Board® *IS* cryopump systems.

On-Board® *IS* cryopumps for implant include proprietary regeneration sequences that optimize regeneration time and allow longer run times between regeneration. The very nature of this regeneration programme considerably reduces the impact of ion implant residuals in the pump, providing longer pump life. The IntelliPurge power management routine reduces unexpected pump regeneration due to short-term power failure, while ensuring safety should power remain off for an extended period of time.

To reduce system cost and increase ease of use the On-Board® *IS* cryopump system includes an integrated TC gauge and controller for a gate valve, eliminating the need for additional controllers. In addition, integrated rough, purge, vent valves and controls are included, increasing serviceability and system reliability.

Features and benefits

- Specifically designed for ion implant applications
- Optimised for tool throughput
  - improved 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 maximises pump operational life
- Increased uptime
  - IntelliPurge power failure pump management

Physical Features

	On-Board® *IS* 250FE	On-Board® *IS* 250FX
Gas Pumping Speeds		
Water	6,500 L/Sec	6,500 L/Sec
Air	2,200 L/Sec	2,200 L/Sec
Hydrogen	7,000 L/Sec	7,400 L/Sec
Argon	1,800 L/Sec	1,800 L/Sec
Gas Capacities		
Hydrogen	24 L	32 L
Crossover	150 Torr-L	150 Torr-L
Typical Regeneration Times (includes 20 min. extended purge time)		
Full (First and Second Stage)	115 Minutes	115 Minutes
FastRegen (Second Stage only)	50 Minutes	50 Minutes
Vacuum Flange Inner Diameter	10 inches (250 mm)	10 inches (250 mm)

Features forOn-Board® *IS* 250FE and *IS* 250FX

Integrated Controls	Integrated Accessories
Pump-mounted, Field-replaceable Module	First and Second Stage Temperature Sensors
Motor Drive Electronics	First and Second Stage Heaters
Host Computer Interface	Purge Valve
(RS-232C, DB-9 Connector)	Roughing Valve
First Stage Temperature Control	Vacuum (TC) Gauge
Helium Management	Pressure Relief Valve
Service Communications Port	Exhaust Purge Valve
Remote Display Option (USB connector)	IntelliPurge System

PRODUCT DATA SHEET

CTI-CRYOGENICS® ON-BOARD® *IS* 320FX CRYOPUMP (30L & 40L CAPACITY)

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 upon Edwards' extensive cryogenic pump design expertise, this cryopump outperforms all other comparably sized pumps while meeting rigorous safety guidelines.

Intelligent system controls deliver better process quality, vacuum consistency and uptime, while providing real-time system knowledge for optimised motor speed and cryogenic temperature. Automatic adjustment for changing heat/gas loading conditions enhances vacuum consistency and improves inter-wafer recovery time. The On-Board® *IS* 320FX also adjusts 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.

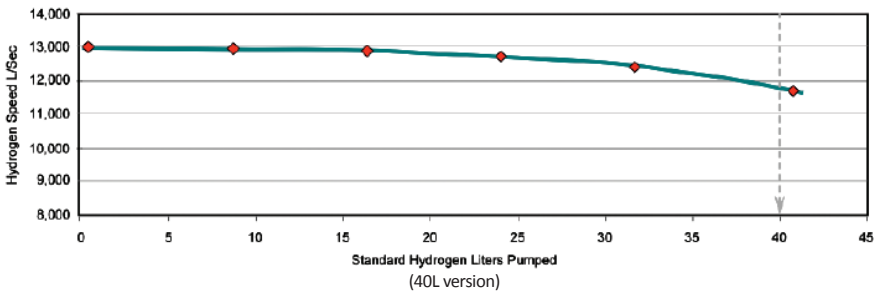
Our state-of-the-art cryogenic array design with higher capacity brings about longer run times between regenerations, and reduces the impact of ion implant residuals for longer pump life. The IntelliPurge power management reduces unexpected pump regeneration due to short-term power failure, and ensures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

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.

Features and Benefits

- Specifically designed for ion implant applications
- Optimised for tool throughput
  - 33% increased 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 maximising pump operational life
- Increased uptime
  - IntelliPurge power failure pump management

Maximum Vacuum Performance Between Regenerations



Performance Specifications

	On-Board® *IS* 320FX
Gas Pumping Speeds*	
Water	11,000 L/Sec
Air	3,600 L/Sec
Hydrogen	12,500 L/Sec (30L) 13,000 L/Sec (40L)
Argon	3,000 L/Sec
Gas Capacities	
Hydrogen	30L /40L
Crossover	300 Torr-L
Typical Regeneration Times (includes 20 min. extended purge time)	
Full (First and Second Stage)	150 Minutes
FastRegen™ (Second Stage only)	75 Minutes

Physical Features

ISO Vacuum Flange Inner Diameter	12.6 inches (320 mm)

* Measurements per: "Recommended practices for measuring the performance and characteristics of closed-loop gaseous helium cryopumps." (J. Vac Technol. A 17(5), Sep/Oct 1999)

Features

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 (TC) 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*-1000

PRODUCT DATA SHEET

EOS1300-1900i ROTARY SCREW VACUUM PUMPS

Edwards EOS1300-1900i range is a new generation range of quiet, oil-sealed rotary screw vacuum pumps

With Variable Speed Drive (VSD) technology and intelligent control, the EOS1300-1900i range delivers impressive on-demand performance capability and optimises energy consumption. The highly efficient oil separator design extends service intervals and reduces maintenance costs. Temperature management control enables unrivalled water handling capability to provide you with the versatility and flexibility you need for your application.

State-of-the-art screw technology, Variable Speed Drive (VSD) and innovative motor design
Increased efficiency

Class-leading pumping speed and fast chamber pumpdown performance capability
Improved productivity

Closed loop pressure control and active power management
Intelligent control

Automatic performance matched to vacuum demand
Low cost of ownership

Noise levels approximately half that of comparable technologies
Quiet operation

Ultra-high oil retention at all operating pressures
Reduced environmental impact

Features and benefits

Pump module

- Highly efficient oil-sealed rotary screw
- Outstanding performance
- Robust design
- Element life is significantly longer than screw compressors and vane pumps

Energy recovery options

- Available for larger motor sizes
- Helping you to fulfil your energy management and environmental commitments according to ISO 50001/14001

Easy to use, simple to maintain

- The top cover of the oil separator has a unique hinge mechanism
- It slips the cover to the side allowing the oil separator filter to be changed easily and quickly
- A cleverly designed exhaust pipe enables the condensates to be collected in the discharge pipework at the outlet

Guaranteed oil retention

- Optimum design for maximum oil retention
- Longer life because of managed performance means the vacuum pump never overloads the separators
- Innovative design retains oil at <3 mg/m^3 even when under the greatest load
- In conventional fixed speed vacuum pumps overloaded oil separators lead to oil carryover

Inlet control valve

Provides modulating vacuum control in conjunction with the VSD drive to minimise energy consumption

Enclosure with hot-cool zones

The EOS1300-1900i range features an enclosure with a hot-cool design. It isolates all heat producing and temperature critical components (oil separator and element) from all other components. As cool running means higher reliability this feature extends the lifetime of electronic components and leads to a longer Mean Time Between Maintenance (MTBM)

Airlogic® monitoring system

Airlogic® is a state-of-the-art monitoring system for your vacuum pumps. It is simple and comprehensive and leads to energy savings. It can also integrate with your plant management system thanks to a remote monitoring option.

Easy to use

- 3.5-inch high-definition color display with clear pictograms, 32 language settings
- Additional LED indicator for service
- Graphical display of key parameters (day, week, month)

Plant management system

Airlogic® installed on different vacuum pumps can be monitored in cascade.
Remote monitoring can be added as an option (Modbus/Profibus/Ethernet protocols)

Comprehensive

You get all the information for the everyday management of your vacuum pump as well as the alarms, safety shutdowns and maintenance:

- Monitoring: Vacuum pump operating status, recording of running/stopped hours, programmable timers, temperature/pressure read-outs, set point control and other settings
- Safety: Warning indications, fault and shutdown indications
- Service: Service operations, remote control (optional)

Intelligent monitoring system

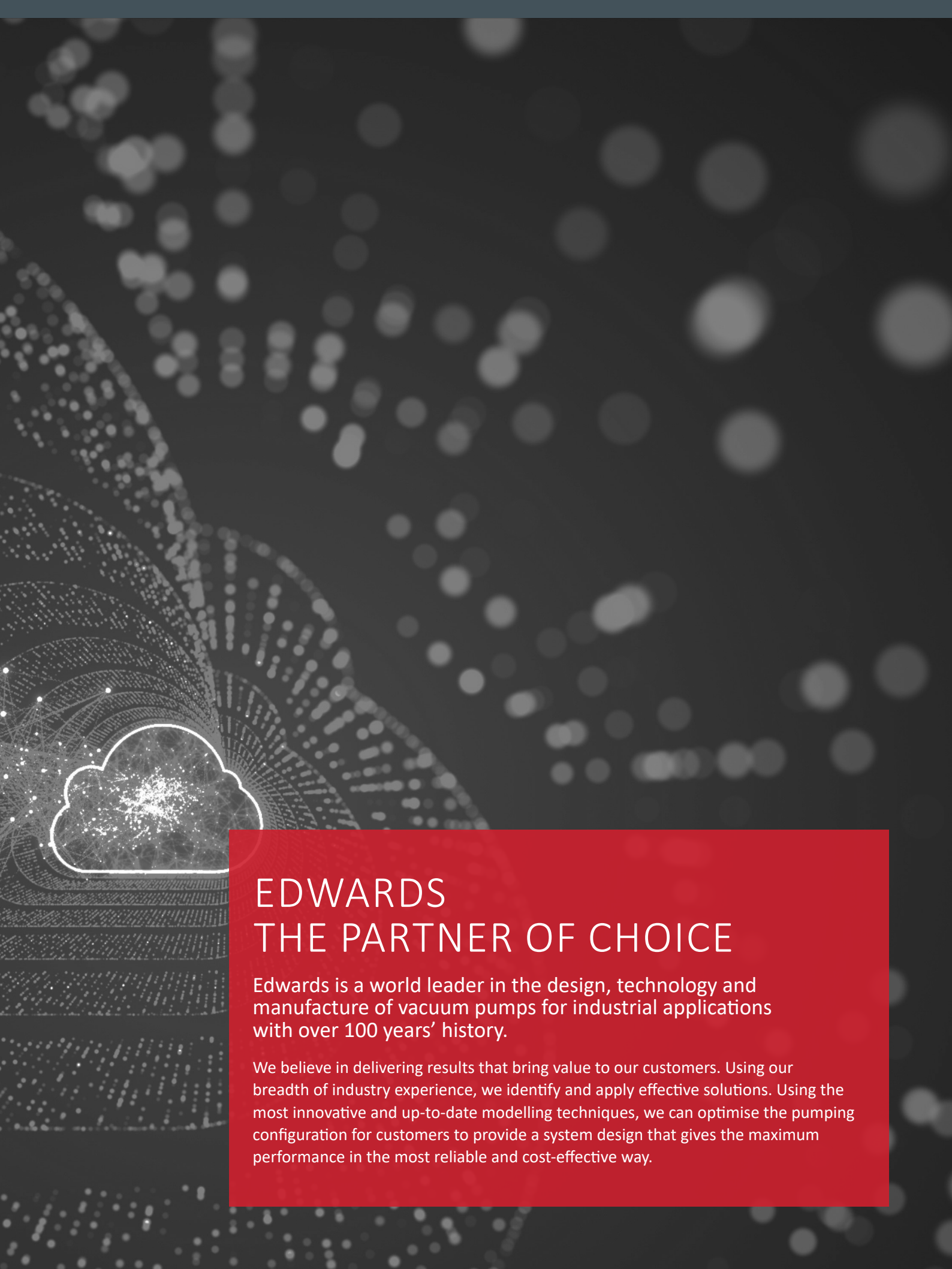
Airlogic® is a flexible solution for data monitoring: easy to install and customise and user-friendly

TECHNICAL SPECIFICATIONS

	EOS1300i	EOS1600i	EOS1900i
Peak pumping speed (m^3/h/cfm)	1250 / 740	1590 / 940	1810 / 1070
Ultimate vacuum (mbar/Torr)	0.35 / 0.26	0.35 / 0.26	0.35 / 0.26
Inlet connection	DN 150	DN 150	DN 150
Outlet connection	DN 100	DN 100	DN 100
Shaft power (kW)	22	30	37
Permissible ambient temperature (˚C)	0 - 46	0 - 46	0 - 46
Noise level range (dB(A))	65-75	65-79	65-80
Oil quantity (l)	40	40	40
Dimension L x W x H (mm)	1420 x 1590 x 1470	1420 x 1590 x 1470	1420 x 1590 x 1470
Weight (kg)	1058	1058	1073
Electrical specification	380 / 460V 50 / 60Hz CSA / UL		

EOSi OIL-SEALED SCREW VACUUM PUMPS WITH EJGO CONTROLLER

EOS350-5400i



EDWARDS
THE PARTNER OF CHOICE

Edwards is a world leader in the design, technology and manufacture of vacuum pumps for industrial applications with over 100 years' history.

We believe in delivering results that bring value to our customers. Using our breadth of industry experience, we identify and apply effective solutions. Using the most innovative and up-to-date modelling techniques, we can optimise the pumping configuration for customers to provide a system design that gives the maximum performance in the most reliable and cost-effective way.

INNOVATION AND INTELLIGENCE

EOS350-5400i range of oil-sealed rotary screw vacuum pumps are efficient, quiet and are equipped with Edwards' new generation intelligent controller - EJGO. As ever at the forefront of technology with Variable Speed Drive (VSD), the EOSi range delivers impressive on-demand performance capacity and optimises energy consumption. EJGO brings cutting-edge control and connectivity to optimise and monitor EOSi operations.

Increased efficiency

Plug and play screw technology for easy installation Variable Speed Drive (VSD) and innovative motor design

Improved productivity

Class-leading pumping speed and fast chamber pumpdown performance capability

Intelligent control

Closed loop pressure control and active power management

Low cost of ownership

Automatic performance matched to vacuum demand

Versatility and flexibility

Temperature management control enables superior water handling capability. Various configurations are available to meet the needs of your applications

Reduced environmental impact

Ultra-high oil retention at all operating pressures

Small footprint

Reduces space used in utility room or production floor

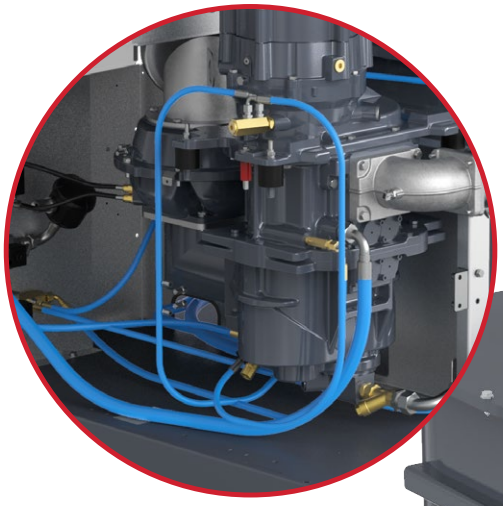
Quiet operation

Low noise levels for a safer working environment

Improved maintenance

The highly efficient oil separator design extends service intervals and reduces maintenance cost

NEW GENERATION EOS1400-2000i -
WITH VERTICAL DRIVE CHAIN, SMALLER FOOTPRINT AND EJGO INTELLIGENT CONTROL

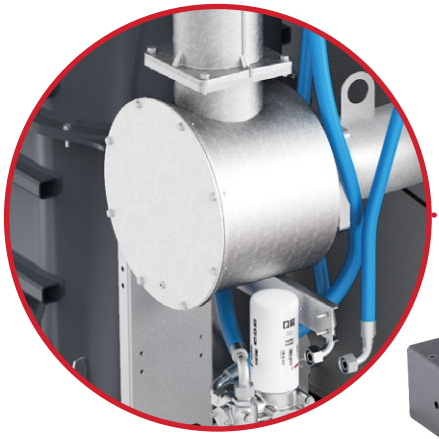


PUMP MODULE

- Highly efficient oil-sealed rotary screw
- Robust design
- Longer element life due to robust design

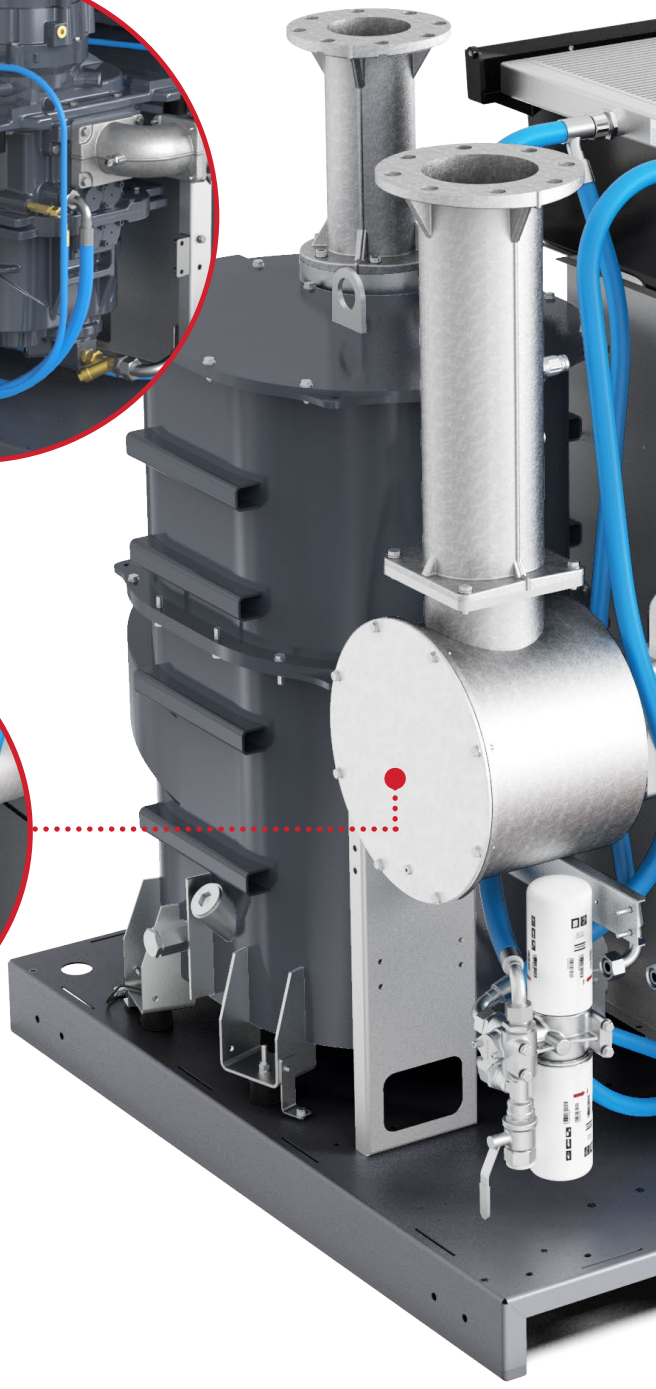
INLET FILTER AND CONTROL VALVE

- Inlet filter inside the machine provides protection with 99%+ removal efficiency standard to 5 microns
- Control valve isolation with the customer system and provide vacuum control



GUARANTEED OIL RETENTION

- Optimum design for maximum oil retention
- Longer life because of managed performance means the vacuum pump never overloads the separators
- Innovative design retains oil at 1.5mg/m^3 on EOS1400-2000i, even when under the greatest load
- Minimal oil carryover from overloaded oil separators as compared to conventional fixed speed vacuum pumps



EASY TO USE, SIMPLE TO MAINTAIN

- The top cover of the oil separator has a unique hinge mechanism
- It slips the cover to the side, allowing the oil separator filter to be changed easily and quickly
- A cleverly designed exhaust pipe enables the condensates to be collected in the discharge pipework at the outlet

EJGO - INTELLIGENT CONTROL SYSTEM

EJGO is a control and monitoring system for your vacuum pumps. It is easy-to-use, and offers comprehensive control for your vacuum installation, leading to energy savings.

It can also integrate with your plant management system and connect to network thanks to the flexible connectivity that support fieldbus communication and network protocols

EOSi: OPTIMISED TO MATCH YOUR APPLICATION

The EOSi range features a variety of options - air-cooled and water-cooled, Standard, Q, W or QW to enable you select the optimal choice for your application.

Standard

This pump is designed to deliver the exact performance to match your demand, at the minimum possible lifecycle cost. With the intelligent control you can potentially save 50%* or more energy compared with conventional solutions.

W

Whilst the standard EOSi pumps are able to reliably pump water vapour loads similar to equivalent rotary vane pumps, the W version is designed to pump significantly higher water vapour loads and can offer superior comparative performance where required on applications such as pipeline drying and freeze-drying.

Q

The Q version is designed for cycling applications, where chamber pumpdown time is important. The responsive inverter control and special software enables even faster chamber pumpdown with optimal energy efficiency.

QW

The QW version combines the special design of the Q version with the water vapour handling capabilities of the W version.

KEY OPTIONS AND RETROFIT KITS

- Best fit to every need
- Make retrofits possible to meet the application changes

- **Quick pumpdown version**
  Faster pumpdown time
- **Relative pressure control**
  Setup for inlet pressure setpoint control relatively compared to actual atmospheric pressure
- **Wet version retrofit**
  High water handling capacity
- **High ambient version**
  Up to 50 ^{0}C ambient temperature
  (Available for EOS1400-2000i)
- **Energy recovery retrofit**
  Available for EOS1400-2000i and EOS3800-5400i

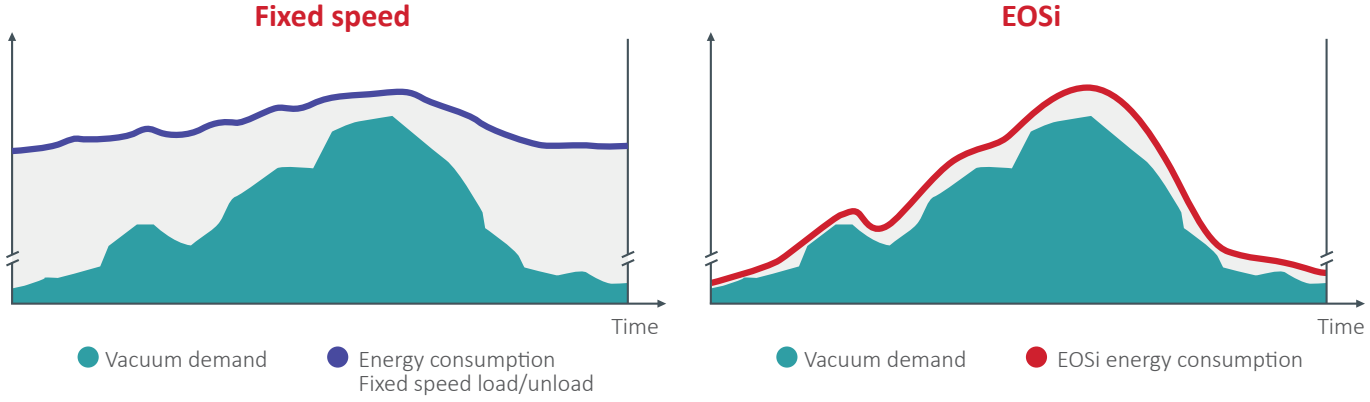
  Recover up to 80% of this heat
- **Overboost function**
  Allows to increase the flow below 200 mbar(a) during a short period

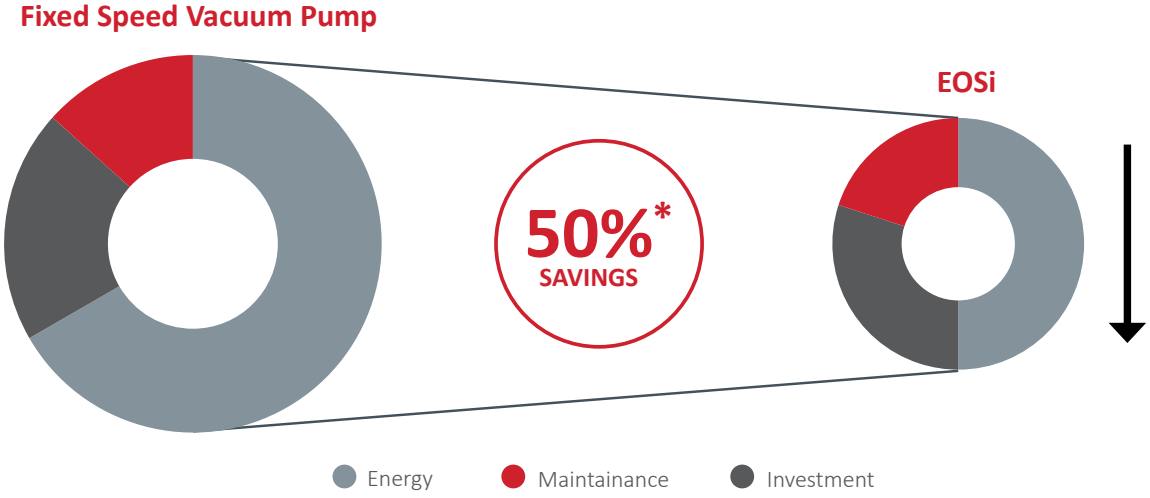
  Boost the performance for cycling application
- **Booster control**
  Controls the added booster

EOSi: DESIGNED TO DELIVER ENERGY SAVINGS

With intelligent controller EJGO and the high efficiency invertor, the EOSi can maintain a set point pressure during process and adjust its speed to meet the demand at that setpoint. With an extensive flow range (10%-100%), potential energy saving of 50% or more can be achieved using EOSi technology compared with conventional technology.

We've designed the pump to limit the motor speed when the process starts. This helps reduce the power consumption required to kick-start the process. EOSi has a smaller motor size compared to a fixed speed machine. Eliminating peak current also benefits the electrical installation (cable and fuse size). In most product environments, a vacuum system is not required to perform to its fullest for the entire time – whether that is during a process cycle, during a pumpdown cycle or during machine idling time. The intelligent EOSi delivers peak performance only when required, thereby ensuring significant energy savings and lower maintenance cost.

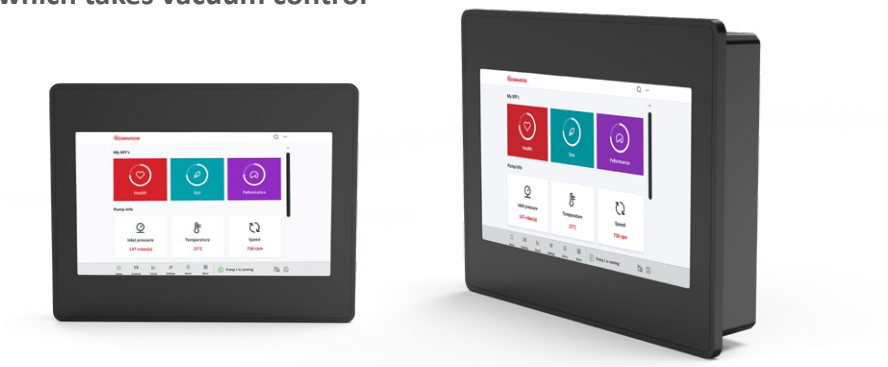




**In most applications compared to traditional fixed speed vacuum technologies based on measurement with our Vbox energy audit tool.*

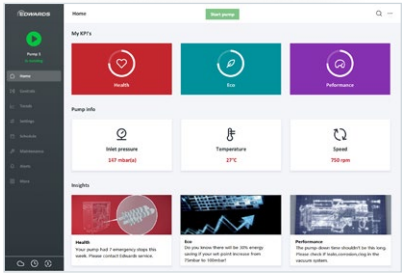
EJGO INTELLIGENT CONTROLLER

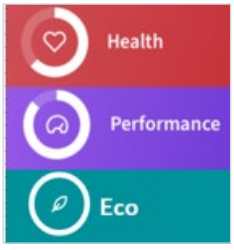
EJGO is Edwards' new generation controller which takes vacuum control to the next level.



USER-FRIENDLY INTERFACE

- Front panel
  - Clear and ease of use
  - Basic and reliable
- 7" HMI
  - Graphic design and configurable homepage
  - Completed onboard control
- Web browser (PC, tablet, mobile)
  - Monitor and take control from any connected device
  - Remote control possible when the pump is connected to network or cloud



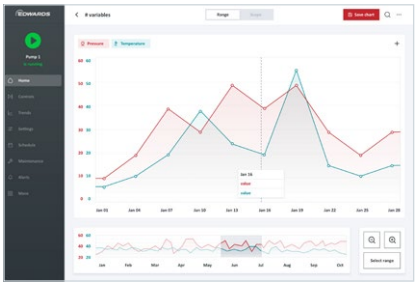


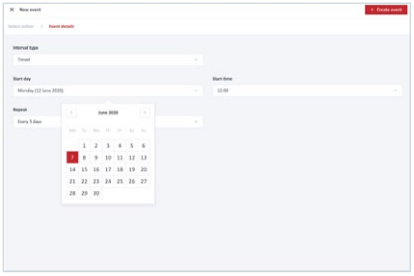
KPI INSIGHT AND MANAGEMENT

- Assess your pump health, vacuum performance and operating economy
- KPI score and insight cards give deep understanding of the systems beyond on/off and pressure setpoint

TREND MAP FOR DATA MONITORING

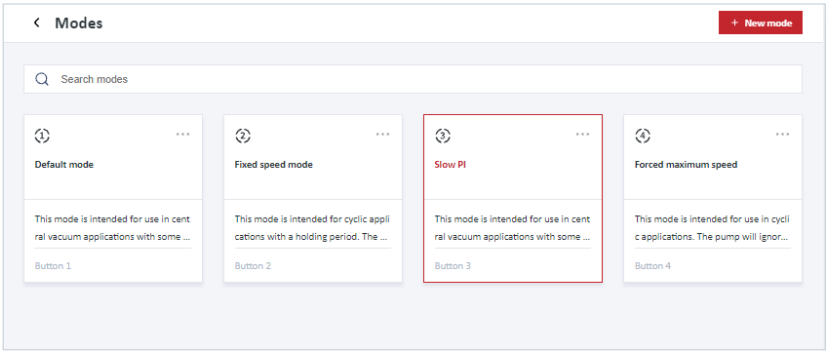
- Monitor pump operation continuously and get all the information for everyday management
- Graphic curve of pump parameters including Inlet Pressure, Motor Speed, Power Consumption, Outlet Temperature and more. (Day, week, month)
- In-depth examination of data and comparison of multiple metrics/cycles





INTELLIGENT SCHEDULING

- Plan a series of events into calendar, not limited to pump start/stop, purge cycle and auto clean
- Easily set up actions that repeat continually to fit the process



OPERATING MODE MANAGEMENT

- Default and other setting modes to fit different applications. E.g., forced maximum speed mode, fixed speed mode to get pump down optimisation
- Customise operation modes according to process requirement

NOTIFICATION AND AUTOMATIC UPDATE

- Safety: warning, fault, and shutdown indications and screen view
- Cloud access allow email notification in case of pump failure
- Automatic software update

SECURITY

- TPM2 chip and ECC certificate used on the controller
- Operation system and application software is signed and encrypted
- Partitioned memory to protect sensitive data
- Different levels set-up and user authentication required for identity management

CONNECTIVITY AND FIELD BUS COMMUNICATION

Ethernet cable

- Various options for network connection. E.g., stand alone, internal enterprise network only or fully connected to cloud
- Support all Ethernet-based protocols and connect directly even without gateway

WiFi bolt fitted

Modbus TCP · EtherNet/IP · PROFINET · OPC UA · EtherCAT

- Gateway as options to enable communication with the other protocols

GENIUS box

PROFIBUS PROCESS FIELD BUS · Modbus-RTU

EOS350-5400i RANGE OF OIL-SEALED ROTARY SCREW VACUUM PUMPS

EOS350i
EOS585i
EOS730i
EOS900i

EOS1400i
EOS1700i
EOS2000i

EOS3800i
EOS4600i
EOS5400i

EOS350-900i

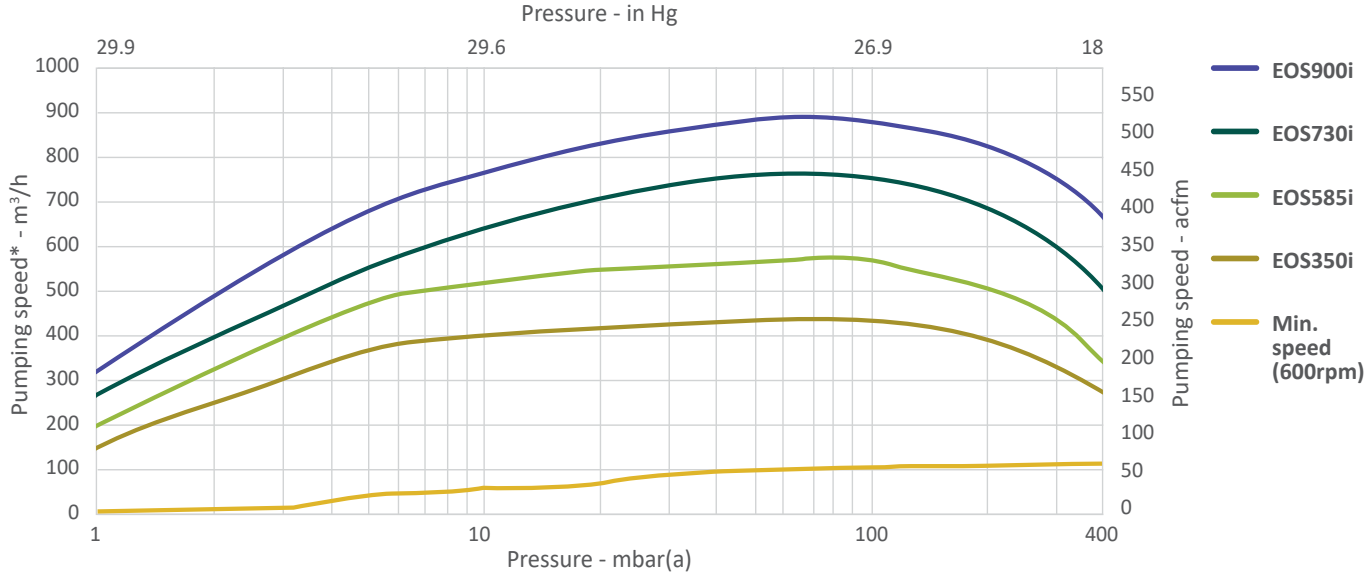
Oil-sealed screw pumps range at 350m³/hr to 900m³/hr capacity with Variable Speed Drive (VSD) technology and EJGO intelligent control. The EJGO controller offers more derating functions to increase the pump uptime including current speed derating, outlet temperature derating, outlet pressure derating, and weak grid derating.

TECHNICAL SPECIFICATION

	Units	EOS350i	EOS585i	EOS730i	EOS900i
Nominal displacement	m³/h / cfm	400 / 240	560 / 330	730 / 430	900 / 530
Ultimate vacuum	mbar / torr	0.35 / 0.26	0.35 / 0.26	0.35 / 0.26	0.35 / 0.26
Frequency range	Hz	20-116	20-150	29-200	20-233
Inlet connection	-	DN 80	DN 80	DN 80	DN 80
Outlet connection	-	DN 60	DN 60	DN 60	DN 60
Shaft power	kW	5.5	7.5	11	15
Permissible ambient temperature	°C	0-46	0-46	0-46	0-46
Noise level range	dB(A)	51-65	51-68	51-73	51-76
Oil quantity	L	16	16	16	16
Dimensions (L x W x H)	mm	1266 x 934 x 1083	1266 x 934 x 1083	1266 x 934 x 1083	1266 x 934 x 1083
Weight	kg	495	500	510	520
Electrical specification	380-460V 50Hz/60Hz CSA/UL				

Air-cooled and water-cooled versions are available for models.

PERFORMANCE CURVE

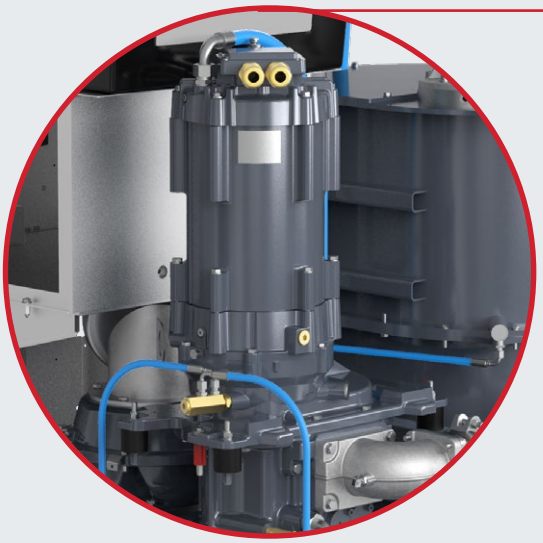


*Pumping speed at element inlet at steady state- according ISO 21360-1:2012 (E).

EOS1400-2000i

The new generation oil-sealed screw vacuum pumps. An innovation which brings together an efficient new element and IE5 Permanent magnet motor, provides a significant enhanced performance. And the new EJGO controller takes the pump to a new level of intelligence.

NEW GENERATION

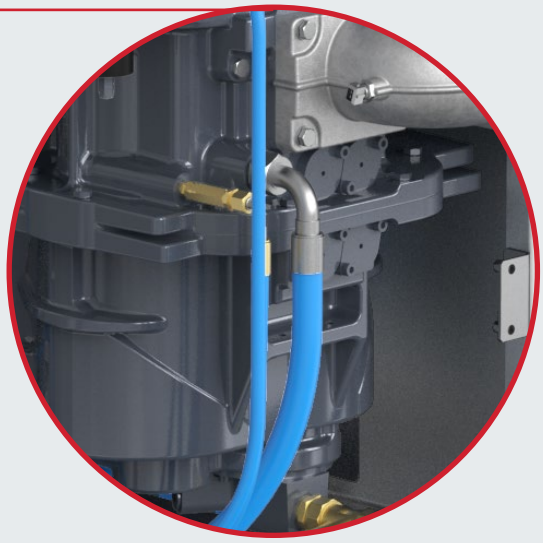


PERMANENT MAGNET ASSISTED SYNCHRONOUS RELUCTANCE MOTOR

- The ultra-premium efficiency – IE5
- Efficient at all the speeds to minimise energy loss
- Optimal cooling by oil of the pump without the need for an extra fan, resulting in less power consumption and less noise
- Oil lubricated bearing, no re-greasing needed, leading to reduced maintenance
- IP66 design- total protection from dust

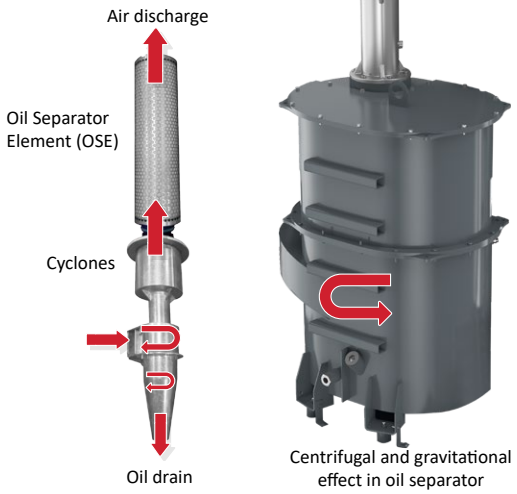
OPTIMAL PERFORMANCE SCREW ELEMENT

- Innovative screw profile improves pumping performance
- 4 blow-off valves to allow increased pumping speed at high pressures with lowest power consumption
- Extend overhaul interval to 1000 hours for normal applications



EXCELLENT OIL RETENTION

- **Excellent oil retention**
  - 3 stage oil separation- Centrifugal and gravitational effect, cyclones filtration and OSE (Oil Separator Element)
  - Booster control
  - Optimal exhausted air quality and environment friendly
  - Low back pressure for lower power consumption
  - OSE can be changed without disassembling the exhaust piping

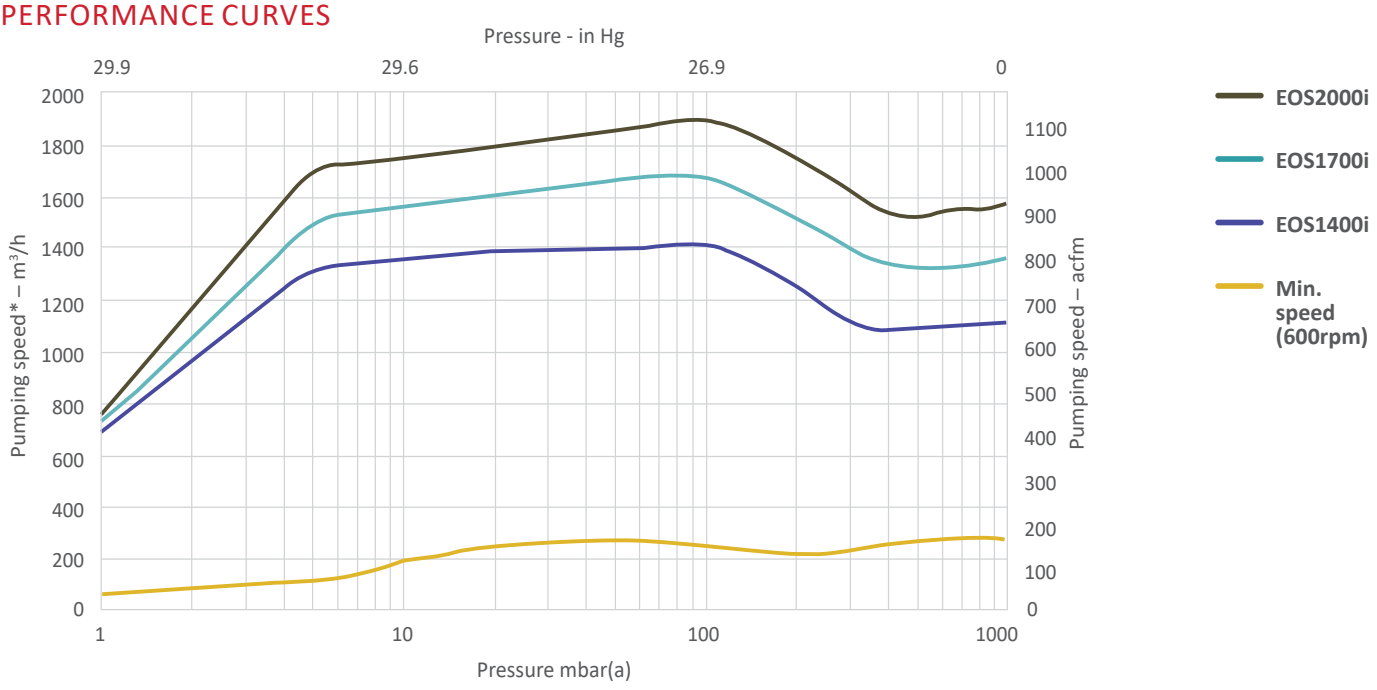


TECHNICAL SPECIFICATION

	Units	EOS1400i	EOS1700i	EOS2000i
Nominal displacement	m^3/h / cfm	1400 / 824	1620 / 953	1818 / 1070
Ultimate vacuum	mbar / torr	0.35 / 0.26	0.35 / 0.26	0.35 / 0.26
Frequency range	Hz	20-166	20-200	20-233
Inlet connection	-	DN150	DN150	DN150
Outlet connection	-	DN125	DN125	DN125
Shaft power	kW	22	30	37
Permissible ambient temperature	°C	0-46	0-46	0-46
Noise level range	dB(A)	55-74	58-77	58-78
Oil quantity	L	45	45	45
Dimensions (L x W x H)	mm	1460 x 1361 x 1665	1460 x 1361 x 1665	1460 x 1361 x 1665
Weight	kg	1180	1190	1200
Electrical specification	380-460V 50Hz/60Hz CSA/UL			

Air-cooled available for all the machines.

PERFORMANCE CURVES



*Pumping speed at element inlet at steady state- according ISO 21360-1:2012 (E).

EOS3800-5400i

Optimised temperature control with Quarter Mixing Valve combined with a VSD fan for the air-cooled versions which allow to control electronically the temperature of the pump with high accuracy and additional energy savings.

QUARTER MIXING VALVE (QMV)

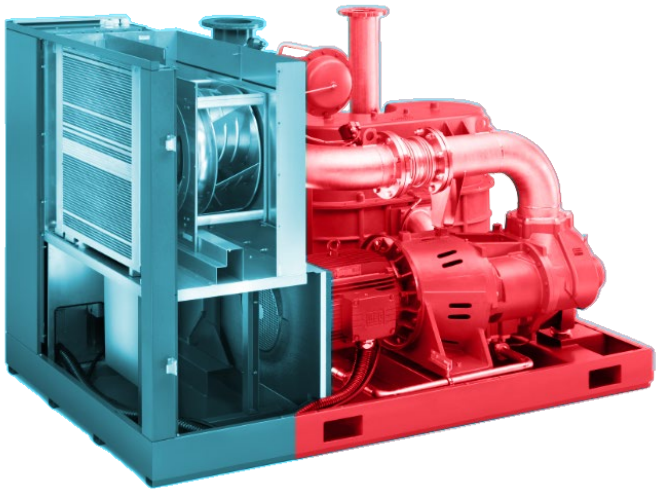
- Electronically controlled pump temperature
- Temperature sensor in the pump inlet for the QMV algorithm
- Optimised temperature control with high accuracy
- Contributes to efficient water handling capability

CENTRIFUGAL VSD FAN

- Variable Speed Drive (VSD) controlled
- With oil temperature algorithm to allow on-demand cooling
- Additional energy savings
- More durable and resistant to harsh environments

ENCLOSURE WITH HOT-COOL ZONES

The EOS3800-5400i range features an enclosure with a hot-cool design. It isolates all heat producing and temperature critical components (oil separator and element) from all other components. As cool running means higher reliability, this feature extends the lifetime of electronic components and leads to a longer Mean Time Between Maintenance (MTBM).

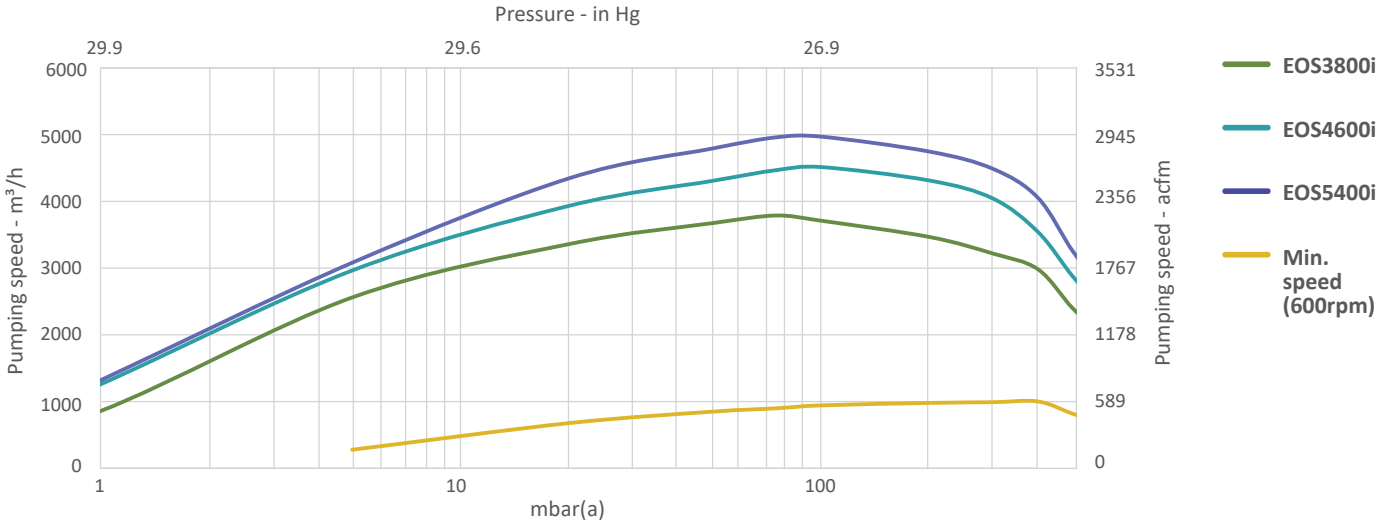


TECHNICAL SPECIFICATION

	Units	EOS3800i	EOS4600i	EOS5400i
Nominal displacement	m^3/h / cfm	3828 / 2253	4478 / 2636	5004 / 2945
Ultimate vacuum	mbar / torr	0.35 / 0.26	0.35 / 0.26	0.35 / 0.26
Frequency range	Hz	25-97	25-117	25-133
Inlet connection	-	DN200(PN10)	DN200 (PN10)	DN200 (PN10)
Outlet connection	-	DN150 (PN10)	DN150 (PN10)	DN150 (PN10)
Shaft power	kW	55	75	90
Ambient temperature	°C	0-46	0-46	0-46
Noise level range	dB(A)	83 (+/-3)	84 (+/-3)	85 (+/-3)
Oil quantity	L	85	85	85
Dimensions (L x W x H)	mm	2850 x 1939 x 1893	2850 x 1939 x 1893	2850 x 1939 x 1893
Weight	kg	3945	3980	4000
Electrical specification	380-460V,3ph, 50Hz/60Hz, CSA/UL			

Air-cooled and water-cooled versions are available for all the machines.

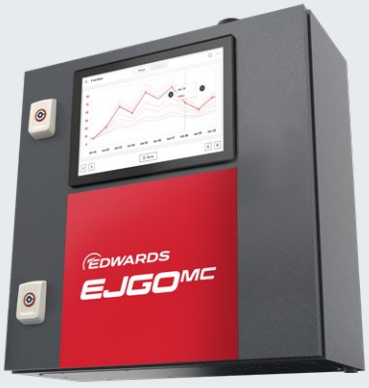
PERFORMANCE CURVE



CENTRAL VIEW OF EVERYTHING

Edwards' revolutionary central controller allows you to monitor and control multiple EOSi vacuum pumps simultaneously. Two EJGO MC models are available in standard and premium versions tailored to applications as needed.

Without screen - Web access supported



With 10" touch HMI - Onboard control

SOFTWARE OPTIONS, TAILORED TO YOUR APPLICATION

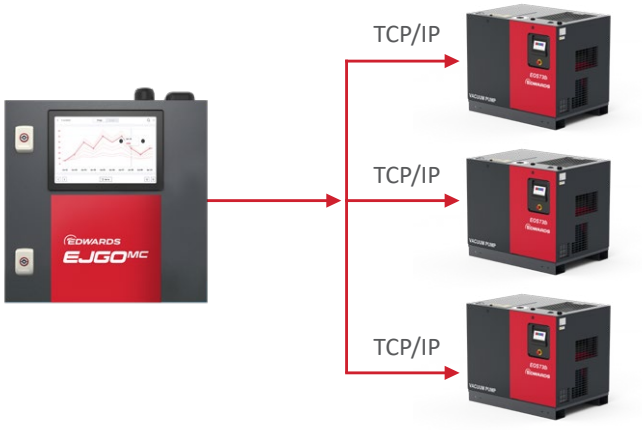
Standard version

- Up to 8 Variable Speed Drive (VSD) or Fixed Speed (FS) pumps
- ~10% energy saving vs traditional sequencer

Premium version

- Up to 20 Variable Speed Drive (VSD) or Fixed Speed (FS) pumps
- Innovative algorithm to maximise energy saving
- ~20% energy saving vs traditional sequencer

CENTRAL VACUUM SYSTEM



APPLICATIONS

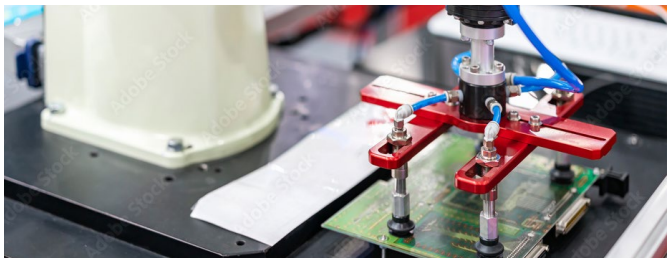
- Holding and lifting
  - Pick and place (e.g., electronics, flat-panel display, automotive glass)
  - Paper conveying (e.g., envelope manufacture, printing)
  - General packaging
  - Load lock (e.g., CNC/machining, woodworking)

- Forming and shaping
  - Plastic (e.g., bathtubs, shower trays, white goods internals, extrusion)
  - Thermoplastic packaging
  - Glass bottle
  - Lamination

- Food processing and preserving
  - Meat and poultry packaging (e.g., flat, vacuum packs, controlled/modified atmosphere packing)
  - Freeze drying
  - Canning

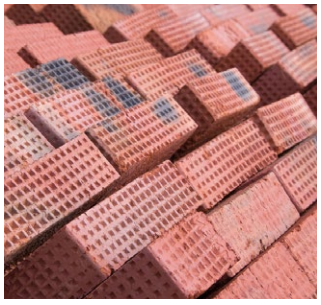
- General industrial application
  - Furnaces – Heat Treatment and Metallurgy
  - Altitude simulation
  - Coating
  - Pneumatic conveying
  - General evacuation duties

- Wet application
  - Food cooling
  - Ceramic tile and brick degassing
  - Pipeline drying



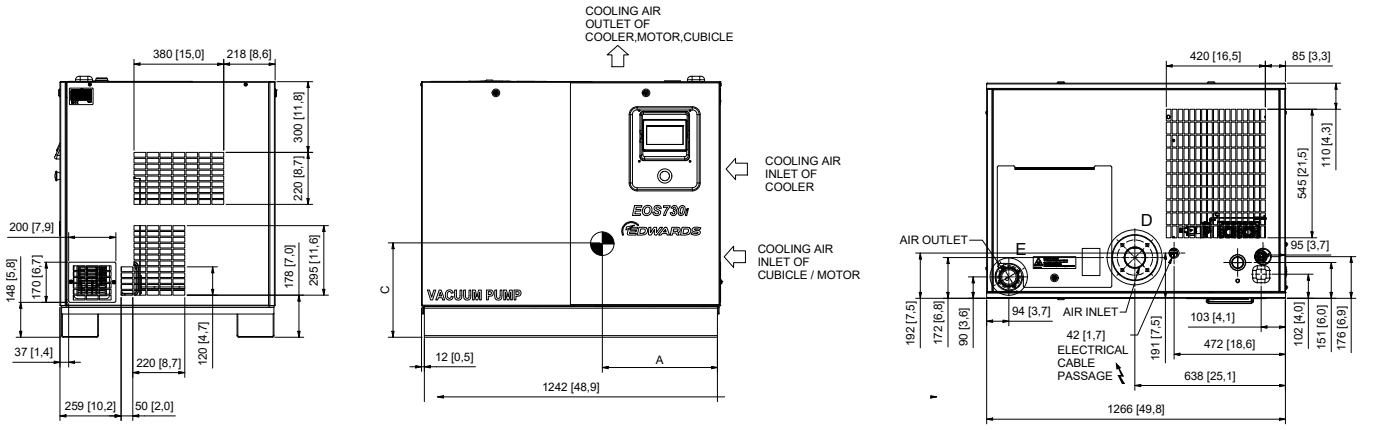




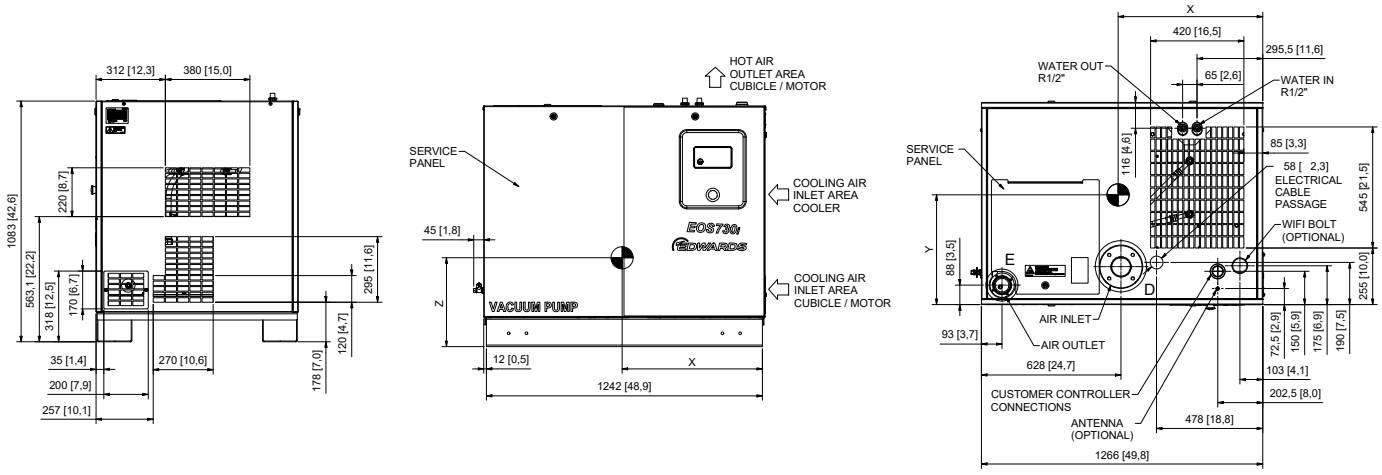




DIMENSIONS

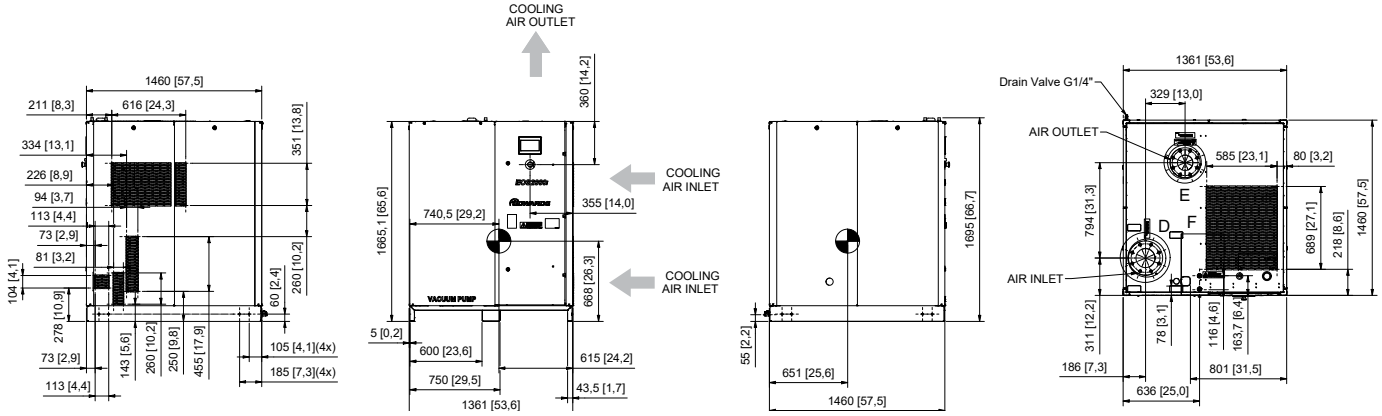
EOS350-900i (7" HMI)



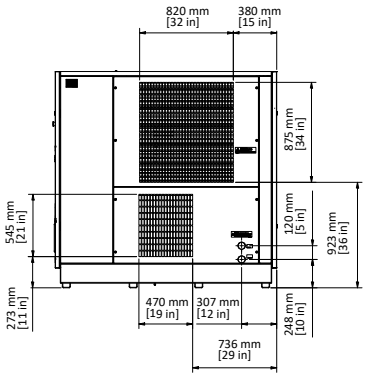
EOS350-900i (Front Panel)

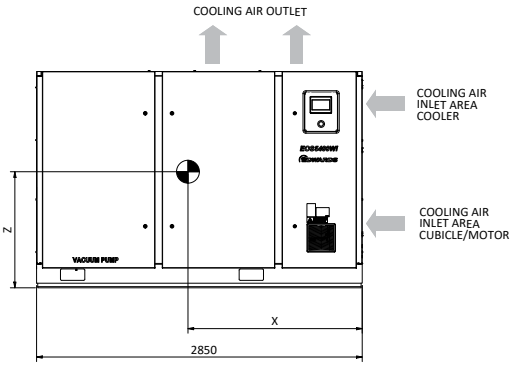


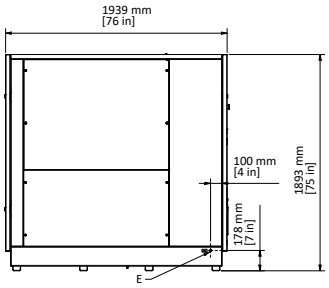
EOS1400-2000i (7" HMI)

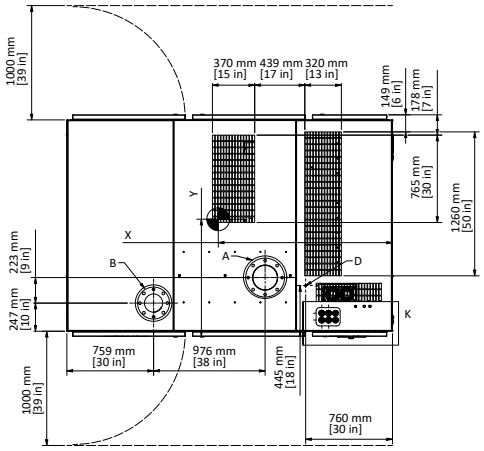


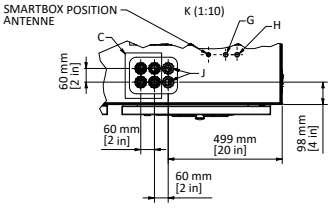
EOS3800-5400i (7" HMI)











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