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OMNI® Helium Compressors & Cryogenic Systems

Increased Capability For Your Installed Base of Helium Compressors and Cryogenic Pumps

April 2022

OMNI® Helium Compressors run multiple cryogenic pumps, from multiple manufacturers, on the same tool at the same time.

With an OMNI®, you can upgrade legacy compressors and pumps, 1 item at a time, while choosing superior performing products from multiple manufacturers.

OMNI® COMPRESSORS:

Run Standard and Auto Regen Pumps

Run 2-phase or 3-phase Pumps

Made in the USA

Serviced in the USA

Supported and Serviced Globally

OMNI® HELIUM COMPRESSORS REPLACE THE FOLLOWING COMPRESSOR MODELS

OMNI® 100WL	OMNI® 100AL	OMNI® 800WL	OMNI® 800AL	OMNI® 900WL	OMNI® 900AL	OMNI® 1000WL
Water Cooled	Air Cooled	Water Cooled	Air Cooled	Water Cooled	Air Cooled	Water Cooled
REPLACES	REPLACES	REPLACES	REPLACES	REPLACES	REPLACES	REPLACES
SCW M250	SCA M125	8200 M350	8200	9600 / 8600 / 8500 8510 / 1020 / M600	1020R M600	9700 M700

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AN APPLICATION EXAMPLE

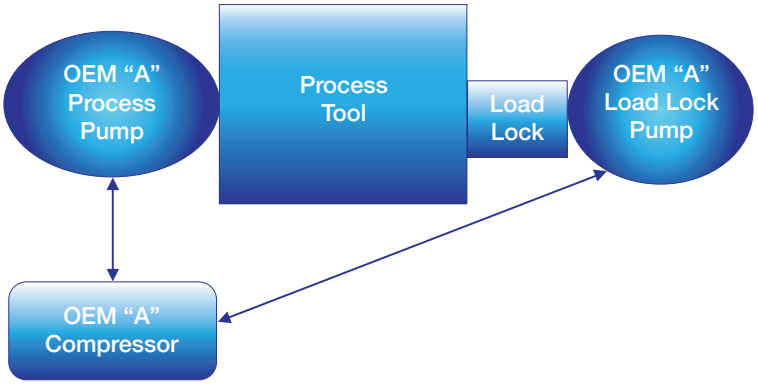
Gas	OEM "A" Process Pump
Speed (L/Sec)	
H_2O	4,000
Air	1,500
H	2,200
AR	1,200
Capacity (Std L.)	
AR	1,000
H	8
Cooldown (Min)	
	110

THE PROBLEM:
Pre–OMNI®

- Cooldown Times are too long
- Pumping Speeds are too slow
- Limited Hydrogen and Argon Capacity requires frequent regens

THE ISSUES:

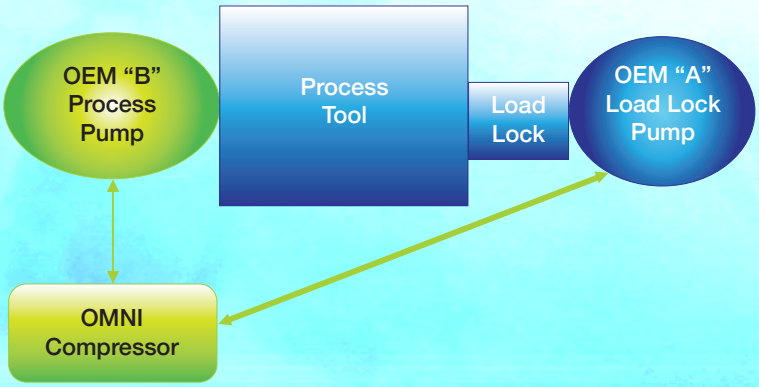
- OEM "A" does not have a higher performance pump that fits the tool
- OEM "B" DOES have a higher performance pump that fits the tool
- OEM "A" compressors cannot drive OEM "B" pumps due to different phasing and voltages



Gas	OEM "B" Process Pump
Speed (L/Sec)	
H_2O	4,200
Air	1,800
H	3,000
AR	1,500
Capacity (Std L.)	
AR	1,600
H	23
Cooldown (Min)	
	90

THE SOLUTION:
Post–OMNI®

- The End User trades in the "A" compressor and "A" process pump and keeps the "A" load lock pump
- Cryopump "B" is installed to solve Cooldown, Pumping Speed and Carrying Capacity problems
- An OMNI® Compressor is installed and it drives cryopumps "A" and "B"
- The process now has faster cool downs, higher pumping speeds and larger carrying capacities



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OMNI® HELIUM COMPRESSORS

OMNI®s replace your existing compressors and drive your existing cryopumps

OMNI® Helium Compressors drive multiple cryogenic pumps, made by different manufacturers, at the same time, on the same tool

OMNI®s drive Standard Pumps & Auto-Regen pumps at the same time

OMNI®s drive 3-phase or 2-phase cryopump motors

FEATURES and BENEFITS

- Water cooled and air cooled versions
- 2 year warranty
- Two oil separators plus an adsorber
- 30,000+ hour adsorber exchange (42 months running 24/7)
- Drive standard and auto regen pumps simultaneously
- Drive 3-phase or 2-phase cryopumps
- Very quiet smooth operation
- Simple controls and utility hook up
- Displays supply and return pressure
- Multiple service centers globally
- Small footprint vs. pumping capacity
- Simplicity of design provides for easy repair and maintenance
- Enables the selection and installation of Cryopumps based on their performance —not by their manufacturer

MODELS AND CAPACITIES

CryoPump	OMNI® 1000 Water & Air Cooled	OMNI® 900 Water & Air Cooled	OMNI® 800 Water & Air Cooled	OMNI® 100 Water & Air Cooled
OnBoard and Cryo-Torr 8, 8F	4	3	2	1
OnBoard and Cryo-Torr 250F	2-3	1-2	1	NA
OnBoard and Cryo-Torr 10, 10F	2-3	1-2	1	NA
OnBoard and Cryo-Torr 400	2	1	1	NA
OnBoard and Cryo-Torr 500	1	1	NA	NA
Cryo-Torr 20HP	1	1	NA	NA
Marathon CP8	4	3	2	1
Marathon CP250	3-4	2	1	NA
Marathon CP12	2	2	1	NA
Marathon CP16	2	1	NA	NA
Marathon CP-20	1	1	NA	NA
Cryo-Plex 8	3	3	2	1
Cryo-Plex 10	2-3	1-2	1	NA
Cryo-Plex 16	2	1	NA	NA

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OMNI® HELIUM COMPRESSORS

OMNI®–100AL

Electrical Supply	Single Phase- 20 AMP 208-230 VAC/60Hz 220-240VAC/50hz
Power Consumption	2.25 kW at 50 Hz 2.60 kW at 60 Hz
Ambient Temp	4-40 °C (40-104 °F)
Cooling Air	20 m^3/min. (706 cfm)
Dimensions (HxWxD)	876 x 443 x 453 mm (34.5 x 17.8 x 17.8 in.)
Weight	102 kg (225 lbs.)
Adsorber	30,000 hrs. (~ 42 mo.)

OMNI®-100WL

Electrical Supply	Single Phase- 20 AMP 208-230 VAC/60Hz 220-240VAC/50hz
Power Consumption	2.25 kW at 50 Hz 2.6 kW at 60 Hz
Ambient Temp	4-40°C: (40 -104F)
Dimensions (HxWxD)	617 x 443 x 453 mm (24.3 x 17.5 x 17.8 in.)
Weight	73 kg (160 lbs.)
Adsorber	30,000 hrs. (~ 42 mo.)

OMNI®–800AL

Electrical Supply	3 Phase 200 V, 50/60 Hz
Power Consumption	3.6-3.8 kW at 50 Hz 4.6-4.8 kW at 60 Hz
Ambient Temp	4-38 °C (40-100 °F)
Dimensions (HxWxD)	888 x 442 x 512 mm (34.9 x 17.4 x 20.2 in.)
Weight	110 kg (242 lbs.)
Adsorber	30,000 hrs. (~ 42 mo.)

OMNI®–800WL

Electrical Supply	3 Phase 200 V, 50/60 Hz
Power Consumption	3.6-3.8 kW at 50 Hz 4.6-4.8 kW at 60 Hz
Ambient Temp	4-40 °C (40-104 °F)
Dimensions (HxWxD)	532 x 443 x 493 mm (20.9 x 17.4 x 19.4 in.)
Weight	96 kg (212 lbs.)
Adsorber	30,000 hrs. (~ 42 mo.)

OMNI®–900AL

Indoor/Outdoor Unit

Electrical Supply	3 Phase 200 V, 50/60 Hz
Power Consumption	6.6-6.9 kW at 50 Hz 7.5-7.8 kW at 60 Hz
Ambient Temp	-30 °C to 44 °C (-22 °F to 112 °F)
Dimensions (HxWxD)	Outdoor Unit (mm) 948 x 928 x 335 (inch) 36.5 x 37.4 x 13.5
Dimensions (HxWxD)	Indoor Unit (mm) 547 x 637 x 262 (inch) 21.6 x 10.4 x 25
Adsorber	30,000 hrs. (~ 42 mo.)

OMNI®–900WL

Electrical Supply	3 Phase 200 V, 50/60 Hz
Power Consumption	6.6-6.9 kW at 50 Hz 7.5-7.8 kW at 60 Hz
Ambient Temp	4-40 °C (40-104 °F)
Dimensions (HxWxD)	532 x 443 x 493 mm (20.9 x 17.4 x 19.4 in.)
Weight	100 kg (225 lbs.)
Adsorber	30,000 hrs. (~ 42 mo.)

OMNI®–1000WL

Electrical Supply	3 Phase 200-230VAC 50/60 Hz	Cooling Water (Inlet)	6-9 L/min. (1.6-2.4 gal./min.) 5-25 °C (41-77 °F)
Power Consumption	6.7-7.2 kW at 50Hz 7.5-8.5 kW at 60 Hz	Dimensions (HxWxD)	625 x 444.5 x 528.4 mm (24.6 x 17.5 x 20.8 in.)
Ambient Temp	4-40°C (40-104°F)	Adsorber	30,000 hrs. (~ 42 mo.)
Weight	101 kg (220 lbs)		

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OMNI® CRYO SYSTEMS INTEGRATE MARATHON®, CRYO-TORR®, ON-BOARD®, AND CRYO-PLEX® CRYOGENIC PUMPS

Made in the USA: Marathon Cryopumps are manufactured by Sumitomo Corporation America, Inc. in Allentown, PA USA.

Whisper™ Quiet Technology: Provides quiet, low vibration, pneumatic operation combined with world–class performance and reliability. Global OEMs choose Marathon® for MRI helium re-liquefaction and the most demanding coating, flat panel and R&D applications.

Hot Swap: In-situ displacer changes enable End Users to conduct helium side maintenance in about 45 to 60 minutes without removing the pump and without breaking vacuum.

World Class Performance: Industry leading Carrying Capacities extend Regen times. Very flat pumping speed curves between Regens maintain chamber performance and pressures.

Versatile Application: Marathon® Cryopumps are driven by OMNI® Helium Compressors and by Marathon® Compressors. Pump models are available from 8 inches to 20 inches, with standard and auto-regen capabilities.

Global Support: Service, maintenance, parts and support are available through 7 locations globally.

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MARATHON® CRYOPUMPS

MARATHON® CP-8

Available Configurations

- ANSI 6", ISO 200 or CF 10" Flange Options
- Standard Manual Operation
- Optional Fully-Automated Operation with Marathon® Cryopump Controller
- Two (2) cryopumps operating with one (1) OMNI® 800 or F40 L/H Compressor
- Displex® Technology

Performance Specifications

Air (liters/second)	1,500
Water (liters/second)	4,200
Argon (liters/second)	1,250
Hydrogen (liters/second)	2,300
Argon Throughput (liters/second)	11.0
Argon Capacity (standard liters)	1,200
Hydrogen Capacity (standard liters)	25
Crossover Rating (torr-liters)	220
Cooldown Time (minutes)	75
Weight (kg/lbs.)	16.8 (35)
Dimensions (H) (mm/in.)	516 (20.3)

MARATHON® CP-8LP

Available Configurations

- Standard Low Profile Design in Left or Right Hand Configurations
- ANSI 6", ISO 200 or CF 10" Flange Options
- Standard Manual Operation
- Optional Fully-Automated Operation with Marathon® Cryopump Controller
- Two (2) cryopumps operating with one (1) OMNI® 800 or F40 L/H Compressor
- Displex® Technology

Performance Specifications

Air (liters/second)	1,800
Water (liters/second)	4,200
Argon (liters/second)	1,500
Hydrogen (liters/second)	3,000
Argon Throughput (liters/second)	11.0
Argon Capacity (standard liters)	1,600
Hydrogen Capacity (standard liters)	25
Crossover Rating (torr-liters)	220
Cooldown Time (minutes)	110
Weight (kg/lbs.)	17.9 (39.5)
Dimensions (H) (mm/in.)	186 x 565 (7.3 x 22.3)

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MARATHON® CRYOPUMPS

MARATHON® CP-250LP

Available Configurations

- Standard Low Profile Design in Left or Right Hand Configurations
- ISO 250 Flange
- Standard Manual Operation
- Optional Fully-Automated Operation with Marathon® Cryopump Controller
- Two (2) cryopumps operating with one (1) OMNI® 900 or F70 L/H Compressor
- Displex® Technology

Performance Specifications

Air (liters/second)	3,060
Water (liters/second)	6,300
Argon (liters/second)	2,500
Hydrogen (liters/second)	5,000
Argon Throughput (liters/second)	11.0
Argon Capacity (standard liters)	1,600
Hydrogen Capacity (standard liters)	30
Crossover Rating (torr-liters)	300
Cooldown Time (minutes)	110
Weight (kg/lbs.)	20 (44)
Dimensions (H) (mm/in.)	181 x 591 (7.2 x 23.2)

MARATHON® CP-12

Available Configurations

- ANSI 10", ISO 320 or CF 14" Flange Options
- Standard Manual Operation
- Optional Fully-Automated Operation with Marathon® Cryopump Controller
- Two (2) cryopumps operating with one (1) OMNI® 900 or F-70L/H Compressor
- Displex® and Whisper® Technology

Performance Specifications

Air (liters/second)	3,600
Water (liters/second)	9,560
Argon (liters/second)	3,100
Hydrogen (liters/second)	7,300
Argon Throughput (liters/second)	12.6
Argon Capacity (standard liters)	2,000
Hydrogen Capacity (standard liters)	50
Crossover Rating (torr-liters)	650
Cooldown Time (minutes)	90
Weight (kg/lbs.)	41 (90)
Dimensions (H) (mm/in.)	600 (23.5)

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MARATHON® CRYOPUMPS

MARATHON® CP-16

Available Configurations

- ISO 400 or CVC 10" or Wire Seal Flange Options
- Standard Manual Operation
- Optional Fully-Automated Operation with Marathon® Cryopump Controller
- Two (2) cryopumps operating with one (1) OMNI® 900 or F-70L/H Compressor
- Displex® and Whisper® Technology

Performance Specifications

Air (liters/second)	4,800
Water (liters/second)	17,300
Argon (liters/second)	4,100
Hydrogen (liters/second)	12,000
Argon Throughput (liters/second)	11.4
Argon Capacity (standard liters)	5,500
Hydrogen Capacity (standard liters)	50
Crossover Rating (torr-liters)	500
Cooldown Time (minutes)	135
Weight (kg/lbs.)	50 (110)
Dimensions (H) (mm/in.)	633 (24.9)

MARATHON® CP-20

Available Configurations

- ISO 500 or ANSI 20" or Wire Seal Flange Options
- Standard Manual Operation
- Optional Fully-Automated Operation with Marathon® Cryopump Controller
- One (1) cryopump operating with one (1) OMNI® 900 or F-70 Compressor
- Displex® and Whisper® Technology

Performance Specifications

Air (liters/second)	9,700
Water (liters/second)	29,100
Argon (liters/second)	8,300
Hydrogen (liters/second)	14,000
Argon Throughput (liters/second)	11.3
Argon Capacity (standard liters)	6,000
Hydrogen Capacity (standard liters)	33
Crossover Rating (torr-liters)	400
Cooldown Time (minutes)	190
Weight (kg/lbs.)	77 (170)
Dimensions (H) (mm/in.)	569 (22.4)

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MARATHON® COMPRESSORS

F–70L/H Water–Cooled Compressor

	F-70L	F-70H
Electrical Supply	3 Phase 200 V, 50/60 Hz	3 Phase 380-415 V, 50 Hz 480 V, 60 Hz
Power Consumption	6.6-6.9 kW at 50 Hz 7.5-7.8 kW at 60 Hz	
Ambient Temp	4-40 °C (40-104 °F)	
Cooling Water (Inlet)	6-9 L/min. (1.6-2.4 gal./min.) 5-25 °C (41-77 °F)	
Dimensions (HxWxD)	532 x 443 x 493 mm (20.9 x 17.4 x 19.4 in.)	
Weight	100 kg (225 lbs.)	
Adsorber	30,000 Hours	

FA–40L/H Water–Cooled Compressors

	F-40L	F-40H
Electrical Supply	3 Phase 200 V, 50/60 Hz	3 Phase 380-415 V, 50 Hz 480 V, 60 Hz
Power Consumption	3.6-3.8 kW at 50 Hz 4.6-4.8 kW at 60 Hz	
Ambient Temp	4-40 °C (40-104 °F)	
Cooling Water (Inlet)	4-9 L/min. (1.0-2.4 gal./min.) 5-25 °C (41-77 °F)	
Dimensions (HxWxD)	532 x 443 x 493 mm (20.9 x 17.4 x 19.4 in.)	
Weight	96 kg (212 lbs.)	
Adsorber	30,000 Hours	

FA–40L/H Air–Cooled Compressors

	FA-40L	FA-40H
Electrical Supply	3 Phase 200 V, 50/60 Hz	3 Phase 380-415 V, 50 Hz 480 V, 60 Hz
Power Consumption	3.6-3.8 kW at 50 Hz 4.6-4.8 kW at 60 Hz	
Ambient Temp	4-38 °C (40-100 °F)	
Dimensions (HxWxD)	888 x 442 x 512 mm (34.9 x 17.4 x 20.2 in.)	
Weight	110 kg (242 lbs.)	
Adsorber	30,000 Hours	

F-20L Water–Cooled Compressors

Electrical Supply	1 Phase 200V, 220-240V,50 Hz 208-230V, 60Hz
Power Consumption	2.25 – 2.4 kW, 50 Hz 2.6 kW, 60 Hz
Ambient Temp	4 -40 C (39-81 F)
Cooling Water (Inlet)	1.9 – 3.8 L/min. (0.05 -1.0 gal/min.) 4-27 C (39-81 F)
Dimensions (HxWxD)	617 x 444 x 453 mm (24.3 x 17.5 x 17.8 in.)
Weight	73 kg (160 lbs.)
Adsorber	30,000 Hours

FA–70L/H Air–Cooled Compressor Indoor/Outdoor Unit

	FA-70L	FA-70H
Electrical Supply	3 Phase 200 V, 50/60 Hz	3 Phase 380-415 V, 50 Hz 480 V, 60 Hz
Power Consumption	6.6-6.9 kW at 50 Hz 7.5-7.8 kW at 60 Hz	
Ambient Temp	-30 °C to 44 °C (-22 °F to 112 °F)	
Dimensions (HxWxD)	Outdoor Unit (mm) 948 x 928 x 335 (inch) 36.5 x 37.4 x 13.5	
Dimensions (HxWxD)	Indoor Unit (mm) 547 x 637 x 262 (inch) 21.6 x 10.4 x 25	
Adsorber	30,000 Hours	

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CRYOPUMP ACCESSORIES

Flexible & Superflex Gas Lines

Marathon® CP Cryopumps come standard with flexible helium gas lines in lengths from 10 feet to 66 feet (20 meters). Superflex lines offer smaller bend radius without thinning the wall of the hose and a higher flexing cycle life than standard lines. **Superflex lines dampen vibration and noise of the helium gas traveling through the lines.**

Cables

Standard manual systems include cables from our compressors to the cryopump cold head, with options to extend up to 66 feet (20 meters). For MCC systems, cables are included to power the cold head, MCC, automatic valves, blanket heater and vacuum and temp instrumentation. RS-232 cables connect between the MCC and the customer's host computer, PLC or PC.

Tool Kits & Replacement Parts Kits

Tool kits are available from the standard wrench kit (used for connecting couplings) that accompanies new Marathon CP® systems to more comprehensive kits that include such items as gas charging valves and additional tools required for performing your own Hot Swap service on Marathon® Cryopumps and Compressors.

Marathon® Cryopump Controller (MCC)

MCC automates operation of Marathon® Cryopumps. Protocol is delivered via RS-232 interface, via host computer, PLC or Windows PC (using optional MCC Software). Automatic operation, regeneration, and monitoring of critical system functions yield improved process times, and greatly reduced downtime between production cycles. Automatic valves, vacuum and temperature instrumentation and blanket heaters are included.

Temperature Indicators

Temperature Indicators, are designed to display and communicate cryopump temperatures. The SCM-10 Indicator is a single, Model 9302 is dual, and Model 9304 is a four channel temperature indicator. All have alarm set points, RS-232 interface and analog output (optional on Model 1901). Models 9302 and 9304 have a standard Ethernet interface.

Nitrogen Heaters

Heated N2 will Improve Regen times. Our stainless-steel heaters are compact and powerful. N2 is isolated from the heating elements, thus insuring that gas purity is maintained and your pump is cleanly regenerated. Units are available in different flows, wattages, voltages, and inlet + outlet fittings to support your application.

Kashiyama NeoDry Pumps

Excellent for Roughing and Regen
Does not require water or N2
2 Year Warranty
3-6 year Rebuild Cycle
Non-Contact Internal Components
Excellent for pumping water vapor and other condensible vapors.

Anest Iwata Scroll Pumps

Anest Iwata is the Original Manufacturer of Dry Scroll Pumps. With over 35 years' experience in manufacturing scroll pumps for various pump OEM's, Anest Iwata brings consistent, reliable, and economical performance to your Chamber Roughing and Cryo-Regen needs.

SERVICE AND LEGACY EQUIPMENT

SynSysCo Supports Legacy Cryogenic Equipment

At SynSysCo we fully appreciate the value of an installed base of well-maintained legacy cryogenic equipment which is critical to production up-time and financial performance. We rebuild and sustain most manufacturers' makes and models of legacy cryogenic equipment.

OMNI®s Replace Legacy Cryogenic Equipment

As we rebuild and sustain your existing cryogenic equipment, we can also replace end-of-life equipment with OMNI® Helium Compressors and Marathon® cryopumps in an incremental approach as determined by your operational needs.

OMNI®s Upgrade Equipment Incrementally

Since the OMNI® Helium compressor can drive a mix of different manufacturer's pumps on the same tool at the same time, you can incrementally upgrade one compressor or one pump at a time. There is no need to replace a multiple cryo-pump set all at once with a new multiple cryo-pump set when you need to upgrade equipment.

OMNI®s Provide Exceptional Warranties

The OMNI® Helium Compressor line of equipment comes with a standard 2 year warranty and a scheduled 30,000 hour (42 month) Adsorber change.

Service Turnaround: USA

Service turnaround time is typically 10 to 20 working days after receipt of goods. Expedited services are available.

Contact Us

We will be happy to discuss the advantages of OMNI® Helium Compressors and the Marathon® equipment line.

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