

AIR CONDITIONING &
SANITATION SYSTEMS

Superyacht

 **Dometic**
GROUP



Environmental Policy

Since 1994, the Dometic Group Marine Division has provided air conditioning and refrigeration systems with green refrigerants. We lead the industry in the development of globally compliant marine air conditioning systems.

Dometic Marine is committed to minimizing the environmental impact of our products through regular assessment of energy and material demands, emissions, waste generation, and recyclable resources.



For many years we have proudly displayed our “Environmentally Responsible” logo, which indicates our commitment to the environment.




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The Critical Role of Air Conditioning

A reliable and ample air conditioning system is essential in any superyacht design. Not only does the system provide a comfortable cabin climate for the health and morale of the crew and passengers, it also maintains the required temperature range for the operation of critical electronic equipment.

The air conditioning system must be engineered for the unique characteristics of each workboat, military or commercial vessel — addressing climate control with as much attention and expertise as you give to the design of the ship itself.

Assessing real-world air conditioning requirements takes experience and specialized knowledge, so look to Dometic Group Marine Division for the resources and expertise you need. Our senior engineers can design your vessel's air conditioning system or review your design and specifications to make sure everything is correct.

The Three Biggest Challenges When Choosing the Right Manufacturer

With over 50 years of experience, Dometic Marine has provided the most proven, innovatively engineered marine air conditioning systems in the world.

We understand the three biggest challenges faced by naval architects and ship owners when choosing the right company for their air conditioning equipment: Support, Selection, and Service.

Challenge #1: Support — Trust Dometic Marine's expert engineering team to review your drawings and specifications to ensure all measurements and load calculations are correct. Or, we can layout your entire system, size all the appropriate capacities, and design the most suitable system for your vessel. Dometic Marine can also supervise the installation of your air conditioning system and provide on-site training and documentation to your crew.

Challenge #2: Selection — Dometic Marine provides the world's broadest range of chilled water systems, including air handlers and controls. Our chillers provide up to 2.88 million BTUs of cooling or heating and come in a variety of configurations, with custom designs available. Our air handlers feature "WhisperCool" technology and are available in unique vertical and horizontal configurations to best utilize the available space. Network-capable controls can be incorporated into most ship-automation solutions.

Challenge #3: Service — Dometic Marine has the world's largest network of trained and certified sales and service teams to support you no matter where you build or navigate. All products are in accordance with NMMA and ASHRAE standards, and our company is ISO 9001:2008 certified.



Dometic Marine can size, design, and build the right chiller for your vessel. Our certified worldwide sales and service network will keep your system running at peak efficiency no matter where you build or navigate.

Modular Chillers

Proven in thousands of marine installations, Cruisair and Marine Air modular chillers range from 16,000 (under two tons) to 396,000 (33 tons) BTU/hr. For larger, custom cooling and heating capacities, their modular design allows multiplexing in multi-stage systems capable of up to 2.40 million BTU/hr (200 tons).

Single-stage chillers feature a compact footprint and are available in space-saving low-profile and fully enclosed designs. Stainless-steel components and other tough, marine-grade materials are used in their construction. Condensers are available in standard co-axial coil and shell-and-tube configurations.

KEY BENEFITS

- Refrigerant gas circuit is contained within the chiller
- Allows more focused heat removal in interior spaces
- Reverse-cycle or electric immersion heating
- Scroll or rotary compressors in all standard voltages
- Multi-stage chillers are available in custom capacities and configurations
- Hot-gas bypass valves maintain heating performance in cold seawater conditions
- Environmentally safe R-410A refrigerant standard (R-407C is optional)



TWC48K

Cruisair TWC Series Chillers

Compact Footprint In An Enclosed Package

Cruisair's TWC series of high-performance, cost-effective chillers are available in capacities from 24,000 (2-ton) to 72,000 (6-ton) BTU/hr. The 24,000, 30,000, and 36,000 BTU/hr models have the same 13.00 x 18.80 in. (330 x 477 mm) footprint, and the electrical box can be mounted remotely to reduce the overall height of the unit. The 48,000, 60,000, and 72,000 models share a 13.30 x 18.80 in. (338 x 477 mm) footprint and have the electrical box mounted within the unit's enclosure.

All TWC models offer reverse-cycle heating and have large heat exchangers for superior performance in both cooling and heating modes. Each unit includes a chilled water flow switch, high- and low-refrigerant pressure switches, and inlet and outlet chilled water temperature sensors.



MCG-LP 5-Ton

Marine Air MCG Low-Profile Series Chillers

Space-Saving Chiller Design

Marine Air's MCG Low-Profile (MCGLP) chillers are designed for locations where height is an obstacle. At only 18.25 in. (464 mm) high for 3-ton to 6-ton models and under 26 in. (660 mm) high for 12.5-ton and 15-ton models, the MCGLP series is much more compact than other chillers in the same capacity range but no shorter on performance and reliability.

MCGLP chillers have up to 25% more condenser area than similar low-profile units, and have an expansion valve to modulate refrigerant. Reverse-cycle heating is standard. The removable PVC water headers resist corrosion and erosion.



MTD72K

Cruisair MTD Series Chillers

Cruisair's Standard, High-Performance R-410A Modular Chillers

Available in capacities from 24,000 to 120,000 BTU/hr, MTD chillers feature flexible hose with stainless-steel reinforced connections for improved alignment with the customer's seawater plumbing.

Thermal expansion valves optimize performance over a wide range of conditions. Reverse-cycle heating can be maintained in seawater temperatures as low as 4°F (-15.6°C), eliminating the need for separate fuel-powered or electric water heaters in most applications.



Marine Air MCG Series Chillers

Marine Air's Flagship Series of Modular R-410A Chillers

Featuring a compact base design, MCG chillers are available in capacities from 24,000 to 180,000 BTU/hr. The aluminum construction is corrosion-resistant and lightweight, yet durable.

MCG chillers are monitored and protected with freeze controls, high-limit switches, high and low aquastats, and timers. Bi-flow expansion valves balance systems between heat and cool modes and the compact, stainless-steel brazed plate heat exchangers provide maximum efficiency. The electrical box can be mounted remotely to reduce overall unit height for more flexible installation.

Up to six MCG modules can be staged for a maximum capacity of 1,080,000 BTU/hr (90 tons).



MTS Series Chillers

Framed High-Capacity Modular Chillers With Shell-and-Tube Condensers

MTS series modular chillers are exceptionally compact and built on a strong yet lightweight aluminum frame. Available in capacities from 120,000 (10-ton) to 396,000 (33-ton), MTS units have a marine-grade, highly efficient shell-and-tube condenser that is easy to maintain.

Each module contains a hermetically sealed scroll compressor. Safety measures include high-pressure switch, refrigerant pressure-relief valve, low-pressure switch, flow switch, high-limit switch, and freeze protection. With 100% pump-down capacity, refrigerant circuit repairs can be made without recovering the refrigerant. Dual bottom-draining liquid connections provide optimal performance in rough seas.

For year round comfort, optional electric immersion heating is available.

CHILLER SERIES	SINGLE MODULE CAPACITY RANGE	MAX. MULTI-STAGE CAPACITY	COMPRESSOR TYPE	CONDENSER TYPE	SPECIAL FEATURES
TWC	24,000 – 72,000 BTU/hr (2 to 6 ton)	432,000 BTU/hr (36 ton)	Hermetically Sealed Rotary or Scroll	Spiral-Fluted Cupronickel Coil	<ul style="list-style-type: none"> Compact, enclosed design Reverse-cycle heating Chilled water flow switch, refrigerant high- and low-refrigerant pressure switches, and inlet and outlet chilled water temperature sensors Large heat exchangers for superior performance in both cooling and heating modes
MCG Low-Profile	36,000 – 180,000 BTU/hr (3 ton to 15 ton)	1,080,000 BTU/hr (90 ton)	Hermetically Sealed Scroll	Spiral-Fluted Cupronickel Coil	<ul style="list-style-type: none"> Fits into height-restrictive spaces Reverse-cycle heating Stainless-steel (3- to 6-ton models) or lightweight painted aluminum drain pan (12.5- and 15-ton models) Corrosion-resistant, removable PVC water headers Expansion valve modulates refrigerant for improved performance Hot-gas bypass provides heating in cold seawater
MTD	24,000 – 120,000 BTU/hr (2 to 10 ton)	720,000 BTU/hr (60 ton)	Hermetically Sealed Scroll	Spiral-Fluted Cupronickel Coil	<ul style="list-style-type: none"> Flexible hose with reinforced seawater connections Reverse-cycle heating Removable seawater manifolds allow cleaning of condenser coil Thermal expansion valves optimize performance in a wide range of conditions
MCG	24,000 – 180,000 BTU/hr (2 to 15 ton)	1,080,000 BTU/hr (90 ton)	Hermetically Sealed Scroll	Spiral-Fluted Cupronickel Coil	<ul style="list-style-type: none"> Small footprint allows installation flexibility Reverse-cycle heating Lightweight, durable aluminum chassis Bi-flow expansion valves balance systems between cooling and heating Compact stainless-steel brazed plate heat exchanges for maximum efficiency
MTS	120,000 – 396,000 (10 to 33 ton)	2,400,000 BTU/hr (200 ton)	Hermetically Sealed Scroll	Shell-and-Tube with Cupronickel Tubes	<ul style="list-style-type: none"> High capacity in a space-saving design Shell-and-tube condensers are highly efficient and easy to clean Strong and lightweight aluminum frame Hermetically sealed compressor 100% pump-down capacity means repairs to refrigerant circuit can be made without recovering the refrigerant Optional electric immersion heating

Multi-Stage Chillers

Multi-stage chillers combine two or more chiller modules on a single platform for capacities of up to 2.4 million BTU/hr.

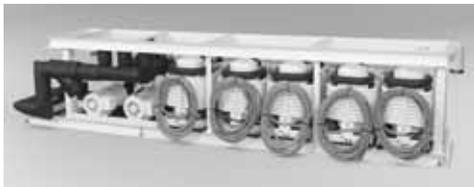
Multi-stage chillers have built-in redundancy, ensuring the system will function even if one of the circuits malfunctions. They feature sophisticated, networkable controls for local or remote monitoring,

and are available on tough, marine-grade aluminum-alloy frames that can be constructed in virtually unlimited configurations.

The systems pictured on these pages are examples of Cruisair and Marine Air multi-stage chillers built to custom requirements. Please contact us to discuss the system we could design and build for you.



■ MCW 4-Stage 192,000 BTU/hr (16 ton)



■ MCW-LP 5-Stage 360,000 BTU/hr (30 ton)



■ MTC 2-Stage 120,000 BTU/hr (10 ton)



■ MTC 5-Stage 300,000 BTU/hr (25 ton) in Japanese Coast Guard green



■ MCW-LP 6-Stage 360,000 BTU/hr (30 ton)



■ MTC 2-Stage 480,000 BTU/hr (40 ton)



■ STS 3-Stage 540,000 BTU/hr (45 ton)



■ STS 4-Stage 576,000 BTU/hr (48 ton)



■ SCG 4-Stage 720,000 BTU/hr (60 ton)



■ MCW-LP 5-Stage 900,000 BTU/hr (75 ton)

Air Handlers for Chilled Water

Cruisair and Marine Air chilled water air handlers are available in a wide range of BTU capacities and space-saving configurations.

Two blower types are available, high-velocity (HV) and brushless "WhisperCool" (DC). Both types have internal motors for decreased depth. Anti-slosh, "positive-flow" drain pans remove condensate water quickly and are insulated against secondary condensation. Electric heat is optional on all models.

KEY BENEFITS

- High-velocity (HV) or brushless DC "WhisperCool" blowers
- Internal blower motors reduce width for installation flexibility
- Anti-slosh "positive-flow" drain pans
- Exceptional dehumidification
- Vibration-isolation mounting
- Configurations to fit any space



AT Series Air Handlers

The Standard In Ductable Chilled Water Air Handlers

AT air handlers feature many engineering improvements that eliminate condensate drain challenges, including a sloped, "positive-flow" design and larger drain connections.

With capacities up to 36,000 BTU/hr, the AT series is available with high-velocity (HV) or "WhisperCool" brushless DC blowers, both with internal motors to decrease unit depth.



Low-Profile ATL & ABL Series Air Handlers

Designed for Overhead and Other Height-Restrictive Installations

ATL and ABL series air handlers are low-profile, dual-blower units ideal for overhead applications or anywhere the installation space is height restrictive.

The blowers in ATL models are mounted on their side in-line with the coil for an exceptionally low profile. Vibration-isolation mounts allow ATL units to be suspended from above or supported from beneath.



Due to the upright blower orientation, ABL models are taller than ATL models, but not as deep. ABL air handlers can be suspended from above or supported from beneath. Vibration-isolation mounts are sold separately.



Slim-Profile ATV Series Air Handlers

Minimal Depth for Installation In Walls and Other Tight Spaces

Featuring a unique vertical layout which places the blower above the evaporator coil, the ATV series takes advantage of tight spaces previously not thought of for air handler installation.

A "4-pipe" version of the ATV has dedicated cooling and heating circuits designed to work seamlessly between chilled water cooling and heating via a separate boiler system (see hydronic diesel boiler on pg. 18). The standard "2-pipe" version is shown at left.

AIR HANDLER SERIES	CAPACITY RANGE	SPECIAL FEATURES
AT-HV AT-DC	6,000 – 36,000 BTU/hr 6,000 – 36,000 BTU/hr	<ul style="list-style-type: none"> ■ The standard in chilled water air handlers with compact footprint, improved dehumidification, vibration isolation, and positive-flow drain pan ■ Insulated against secondary condensation
ABL-HV ABL-DC	18,000 and 24,000 BTU/hr	<ul style="list-style-type: none"> ■ Dual-blower, low-profile design with reduced depth ■ Insulated against secondary condensation; positive-flow drain pan
ATL-HV ATL-DC	6,000 – 36,000 BTU/hr	<ul style="list-style-type: none"> ■ Enclosed, dual-blower low-profile design with exceptionally low height ■ Insulated against secondary condensation; positive-flow drain pan
ATV-HV ATV-DC	6,000 – 36,000 BTU/hr	<ul style="list-style-type: none"> ■ Unique slim-profile vertical configuration fits into walls and other tight spaces ■ Insulated against secondary condensation; positive-flow drain pan ■ Optional "4-pipe" configuration works seamlessly between chilled water cooling and heating via separate boiler system

Controls for Chilled Water

Dometic Marine provides sophisticated, microprocessor-based controls for the precise operation and monitoring of single and multi-stage chilled water systems. Up to six chiller stages are supported.

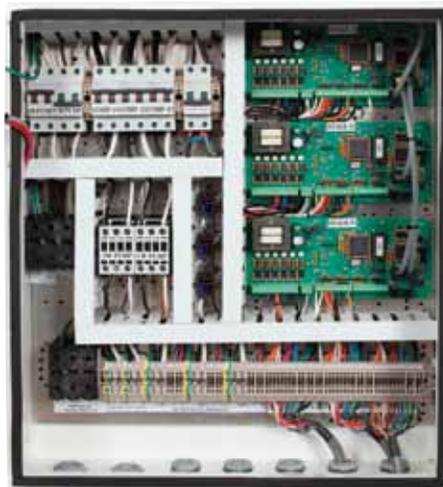
These controls offer central push-button operation of all chiller modules and monitor important information such as water temperatures and diagnostic faults. For added convenience, ship-wide chiller operation is available via PC interface or over the internet via Modbus/TCP Ethernet protocol.



Tempered Water Logic Control (TWLC) and Chilled Water Master Control (CWMC)

TWLC and CWMC chilled water controls offer different features and convenience-added options. Dometic Marine can design the right control system in a custom enclosure (above, at center) to satisfy your operational and budget requirements.

TWLC and CWMC controls support up to six chiller stages and will keep the system running even if a module fails. Easy-to-



read LEDs monitor water temperatures, compressor run times, diagnostic faults, and more.

KEY BENEFITS

- Provide central control and monitoring for up to six chiller modules
- Control over all cooling/heating functions including operation of seawater and chilled water pumps, coordination of the compressor(s), and more
- Provides monitoring of inlet/outlet water temperature, compressor run times, diagnostic faults, and more
- Remote control via PC interface, ship-wide Modbus/TCP Ethernet protocol
- Circuitry is coated for high resistance to damage and corrosion



Chiller Gateway Interface

The Chiller Gateway Interface allows complete remote control and monitoring of the chiller – including individual air handlers – via CAN bus network adapter and Modbus/TCP Ethernet protocol.

Available with graphical touch screen, the Gateway's web server makes chiller control possible from your home or office.

Variable Frequency Drives (VFDs) for Chiller Compressors



Standard VFDs

Eliminates the Inrush of Starting Current from Compressors

A VFD is designed to eliminate the large starting inrush of compressor current by ramping up voltage and frequency in a controlled time period, thereby protecting the vessel's generator or dockside power source from overload.



Bypassable VFDs

Smooth Starts/Stops Without Electrical Noise While Running

Bypassable VFDs eliminate compressor startup inrush current. Once at speed, they automatically bypass the electrical circuit to eliminate harmonic distortion and RFI, then reconnect for a smooth shutdown.

KEY BENEFITS

- Protects generator and dockside power from large compressor startup power demands
- 208/230V 3-phase output with 1- or 3-phase input
- Full 60Hz capacity even at 50Hz input (230V only)
- Low electronic noise model available
- 380/480V 3-phase models available

KEY BENEFITS

- Protects generator and dockside power from large compressor startup power demands
- Bypasses VFD and connects compressor directly to main AC power source after startup
- Eliminates the need for line reactors and RFI filters
- One drive can control up to four compressors
- Sizes from 5HP to 25HP for either 208V/240V or 380V/460V systems

Condaria Chilled Water Systems

With more than 30 years in the marine industry, Condaria specializes in chilled water air conditioning systems for leisure yachts and custom boats with a focus on compact, high-quality systems that are quiet and easy to use.

Condaria's location in Milan, Italy, is convenient to shipping and easily linked to most shipyards in Italy and throughout Europe. Condaria's manufacturing facilities are modern and well equipped, and proven production planning methods ensure on-time deliveries.

KEY BENEFITS

- Rugged, marine-grade materials
- Hermetically-sealed or accessible-hermetic compressors
- Units built on sturdy frames and chassis
- Shell-and-tube condensers (WM-S/FCL units) can be opened for easy cleaning and servicing
- Frequency inverters control compressor starting current peak and regulate running frequency/speed



PCWM/FCL with two compressors

PCWM/FCL Series Chillers

Rugged, Compact Chillers on a Sturdy Frame and Chassis

Condaria's PCWM/FCL chilled water series is available in one to four compressor stages for a capacity range of 18,000 to 240,000 BTU/hr of cooling. Reverse-cycle heating provides between 22,500 and 300,000 BTU/hr of warm air in cold climates.

PCWM/FCL models are constructed with rugged, marine-grade materials such as stainless steel and cupronickel. Devices are applied to reduce noise and vibration, and Condaria's own advanced controls are used to monitor and coordinate all system functions.



WM-S/FCL 1,440,000 BTU/hr

WM-S/FCL Custom-Built Chillers

High-Capacity Chillers Built to Shipyard Specifications

WM-S/FCL cool-only chillers have hermetic or accessible-hermetic compressors and shell-and-tube condensers. With a capacity range of 30,000 (2.5 ton) to 2,000,000 (166 ton) BTU/hr, these units are ideal for large boats. Most are built to custom shipyard specifications and can be designed with horizontal, vertical, or built-on-site configurations.

Each compressor is generally driven by a frequency inverter to control the current peak when it starts and the frequency/speed range while running.

CHILLER SERIES	COOLING CAPACITY RANGE	HEATING CAPACITY RANGE	COMPRESSOR TYPE	CONDENSER TYPE	SPECIAL FEATURES
PCWM/FCL	18,000 – 240,000 BTU/hr	22,500 – 300,000 BTU/hr	Hermetically Sealed	Cupronickel Coil	<ul style="list-style-type: none"> ■ Compact package on sturdy frame and chassis ■ Reverse-cycle heating ■ Reduced noise and vibration
WM-S-FCL	30,000 – 2,000,000 BTU/hr	N/A	Hermetically Sealed or Accessible Hermetic	Shell-and-Tube	<ul style="list-style-type: none"> ■ Custom built to shipyard specifications ■ High-capacity for large boats ■ Frequency inverters control compressor starting peak and frequency/speed while running



■ WM-S/FCL 180003 540,000 BTU/hr (45 ton)



■ (PC)WM-S/FCL 240004 960,000 BTU/hr (80 ton)



■ WM-S/FCL 240004 4-Stage 960,000 BTU/hr (80 ton)

Condaria Air Handlers

Condaria air handlers can be connected to a manual selector or a three- or ten-speed digital control (see controls below), and feature a multi-row copper/aluminum heat exchangers for complete moisture removal. Operation is handled by stopping/starting the blower or via three-way water valve with by-pass. Unique, customizable fresh air makeup air handlers (AHU series) are available to enhance and refresh the quality of the onboard environment.



ALU Giant



AP8



AHU

KEY BENEFITS

- Wide range of BTU capacities and configurations
- High-pressure centrifugal blowers are extremely quiet
- ABS drain pans (ALU and AP series)
- Drain pans are sloped for rapid removal of condensate
- Four to five row coils ensure complete moisture removal

ALU Series Air Handlers

Low-profile ALU air handlers feature heavy-gauge peraluman construction, ABS drain pans, and high-pressure centrifugal blowers. ALU units can be installed horizontally or vertically on site.

AP Series Air Handlers

AP air handlers have a compact, robust design, ABS drip pans, and rotatable, high-pressure centrifugal blowers. The four to five row coil ensures complete moisture removal. Electric heat is optional.

Fresh Air Makeup Air Handlers

Unique, dedicated units condition fresh air introduced into the yacht by removing moisture, salt, odors, and airborne particles that could in time erode the quality and integrity of the onboard environment.

AIR HANDLER SERIES	MODEL: CAPACITY RANGE	MODEL: AIR FLOW	NOISE LEVEL	SPECIAL FEATURES
ALU	Mini: 1,964 – 2,464 BTU/hr Compact: 3,252 – 4,320 BTU/hr Junior: 5,000 – 5,880 BTU/hr Giant 4: 7,600 – 9,320 BTU/hr Giant 8: 12,800 – 14,800 BTU/hr	Mini: 68 – 128 cfm Compact: 94 – 194 cfm Junior: 163 – 246 cfm Giant 4: 222 – 344 cfm Giant 8: 412 – 530 cfm	32 – 39 dB(A) 34 – 47 dB(A) 40 – 46 dB(A) 34 – 46 dB(A) 33 – 43 dB(A)	<ul style="list-style-type: none"> ■ Low-profile design ■ Heavy-gauge peraluman construction ■ ABS drain pan ■ Can be installed horizontally or vertically without any modification on site (except for Mini and Compact models)
AP	AP/M: 2,600 – 3,400 BTU/hr AP1: 3,200 – 4,480 BTU/hr AP3: 3,400 – 6,200 BTU/hr AP5: 8,400 – 9,300 BTU/hr AP8: 11,200 – 12,500 BTU/hr AP10: 14,000 – 16,000 BTU/hr AP12: 19,000 – 24,000 BTU/hr	AP/M: 90 – 150 cfm AP1: 106 – 176 cfm AP3: 118 – 206 cfm AP5: 235 – 353 cfm AP8: 335 – 470 cfm AP10: 440 – 588 cfm AP12: 500 – 735 cfm	N/A	<ul style="list-style-type: none"> ■ Rotatable, high-pressure centrifugal blower ■ Plug and play electrical connections ■ ABS drain pan designed to retain no condensation ■ Optional electric heat
AHU Fresh Air Makeup	AHU 3T 800: 33,730 – 63,493 BTU/hr AHU 3T 1000: 61,509 – 91,271 BTU/hr	AHU 3T 800: 235 – 471 cfm AHU 3T 1000: 471 – 706 cfm	N/A	<ul style="list-style-type: none"> ■ Conditions the fresh air introduced into the interior spaces to provide a cleaner, fresher on board environment ■ Helps remove odors ■ Oversized copper-on-copper coil ■ Customized units

Top Climate MBS 6

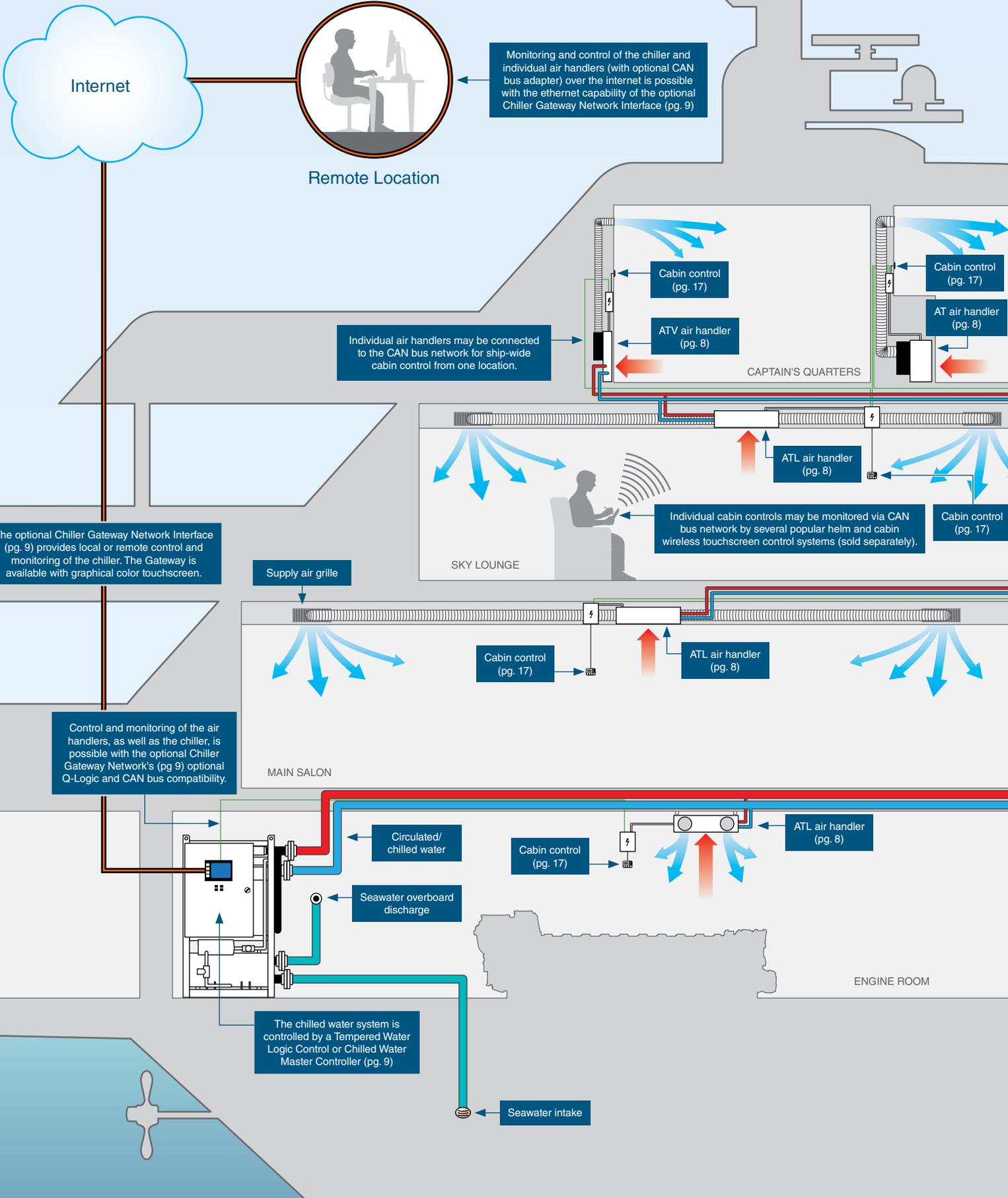
Advanced Air Handler Control by Condaria

Available in a three-speed and 10-speed version, the popular Top Climate control features a wide range of displays that fit most decorative bezels. Operation is simple and intuitive, and specially designed electronics produce virtually silent fan speeds. The built-in Mod Bus interface puts the Top Climate on most ship automation networks.



KEY BENEFITS

- Extremely compact
- Wide variety of displays to fit most surround bezels (sold separately) that complement the ship's interior decor
- Brightness of the LED varies with ambient light
- Intuitive and user-friendly operation
- 3-speed and 10-speed fan versions
- Can control optional electric heat
- Built-in Mod Bus interface port puts air handler control on most automation networks



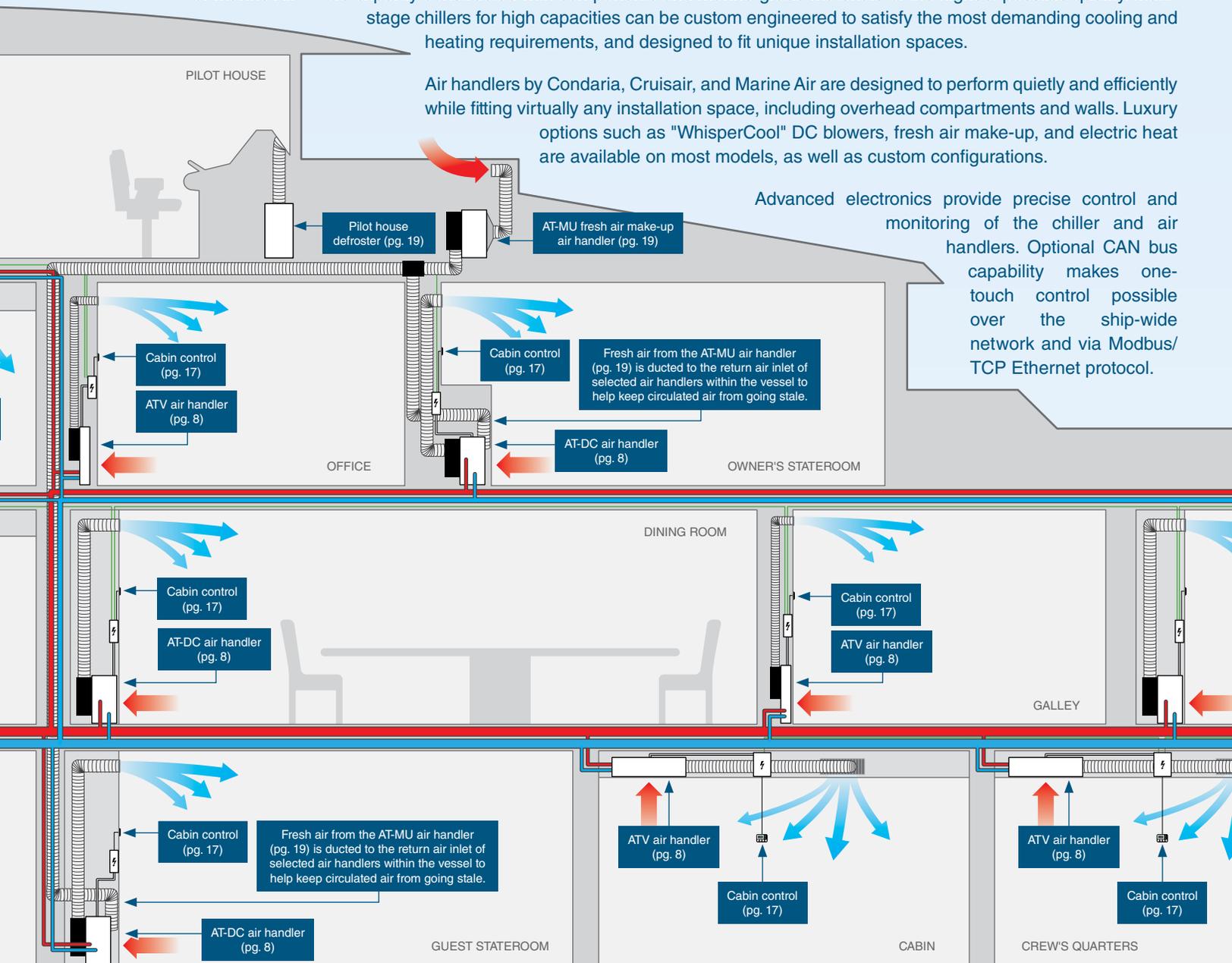
A Complete Chilled Water Air Conditioning System From One Source

From sophisticated electronic controls to hand-made air grilles with custom wood finishes, Dometic Marine can design and build a complete chilled water air conditioning system for your superyacht. Our engineering team is available to review the plans for your vessel, calculate all load requirements, and design the system best suited to your needs.

At the heart of a chilled water air conditioning system is the chiller itself. All Dometic Marine chillers — manufactured by Condaria, Cruisair, or Marine Air — are expertly constructed with components and marine-grade materials of the highest possible quality. Multi-stage chillers for high capacities can be custom engineered to satisfy the most demanding cooling and heating requirements, and designed to fit unique installation spaces.

Air handlers by Condaria, Cruisair, and Marine Air are designed to perform quietly and efficiently while fitting virtually any installation space, including overhead compartments and walls. Luxury options such as "WhisperCool" DC blowers, fresh air make-up, and electric heat are available on most models, as well as custom configurations.

Advanced electronics provide precise control and monitoring of the chiller and air handlers. Optional CAN bus capability makes one-touch control possible over the ship-wide network and via Modbus/TCP Ethernet protocol.



Split-Gas Air Conditioning

Split-gas air conditioning systems by Cruisair and Marine Air are the most durable and energy-efficient available for marine use.

Consisting of a water-cooled central condenser and one or more remote evaporators, split-gas systems are designed for cooling and heating larger interior areas. As the condensing unit is typically installed in an engine room, air conditioning noise and vibration is practically non-existent in living quarters.

KEY BENEFITS

- Compact and extremely energy-efficient
- Capacities from 6,000 - 72,000 BTU/hr of reverse-cycle cooling and heating
- Central condensing unit reduces plumbing for easier installation
- Quiet evaporating units with vibration-isolation mounting available
- "Positive-flow" anti-slosh condensate drain pans
- Engineered to maximize the performance benefits of R-410A refrigerant



Emerald 48K



Emerald 12K

Emerald Series Condensers

Innovative Chassis Conquers Installation Challenges

Emerald series condensers are available in a wide range of capacities: from 6,000 to 72,000 BTU/hr.

The Emerald series was engineered to remove installation and maintenance challenges and to maximize the performance benefits of R-410A, an environmentally safe refrigerant.

The square chassis minimizes the footprint and reduces installation time by up to 15 minutes. The reversing valve, pressure switches, and service ports are centrally located for easy maintenance access from any side. The electrical box can be removed from the unit and mounted remotely.

Emerald condensers are extremely energy efficient with up to 41% less power draw (6K-16K models). The rust-free, composite molded drain pan has specially-designed drain channels and two large drain fittings to rapidly remove condensate, resulting in up to 85% less standing water.

The compressor has cushioned mounts that dramatically reduce noise and vibration.



CAPACITY RANGE	VAC/CYCLE/PHASE (24K-72K MODELS)	SPECIAL FEATURES
6,000 - 72,000 BTU/hr	115/60Hz/1 (6K - 16K BTU/hr only) 230/60Hz/1 240/50Hz/1 230/60Hz/3 460/60Hz/3 380/50Hz/3	<ul style="list-style-type: none"> ■ Reverse-cycle cooling and heating ■ Compact, square chassis is only 13 x 13 in. (330 x 330 mm) for 6K-16K models and 16 x 16 in. (406 x 406 mm) for 24K-72K models ■ Rust-free molded composite drain pan with "positive-flow" drain channels that result in up to 85% less standing water ■ Up to 41% more energy efficient and up to 32% reduced start-up amps (6K-16K models) ■ Centrally-located reversing valve, pressure switches, and service ports for easy maintenance access from any side



TurboVap16

TurboVap Series Evaporators

Reduced Size, Noise, and Amperage With No Drain Pan Worries

The TurboVap series of evaporators is based on the revolutionary engineering advancements of the award-winning Turbo series air conditioners. The rust-free molded composite drain pan (shown at right) has anti-slosh ridges and "positive flow" channels for up to 85% less standing condensate water.

The TurboVap series is up to 15% lighter, up to 17% more compact, and draws up to 28% less amps. The internal blower motor reduces the overall unit depth for more flexible installation, and the blower can be rotated 270 degrees in the field with a single adjustment screw.





EBE18

EBE Series Evaporators

The New Standard In High-Efficiency R-410A Evaporators

Featuring a rotatable, high-efficiency permanent split-capacitor (PSC) blower with internal motor, EBE series evaporators are available in capacities from 6,000 to 36,000 BTU/hr. The EBHE series (shown at right) has electric heat.

EBE and EBHE units can be installed low in a closet, cabinet, other enclosed space. Discharge air is ducted to one or more grilles high in the cabin.

Cushioned mounts reduce noise and vibration, and the "positive flow" drain pan is insulated against secondary condensation. The PSC blower is supported by a sturdy aluminum bracket. The blower's internal motor means depth is kept to a minimum for more flexible installation.



EBHE30 3kW



EBLE36

EBLE Series Evaporators

Dual Blower, Low-Profile Evaporators

The EBLE series of evaporators come in a wide variety of capacities and configurations. Capacities are available from 12,000 to 36,000 BTU/hr. EBLE units are available with electric heat (EBHLE series), return-air plenum (EBLEP series), or electric heat with return-air plenum (EBHLEP series). EBHLE, EBLEP, and EBHLEP models are available in 16,000 and 24,000 BTU/hr capacities.

All EBLE configurations are low-profile for installation in height restrictive areas such as beneath a seat or bunk or in overhead spaces. The dual PSC blowers are supported by a sturdy aluminum bracket with cushioned mounts to reduce noise and vibration. Transitional metal surfaces are insulated against secondary condensation and noise. The "positive flow" drain pan is also insulated and lined with anti-slosh, anti-fungal foam.

The EBLEP series (shown at left) is especially designed for installation in overhead spaces. The insulated return-air plenum is designed to suction warm air (in cool mode) from a ceiling-mounted grille. EBHLE and EBHLEP evaporators have electric heat to provide warm air to interior spaces in the event the seawater is too cold for reverse-cycle heating.



EBLEP24

EVAPORATOR SERIES	CAPACITY RANGE	ELECTRIC HEAT RANGE	SPECIAL FEATURES
TurboVap	4,000 – 16,000 BTU/hr	N/A	<ul style="list-style-type: none"> ■ Rust-free molded composite drain pan with "positive-flow", anti-slosh drain channels that result in up to 85% less standing water ■ Up to 28% reduced amps ■ Up to 15% lighter ■ Up to 17% reduction in height ■ Up to 19% increased air flow CFM ■ Exceptionally compact and easy to install ■ Works with Emerald R-410A condensers but R-22 and R-417A TurboVap models are also available ■ Reverse-cycle cooling and heating
EBE	18,000 – 36,000 BTU/hr	N/A	<ul style="list-style-type: none"> ■ The new standard in compact, ductable evaporators with insulated, "positive-flow" anti-slosh drain pan and vibration-isolating mounts ■ High-efficiency, rotatable, variable-speed PSC blowers with larger inlet for increased air flow across the coil ■ Transitional metal surfaces insulated against secondary condensation and noise ■ Vibration isolation mounts reduce noise and vibration
EBHE (not shown)	6,000 – 36,000 BTU/hr	1.0 – 3.0 kW	<ul style="list-style-type: none"> ■ The EBE series with up to 3.0 kW of electric heat standard
EBLE (not shown)	12,000 – 36,000 BTU/hr	2.0 kW	<ul style="list-style-type: none"> ■ Low-profile design featuring insulated, dual high-velocity blowers with vibration-isolating mounts ■ Available with return-air plenum for cycling air from below the installation space (EBLEP series) ■ 2.0 kW of electric heat available with 16,000 and 24,000 BTU/hr models (EBHLE and EBHLEP series)
EBDE (not shown)	30,000 – 72,000 BTU/hr	N/A	<ul style="list-style-type: none"> ■ Available with vertical or horizontal discharge ■ 48,000 – 72,000 BTU/hr models feature dual return air inlets and evaporator coils ■ EBDE units work with Emerald series condensers

Self-Contained Air Conditioning

Self-contained direct expansion air conditioning systems by Dometic Marine are engineered for the cooling or heating of small or confined interior spaces, or as auxiliary units to cool an engine room, electronics storage, or exterior deck area.

The compact size of self-contained systems make them ideal for installation under a bunk or bench or in a locker or closet, yet are powerful enough to be ducted to two or more areas.*

*Depending on the size of each area and load factor

KEY BENEFITS

- Ideal for smaller or confined interior areas, or for cooling engine room, electronics storage, or exterior deck area
- All major components mounted on a single chassis
- Small footprint and compact size is ideal for installation under a bunk or bench, or in a locker or closet
- Capacities up to 72,000 BTU/hr of reverse-cycle cooling or heating
- Can be ducted to one or more areas



Turbo16K

Turbo Self-Contained Series

Powerful, Compact, and Quiet

The award-winning Turbo series revolutionized self-contained cooling and heating with the latest innovations in air conditioning system design. Available in capacities from 6,000 to 16,000 BTU/hr, the Turbo series is now available in R-410A, an environmentally safe refrigerant.

The rust-free, molded composite drain pan features "positive flow" sloped channels which route water rapidly to three drain locations, resulting in up to 85% less standing water in the pan.

An advanced cushioning system (at right, above) results in quieter, virtually vibration-free operation. The enclosed blower motor results in reduced depth for easier installation.

Further reduce noise by up to 50% with the optional sound shield (at right), which completely encloses the compressor. Installation of the sound shield takes just minutes, and all mounting hardware is included.



SVCD30K

Multi-Ton Self-Contained

Up to 30,000 BTU/hr On a Single Compact Chassis

The VCD series of self-contained air conditioning systems is available in capacities of 18,000, 27,000, and 30,000 BTU/hr. These high-capacity systems with reverse-cycle heating are built on a compact chassis and are more cost effective and easier to install than two or more individual units of similar combined capacity.

VCD air conditioners have high-velocity blowers in a single (18K and 27K) or double (30K) configuration. The blowers are rotatable for more flexible installation and fully insulated against secondary insulation noise. Quiet, high-efficiency compressors have cushioned mounts to reduce vibration transmission to the chassis. The evaporator coil employs an enhanced fin design and rifled copper tubing to provide maximum capacity.

For added durability and excellent resistance to corrosion, VCD models are available with optional stainless-steel chassis (SVCD) and Heresite-coating on the evaporator coil.



VCD27K



Low-Profile Self-Contained

Designed for Cockpit, Engine Room, and On-Deck Installation

Self-contained air conditioning is available from Cruisair (SQL models) and Marine Air (VLD models) in an exceptionally low-profile 16,000 BTU/hr package. Thanks to an innovative horizontal compressor, these units stand only 8 in. (203 mm) high, making them ideal for installation in confined spaces.

Reverse-cycle heating is standard, and the oversize four-row evaporator coil provides excellent heat removal under low fan-speed conditions. The dual high-velocity tangential blowers can be ducted to flybridge dashboards and consoles and many other unique applications. The 304-grade stainless-steel drain pan and drain fittings contribute to long service life.

An evaporator-only unit is available in the same low-profile design and works with Emerald R-410A condensers (page 14).

PRODUCT	CAPACITY RANGE	VAC/CYCLE/PHASE	SPECIAL FEATURES
Turbo	6,000 – 16,000 BTU/hr	115/60Hz/1 208-230/60Hz/1 220-240/50Hz/1	<ul style="list-style-type: none"> ■ Award-winning, best-selling series of self-contained air conditioning systems with reverse-cycle heating ■ Rust-free molded composite drain pan with "positive-flow" drain channels that result in up to 85% less standing water ■ Up to 27% more energy efficient ■ Cushioning mounts reduce vibration and noise ■ Optional sound shield further reduces compressor noise by up to 50%
Multi-Ton	18,000, 27,000 and 30,000 BTU/hr	208-230/60Hz/1 220-240/50Hz/1	<ul style="list-style-type: none"> ■ Powerful yet efficient reverse-cycle units on a single chassis are more cost-effective and easier to install than multiple self-contained systems ■ Single (18K and 27K) and dual (30K) high-velocity blowers ■ Optional stainless-steel chassis for added durability and Heresite coating for excellent resistance to corrosion ■ 27K and 30K available with 3-phase compressors upon request
Low-Profile	16,000 BTU/hr (60Hz)	115/60Hz/1 208-230/60Hz/1 220-240/50Hz/1	<ul style="list-style-type: none"> ■ Stands only 8 in. (203 mm) high thanks to innovative horizontal compressor ■ High-efficiency dual blowers can be ducted to flybridge dashboard and many other unique applications ■ 304-grade stainless-steel drain pan and drain fittings ■ Oversized four-row coil for excellent heat removal under low fan speeds ■ Low-profile evaporator only unit works with Emerald R-410A condensers

Digital Cabin Controls

Cruisair and Marine Air digital cabin controls provide precise monitoring and control over the temperature and humidity levels of treated interior spaces.

Cruisair's Q-Logic microprocessor works with all Cruisair chilled water air handlers, split-gas evaporators, and self-contained systems. Likewise, Marine Air's Passport I/O microprocessor controls all Marine Air air handlers, evaporators, and self-contained systems. These microprocessors interface with a variety of keypad/displays that are unique to Cruisair and Marine Air.

KEY BENEFITS

- Microprocessor systems provide precise monitoring and control
- Automatic humidity control
- Cool-only, heat-only, and automatic modes plus multiple fan-speed control
- Displays ambient and set-point temperature in Fahrenheit or Celsius
- Internal circuitry is resistant to corrosion
- Optional CAN bus adapter puts multiple cabin control on the vessel's network (except Marine Air Passport I/O Compact)



Cruisair's digital keypad/displays work with the Q-Logic microprocessor. The Qht keypad/display (above at left) features a blue backlit LCD and accommodates a variety of stylish bezels — including the Vimar Eikon. The economical Q3 (above at right) has a sleek, sturdy design with built-in bezel. Both the Qht and Q3 accept an optional CAN bus adapter for ship-wide networking.

Marine Air's digital keypad/displays work with the Passport I/O microprocessor. The Elite keypad/display (above at left) offers a sleek European design and accommodates a variety of stylish bezels — including the Vimar Eikon. The Elite accepts the optional CAN bus adapter for ship-wide networking. The compact Passport (above at right) has a steady LCD and large buttons.



HSA16 Self-Contained (Interior)

Radome Environmental Control Unit (ECU)

Maintains Safe Operating Temperatures for Sensitive Domed Electronics

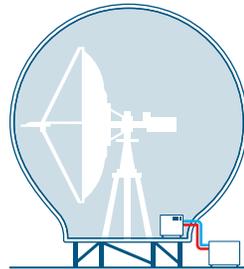
The air-cooled Radome ECU is specifically designed to maintain optimum temperatures for the sensitive electronics within a dome enclosure.

Small and lightweight, the ECU has corrosion-resistant components and is designed to exceed the cooling requirements of pleasure boats and commercial vessels.

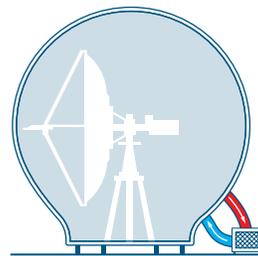
The Radome ECU is operated via Marine Air's Passport I/O digital control and is available in three configurations:



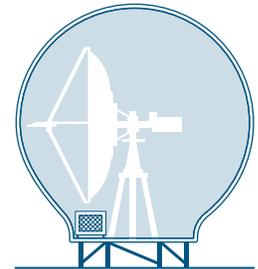
HSA16 Self-Contained (Remote Ducted)



Split-Gas



Remote Ducted Self-Contained
(For low pedestal applications)



Interior Self-Contained



Hydronic Diesel Boilers by Condaria

Quiet, Fuel-Efficient Heater Designed to Work With Chilled Water Air Handlers

Condaria's hydronic diesel boilers provide 3.0 or 3.5 kW of heating in seawater conditions that are unfavorable for reverse-cycle heating or when electric heat is unavailable. Easily retrofitable, these boilers provide fuel-efficient heating wherever shore power may be limited, and maintain comfortable on-board temperatures at night when the primary generator may be shut down.

The boiler supplies water at a temperature of 120°F/49°C to chilled water air handlers with a dedicated heating circuit, such as the ATV (page 8).



HMDL3

Auxiliary Heat Module

Providing Ductable Electric Heat In Extremely Cold Conditions

Dometic Marine's auxiliary heat modules provide additional heating when the vessel is in extremely cold seawater. These ductable units also permit specific compartments on the boat to be heated when the circulated water system is in cooling mode.

Available in one to four kilowatts of heat and 115V or 230V power, auxiliary heat modules have fintube heating elements, two-stage thermal protection, and an insulated interior.



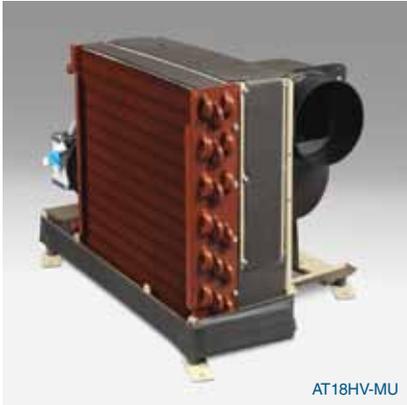
1-kW in-line defroster

Cruisair In-Line Ductable Defroster

Provides 1-kW of Electric Heat for the Treatment of Windows

Cruisair's in-line ductable defroster is typically installed within the ducting of chilled water air conditioning systems. The large blower provides the needed back pressure to push the hot air through the small grilles directed at the glass.

The unit is operated via external controls.



AT18HV-MU

Fresh-Air Make-Up Air Handlers

Ducts In, Treats, and Supplies Outside Air to Refresh Interior Spaces

Dometic Marine fresh-air make-up air handlers (AT-MU series) work within chilled water air conditioning systems to help keep the air inside the vessel from going stale.

AT-MU units duct in outside air, cool and dehumidify it, then re-heat it to room temperature and duct it to various interior spaces. Typically, crew cabins two or more levels below deck will benefit from the use of these systems.

Available in 18,000, 24,000, and 36,000 BTU/hr capacities, AT-MU units have corrosion-resistant coating on the coil, blower, and other exposed components, and include vibration isolation mounting. Available with high-velocity (HV) or brushless DC blowers.



PHDCM1.5

Pilot-House Defroster

With Individual Ducts for Each Pane of Glass

Typically installed under the coaming area, the lightweight pilot-house defroster features up to six individual ducts to treat each pane of glass in the pilot house.

Featuring a quiet and efficient squirrel-cage fan, the pilot-house defroster operates in two modes: fan only supplies ambient cabin air, and fan with thermostatically controlled electric heat takes cabin air and raises the temperature through the use of finned heating elements mounted in the defroster chamber.



CF850 Portable Provisioning Refrigerator

29.3 ft³ Capacity With An 8-Hour Battery

Ideal for the transport of food and other temperature-sensitive products, the CF850 provides 29.3 ft³ (0.83 m³) of portable AC/DC refrigeration. Use the digital controls (shown at right) to precisely set the cooling temperature between 32°F/0°C and 54°F/12°C.

The integrated battery provides up to eight hours of operation on a pre-cooled load (at an ambient temperature of 77°F/25°C), long enough for a full day at sea.

The CF850 can be installed and removed without tools. The provided belt set enables quick and safe anchoring, and the durable PE cabinet resists external damage.

Safety features include an optical temperature alarm system, double-magnet door seal, and a door lock that can be opened from the inside.





In-Duct Breathe Easy™ Air Purifier

Eliminate Boat Odors and Improve Air Quality

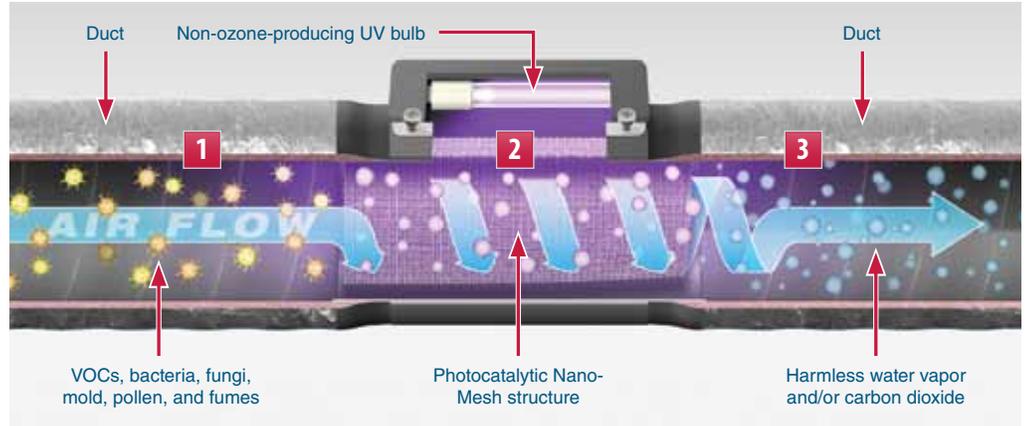
The award-winning in-duct Breathe Easy™ Air Purifier uses innovative photocatalytic nano-mesh technology with ultraviolet (UV) light to eliminate on-board odors and reduce biological and chemical contaminants. Breathe Easy works silently and safely within the air conditioning duct.

Testing of the in-duct Breathe Easy Air Purifier performed by Environmental Diagnostics Laboratory showed **up to 98% reduction in volatile organic compounds (VOCs) and up to 99% reduction in bacteria, fungi, mold, and pollen grains.**



How Breathe Easy™ Works:

- 1** Chemical and biological contaminants enter the air purifier through the A/C duct.
- 2** UV light activates the photocatalytic nano-mesh, reconfiguring impurities into non-toxic elements. Vortex action maximizes contact with the nano-mesh structure.
- 3** Harmless water vapor and carbon dioxide exit the air purifier.

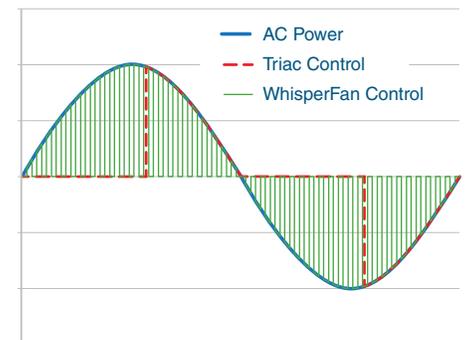


WhisperFan Controller

Brings Silent Operation to Noisy AC Blowers

The WhisperFan controller eliminates the noise of your air conditioner's AC motor-driven blower. In addition, it provides overload protection to the blower motor and lets you precisely control the actual fan speed for each fan-speed setting.

The WhisperFan uses pulse width modulation to make any AC-driven fan as quiet as a DC-driven fan. By pulsing the voltage hundreds of times faster than is possible with triacs, the smoother motor current results in quieter, extreme low-noise output.

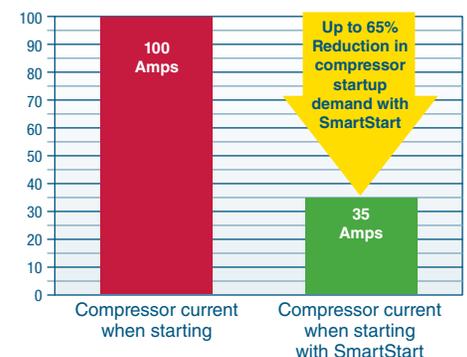


SmartStart™ Single-Phase Soft Starter

Eliminate Startup Spikes

The SmartStart™ is a unique device that uses dynamic feedback control to reduce single-phase air conditioner compressor startup power demand by up to 65%. No other soft starter in the industry provides better performance.

Small and lightweight, the SmartStart may eliminate the need to invest thousands in a larger generator. For boats without a generator, the SmartStart may allow the option of powering an air conditioning system from an inverter.



VacuFlush® Toilet Systems

Odor-Free Performance With Ultra-Low Water Consumption

VacuFlush® technology from SeaLand uses stored vacuum energy to clear the bowl instantly and propel waste to the holding tank, resulting in odor-free, clog-free performance.

VacuFlush toilets use very little water per flush (as low as one pint). This not only extends the fresh water supply, but also increases the time between holding tank pump-outs — a significant advantage for vessels operating in waters with overboard discharge restrictions.

KEY BENEFITS

- Uses powerful vacuum energy for odor-free, clog-free performance
- Miserly water consumption — as low as one pint (0.5 l) of fresh water per flush in "Dry Bowl" setting — increases holding tank flush capacity up to 300%
- All-ceramic toilets with adult-size seats and deep bowls
- Electronic one-touch control or pedal-flush models
- Flat or sloped bulkhead-mating profiles
- Fresh water use reduces maintenance and odors associated with raw-water systems



4800 (left) and 4600 (right) toilets

4800 and 4600 Series VacuFlush® Toilets

Contemporary Styling for Hull or Bulkhead Locations

SeaLand's 4800 and 4600 series VacuFlush toilets provide contemporary styling and an abundance of features to satisfy diverse owner preferences and meet virtually any boat builder requirement.

4800 toilets have a sloped-back profile for hull locations, and 4600 toilets have a flat back for bulkhead locations. Models of both series feature a compact footprint and high-quality ceramic finish. Preferred options such as low profile or standard heights, 12V or 24V DC operation, and above-floor or below-floor discharge ensure there is a 4800 or 4600 series toilet that will complement most any head compartment. Flush activation is by electronic touchpad or switches (see page 23).



4700 toilets in white (with electronic flush handle) and bone

4700 Series VacuFlush® Toilets

Premium Elegance and Comfort

Get the water-conserving efficiency of VacuFlush technology in an opulent, residential-scale toilet with SeaLand's 4700 series. The upscale style and electronic operation of the 4700 series perfectly complements today's tastes in motor yacht design and convenience.

With freshwater flushing, instantaneous evacuation of bowl contents, and thorough rinsing action, 4700 models deliver sparkling clean, odor-free performance. These toilets come in standard height, white or bone colors, and above-floor or below-floor discharge options. Flush activation is by residential-style electronic flush handle, touchpad, or switches (see page 23).



HTS-VG 28 gal.

Space-saving HTS-VG systems feature integrated vacuum generator, discharge pump, and vent filter in 12 pre-plumbed sizes and configurations.*

*Not included on all models

Vacuum Generators

The Heart of VacuFlush Power

With a wide choice of versatile, efficient, and quiet vacuum generators developed for marine sanitation, SeaLand offers boat builders more reasons than ever to install premium VacuFlush systems.

J (VG4) and low-profile S (LPVG) series vacuum generators operate more quietly than macerator motors and can be configured to most any marine plumbing application.

Virtually any boat can benefit from a completely integrated vacuum generator/holding tank system (HTS-VG series), which comes with built-in discharge pump* and holding tank vent filter. HTS-VG systems have corrosion-proof, leak-proof, and odor-proof polyethylene tank construction and are extremely easy to install and use.



VG4



LPVG

MasterFlush® Toilet Systems

Quiet, No-Clog Performance With 64% Less Power Use

SeaLand's industry-leading MasterFlush® system pulverizes waste with less power requirements than competing toilet systems.

The 18-blade macerator turbine delivers up to 2,500 rpm to grind waste into a fine effluent with no clogging. The macerator pump propels effluent to the holding tank, which can be installed up to 98 ft. (30 m) away.

Superior technology means 64% less power consumption and 33% lower amps per flush than competing models.

KEY BENEFITS

- Uses optimized macerator engineering for clog-free performance
- All-ceramic toilets with adult-size seats and deep bowls
- 64% less power consumption and 33% lower amp draw per flush
- Electronic flush controls
- Uses fresh water to reduce the maintenance and eliminate the odors caused by raw-water systems
- "Dry Bowl" flush setting is about 50% more water efficient
- 98 ft. (30 m) maximum distance to holding tank increases installation flexibility



8900 (left) and 8600 (right) toilets

8900 and 8600 Series MasterFlush® Toilets

Contemporary Styling for Hull or Bulkhead Locations

SeaLand's 8900 and 8600 series MasterFlush toilets provide contemporary styling and an abundance of features to satisfy diverse owner preferences and meet virtually any boat builder requirement.

8900 toilets have a sloped-back profile for hull locations, and 8600 toilets have a flat back for bulkhead locations. Models of both series feature a compact footprint and high-quality ceramic finish. Preferred options such as low profile or standard heights, 12V or 24V DC operation, and above-floor or below-floor discharge ensure there is an 8900 or 8600 series toilet that will complement most any head compartment. Flush activation is by electronic touchpad or switches (see facing page).



8700 toilets in white (with electronic flush handle) and bone

8700 Series MasterFlush® Toilets

Premium Elegance and Comfort

For the appearance and user-friendly performance of an upscale residential toilet, SeaLand's 8700 series macerator toilets, powered with MasterFlush technology, deliver it all.

Discriminating boat owners will appreciate the full-scale, standard-height residential styling, complete with elongated wood seat and lustrous, sparkling ceramic finish. The robust effluent macerator operates 30% more efficiently than previous SeaLand macerator models.

Above-floor or below-wall discharge options are available, as well as white or bone colors. Flush activation is by electronic flush handle, touchpad, or switches (see facing page).



Sanitary Bidets

Integrated Toilet/Bidets and Free-Standing Bidet

For the discriminating yacht owner, SeaLand offers stylish bidets in a space-saving integrated toilet/bidet combo or as a free-standing bidet-only fixture.

The integrated model combines an 8900 or 8600 series MasterFlush toilet with a gentle, aerated bidet water flow (shown at left) that is activated by a convenient fixture-mounted knob. These integrated models have the same powerful macerator flush, electronic operation, and options available with 8600 and 8900 series toilet-only fixtures.

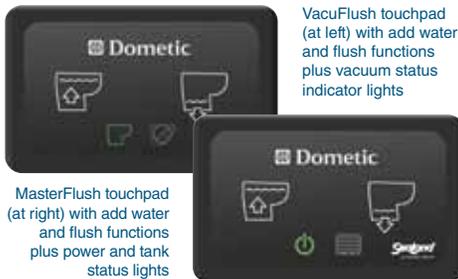
A free-standing bidet-only fixture (shown at right) is also available. Faucet hardware is supplied by the boat builder or owner.



Electronic Toilet Controls

User-Friendly Flushing Operation

Complete the luxurious appeal of your VacuFlush or MasterFlush toilet system with the convenience of a wall-mounted touchpad or switch control. SeaLand touchpads are complete and ready to install, while Vimar and Gewiss switches require a bezel and mounting hardware (sold separately).



VacuFlush touchpad (at left) with add water and flush functions plus vacuum status indicator lights

MasterFlush touchpad (at right) with add water and flush functions plus power and tank status lights



Gewiss Chorus and Playbus switches for VacuFlush with add water and flush functions plus vacuum status indicator lights

Gewiss Playbus switch for MasterFlush with add water and flush functions plus power and tank status lights



Vimar Eikon and Idea switches for VacuFlush with add water and flush functions plus vacuum status indicator lights

Vimar Idea switch for MasterFlush with add water and flush functions plus power and tank status lights

KEY BENEFITS

- 12V and 24V DC models available
- Complete add water/flush control at the touch of a button
- VacuFlush controls feature integrated vacuum status/power indicator lights
- MasterFlush controls feature integrated power/tank status indicator lights

Holding Tank Systems

Odor-Free Performance with Premium Convenience Options

Yacht builders and owners can now realize the benefits of a user-friendly, properly-sized sanitation holding tank system by SeaLand.

SeaLand holding tanks work with VacuFlush and MasterFlush toilet systems and are available in a wide range of sizes, shapes, and configurations. For added convenience, waste discharge pumps and tank-level monitor systems are available with wall-mounted electronic monitor and control panels.

KEY BENEFITS

- Standard holding tanks (HTS) and tanks with built-in discharge pump (HTS-T)
- Corrosion-proof, leak-proof, and odor-proof high-density polyethylene construction
- "Diptube-style" discharge fittings for thorough, leak-proof pump out
- Easy to install – no solvent-bond connection required
- Capacities from 10 gallons (38 liters) to 80 gallons (302 liters)
- ISO/USCG compliant

High-Density Holding Tanks

Corrosion-Proof, Leak-Proof, and Odor-Proof Polyethylene Tank Construction

Proven in thousands of installations, SeaLand holding tanks provide clean and safe service for many years. To prevent odors from escaping, SeaLand tanks are made from extra-thick polyethylene and have top-mounted discharge connections.

The TankSaver® vacuum relief valve prevents damage from high-powered dockside vacuum pumps. There are separate outlets for topside and overboard discharge.

All SeaLand holding tanks are pre-assembled for easier installation and available with built-in waste discharge pump (HTS-T), overboard discharge controls, and SaniGard™ vent filter which out-performs competing vent filters by at least 2.4 times.



HTS 28 gal. (106-liter) holding tank



DTM04 four-level tank monitor panel with probe



HTS-T 28 gal. holding tank

SeaLand DTM tank monitors provide accurate, continuous tracking of tank levels. Each DTM panel provides LED illumination that indicates up to four levels of tank contents.



SaniGard™ Holding Tank Vent Filter



T series discharge pump and DTD02 automatic overboard discharge control

Case Study: An Indoor/Outdoor Challenge In Luxury

The Challenge

A 60-meter boat from the CRN shipyard in Ancona, Italy, the superyacht *Blue Eyes* is an impressive combination of beautiful design, classic interiors and architectural surprises.

The biggest architectural surprise is her innovative signature feature: An indoor/outdoor Beach Lounge on the aft deck. Where most yachts would house a garage, *Blue Eyes* puts the space to use as an open-air lounge that extends to the sea. At night, it also serves as a romantic dance floor on the water.

The builders knew this beautiful space would seldom be enjoyed if outdoor temperatures drove guests back inside. Their solution? Find a company that could air condition it.

The Solution

CRN worked with Condaria by Dometic Group to develop a custom solution for this unique, indoor/outdoor area.

To keep guests comfortable onboard, Condaria supplied nearly 1.2M BTUs of cooling and heating power in the

yacht's overall HVAC system. Nowhere is Condaria's custom engineering better showcased than in the indoor/outdoor Beach Lounge. An array of highly efficient, high-velocity blowers are precisely placed to keep the lounge cool without creating unpleasant air blasts that would annoy the guests.

With Condaria's specially designed installation of a robust heating and air conditioning system, guests are kept comfortable by day and by night. Despite having a wall open to the sea, guests can relax and enjoy this elegant indoor/outdoor feature, regardless of the temperature.

The Result

Voyaging on superyacht *Blue Eyes* is an exciting and luxurious experience that demands being surrounded by ideal environmental conditions, and ideal environmental conditions require an ample and reliable HVAC system.

The Condaria HVAC system achieved this goal, and brought pleasing temperatures to a unique area of the superyacht that is open to the sky and the sea.



CRN 197 ft. (60 m) *Blue Eyes*



The aft "Beach Lounge" on *Blue Eyes*

Case Study: Marine Air Conditioning That Conquers Desert Heat

The Challenge

When Steve Creamer began building *Crystal Angel II*, a customized 85 ft. (26 m) tri-deck motor yacht that would cruise the vast waters of Lake Powell in the high desert region of Page, Arizona, his primary concern was the effectiveness of her air conditioning system. Often entertaining family and friends aboard his yacht, Creamer knows the importance that a comfortable climate makes to the enjoyment of the voyage.

Cruising in an area where temperatures often reach more than 100°F/38°C, the air conditioning system had to be exceptional. In fact, Steve Creamer's number one stipulation for the build was that this luxury yacht be air conditioned properly so it would stay cool in the desert heat. To accomplish this goal, he turned to Dometic Marine.

The Solution

To meet his requirements, Dometic Marine installed a 360,000 BTU Marine Air modular chilled water system that was specially designed to tame the heat of the region and address the yacht's unique characteristics. In addition to determining

the proper load requirements, Dometic Marine worked with the boat builder to test several variations of the air conditioning system using various plenums and air flow configurations to optimize performance and also reduce noise.

The Result

The resulting installation was successful. *Crystal Angel II* went into the water in June 2011, and the air conditioning system is keeping guests cool and comfortable while they enjoy the breathtaking desert terrain of Lake Powell.

"Our representative and the team at Dometic have been extremely supportive of our project through both startup and after-support — from the early conceptual design, through detail design with the interior designer — to create a unique air distribution system which integrates the distribution and return systems into the ceiling beam system," said Creamer.

"Having had a Dometic system on the *Crystal Angel I* for seventeen years, I knew the quality of Dometic's systems. The quality of the people and the support of the company have been very impressive," he said.



Custom built 85 ft. (26 m) *Crystal Angel II*



Interior of the *Crystal Angel II*

Case Study: The Luxury of a Perfect Fit

The Challenge

Custom yachts often demand custom systems. When it comes to chillers, required capacity and available space in the engine room don't always coincide. The challenge is to find an HVAC manufacturer that has both a broad variety of chillers to fit a variety of spaces and the capability to provide custom engineering when required.

The Solution

The naval architects at Sunseeker International, a global leader in the design and building of luxury motor yachts, appreciate working with the experienced HVAC engineers at Dometic Marine. With a broad range of product shapes, sizes, and capacities to choose from, the right product can often be ordered straight from the catalog. And for more challenging applications, they can rely on custom-built chillers to meet their needs. The naval architects are free to focus on yacht design instead of HVAC challenges.

Dometic Marine's expert engineers work with Sunseeker's naval architects to recommend the system capacity necessary for ample onboard comfort. The engineers then

arrange the multi-stage chiller and its frame to fit into the space available in the engine room, redesigning elements if necessary to meet height and width specifications.

Bespoke chiller frames can even be designed to hold other engine-room equipment to better utilize limited overall space.

For the Sunseeker Predator 84, Dometic Marine provided a two-stage Marine Air MCW Low-Profile chiller with total capacity of 120,000 BTUs (10 tons). The low-profile design fits into height-restrictive spaces. Its compact footprint allows flexibility in space usage and layouts.

Also included with the Predator 84's chiller system is a Digital Diagnostic Controller that monitors and protects the system through the use of sensors, pressure switches, timers, and freeze controls, all programmed to display on an LED panel for immediate diagnosis.

The Result

Naval architects can focus on boat design instead of HVAC design, which has earned Dometic Marine the prestigious status of "Sunseeker Approved Supplier".



Sunseeker Predator 84 ft. (Image courtesy of Sunseeker International)



Approved Supplier



To find out how we can meet your HVAC or sanitation needs, please contact us by phone or email. We look forward to hearing from you.

North America Sales and Service

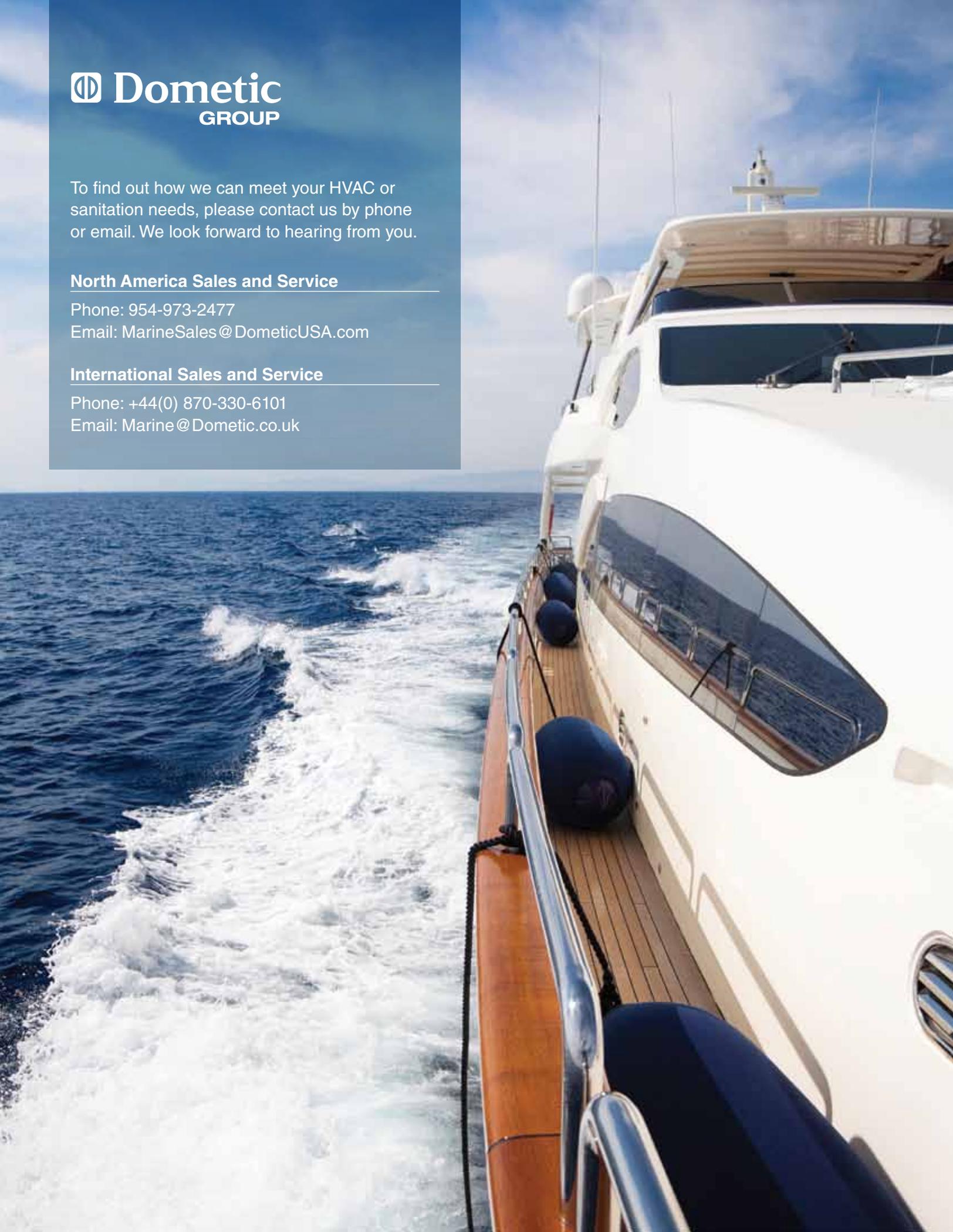
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