motivair®
COOLING SOLUTIONS

MHP-LA Modular Low Ambient Air-Source Heat Pump

18 - 240 Tons

Advancing HVAC design

The continuous evolution of HVAC building design guidelines demands more effective and efficient means for heating and cooling commercial spaces. Motivair has taken on the social responsibility to drive market leading efficiencies with its development of modular air source heat pumps. The MHP-LA delivers heating or cooling with a robust industrial design.

The chiller's modularity allows for optimum efficiency, scalability and load management in a compact footprint. Business and critical environments require chiller systems to provide a reliable source of hot or cold water, which can improve overall system uptime and reduce the total cost of ownership.

Every heating and cooling application is unique, which is why Motivair's Modular Low Ambient Heat Pumps have been designed to accommodate a wide range of operating points and customization based specifically on the needs of the customer. No other chiller offers such a broad range of features and benefits that can be used in combination to create a chiller best suited for your business's needs.

As an industry leader, we aim to deliver innovative products, reliable solutions and an unwavering commitment to excellence.

HEAT PUMP TECHNOLOGY FOR COLD CLIMATES

The Motivair MHP-LA is a modular Air to Water Heat Pump chiller that has been optimized for clients requiring reliable year-round heating. This unique design can offer up to 110°F hot water when winter ambient temperatures fall to 5°F.

Although revolutionary, this product is simple and reliable to both heat and cool buildings. Ideal for 2-pipe systems, the MHP-LA modules span from 18-30 tons and can be paired together achieve a total capacity of 240 tons with a single power connection.

Today's state of the art controls allow for optimized heat pump efficiencies while giving the owner full local or remote control and monitoring of the system. Use of electronic expansion valves and EC fans increase efficiency and optimize capacity control.

With the master PLC's ability to control multiple modules (up to 8 modules) and simultaneously stage compressors on and off to meet any building heating or cooling load profile. A complete list of standard and custom options allows a design engineer or owner to tailor each chiller to the building's specific needs.

Motivair Heat Pumps are often applied to commercial office spaces, institutional facilities, multi-purpose buildings and multi-unit residential buildings that have both heating and cooling requirements.

The MHP-LA range is not only best applied in geographical areas with more temperate climates such as the Pacific Northwest and Southern US, but also the Northeast and Midwest where ambient temperatures can fall to 5°F.

FEATURES

- Complete charge of R-410A environmentally friendly refrigerant.
- Electronic Expansion Valve
- High efficiency scroll compressors with vapor injection
- Brazed plate evaporators
- Low noise EC Condenser fan speed control
- Fan assemblies with TEAO motors, sickle cut composite fan blades and high strength safety guards.
- Powerful, easy to use, non-proprietary PLC
- Easily adjustable control set points
- Intelligent defrost cycle
- Reliable heating down to 5°F
- Baked powder epoxy coat paint finish for long lasting attractive look.
- Standard weather-proof enclosure
- Simple service can be performed by any qualified refrigeration technician
- Cloud based cellular remote monitoring
- Integrated flow switch

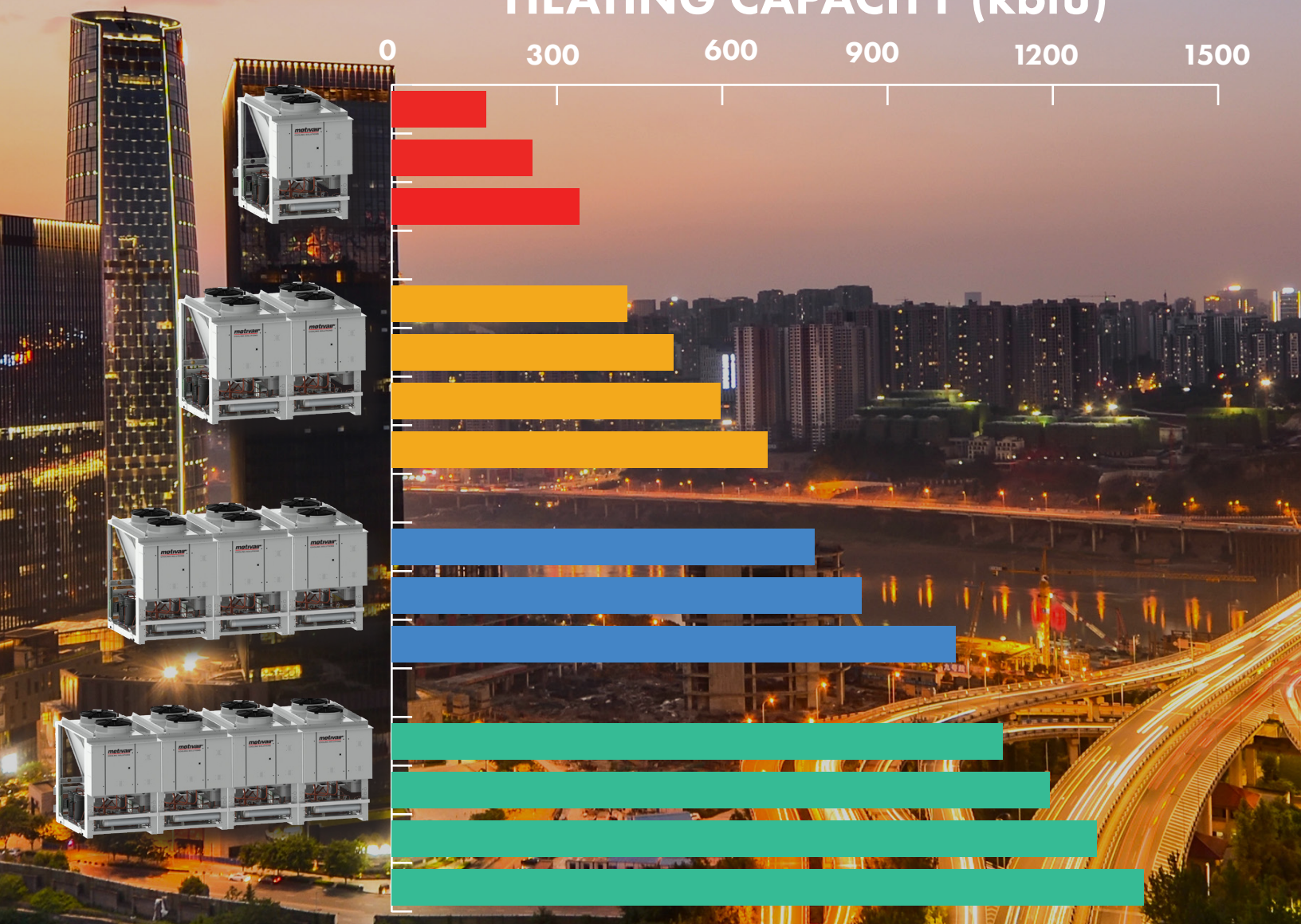
OPTIONS

- Expandable up to 8 modules
- Individual module hydronic isolation valves
- Hydronic solenoid valve for variable pumping
- Single or redundant circulation pump(s) module
- Low Noise Package
- Condenser coil hail/filter protection
- Remote control panel
- Communication cards for connection to customer building management system

MODULAR BENEFITS

MEET FUTURE DEMANDS FOR HOT WATER PRODUCTION

- **SCALABILITY** – Advanced communication allows for seamless management of individual chiller modules. Integral supply and return headers are sized for the full flow of 8 modules.
- **REDUCED FOOTPRINT** – Modules with either single or dual refrigeration circuits can provide the design heating or cooling capacity in a compact robust frame constructed of epoxy coated galvanized steel.
- **CAPACITY CONTROL** – Multiple compressor stages and the use of electronic expansion valves allow for optimum efficiency and reduced TCO while managing varying loads throughout the day.
- **REDUNDANCY** – Individual circuits isolation and powerful PLC controls allow for maximum uptime when individual modules are being serviced.
- **REDUCE UPFRONT COST** by deploying modules as needed
- **REDUCE CARBON FOOTPRINT** & total cost of ownership with increased efficiencies
- **MEET FUTURE DEMANDS** - Heat pump operation meets future market demands for reduction of fossil fuel boiler systems



Advanced PLC controls

EQUIPPED WITH
CENTURION™ MONITORING SYSTEM

INTELLIGENT CHILLER RESPONSE

The Latest generation of Motivair® software allows the chillers to respond to system changes in real time and to adjust performance accordingly. The proprietary control logic in Motivair chillers provides:

- Automatic restart after a power outage
- Defrost cycle activated via temperature & pressure monitoring
- Heated copper tubes reduce buildup of frost
- Rapid restart of refrigeration compressors after a power outage, while affording maximum compressor protection
- Selective decision on which compressor(s) to start first based on run-time and fastest possible response to system load
- Liquid injection to the compressors under high ambient operation

CENTURION MONITORING SYSTEM

This optional feature empowers the owner by providing a wide range of safeties and access to critical data from a remote location via cellular service, outside of the customer's firewall.

If the chiller is operating in an unsafe condition or in the unlikely event of an alarm, designated contacts are immediately notified by the chiller of its condition. The pending alarm can then be avoided or quickly corrected.

FEATURES:

- Data trending
- Password protected multi-level access
- Adjustable warning thresholds

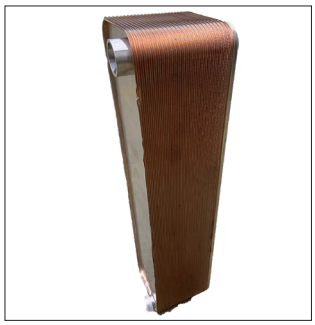
Application Defined Features & Options

COMPRESSORS

Each of the MHP-LA modules feature two high efficiency scroll compressors with R410A. The compressors serve a single refrigeration circuit with the option to add a second completely independent circuit for added redundancy. By pairing up to 8 modules, a total of 16 unloading steps provides virtually unlimited capacity control. This allows one circuit or even one chiller to be serviced while the other circuit(s) remains fully operational. Motor over-temperature and over current protection combined with vapor injection help provide extended compressor life.

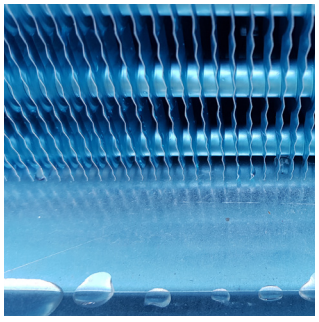
CONDENSER FANS

The EC TEAO motors feature a reversed stator and rotor, eliminating the traditional motor shaft. The fans are suitable for outdoor use and provide variable speed operation. The industrial design includes composite blades, which do not flex or lose efficiency at the top of their performance curve and allow for reliable low ambient head pressure control.



EVAPORATORS

The MHP-LA chillers feature a coded single or dual circuited brazed plate evaporator; mounted on the chiller base. The industrial design of stainless steel plates with copper braze helps reduce refrigerant charge while providing a long life cycle with highly efficient heat transfer under varying loads.



AIR-COOLED CONDENSER

The MHP-LA copper tube aluminum fin design has been optimized to increase efficiency for both heating and cooling modes. The hydrophilic coated fins allow for condensation to easily wick across the surface reducing the formation of frost. Wider fin spacing reduces static pressure drop across the coil when frost forms; while smaller diameter copper tubes reduces refrigerant charge.

MHP-LA Specifications

TECHNICAL SPECIFICATIONS:

Modular Low Ambient Heat Pump	MHP	18	23	30
Nominal Cooling Capacity EWT 54/LWT 44/AMB 95	btu/h	218,000	280,000	369,000
Nominal Chilled Water Temps	btu/h	54/44	54/44	54/44
Nominal Heating Capacity EWT 100/LWT 110/AMP 47	btu/h	258,000	338,000	443,000
Nominal Heated Water Temp	Deg. F	100/110	100/110	100/110
Refrigerating Circuit	Qty	1 / 2*	1 / 2*	1 / 2*
Scroll Compressor	Qty	2	2	2
Capacity Steps Per Module	Qty	2	2	2
Water Connections	in	6"	6"	6"
Fans				
Fan Motor Type		EC	EC	EC
Total Air Flow	CFM		21,000	
Fans	Qty	2	2	2
Fans Total Absorbed Power	kW	5	5	5
Noise Data				
Sound pressure level	dba at 33'		59	
MHR-A Power	V/Ph/Hz	V/Ph/Hz	460/3/60	
FLA (full load amp)*	Amps	Amps	114.8	156.7
MCA (Minimum Circuit Ampacity)	Amps	Amps	127.3	173.5
MOP (maximum overcurrent protection)	Amps	Amps	177.4	240.9
Dimensions & Weights				
MPC-W Length	in	113	113	113
MPC-W Width	in	63.5	63.5	63.5
MPC-W Height	in	98	98	98
Weight	lbs	3,000	3,000	3,000

Does not include optional pump(s) ** Optional Pumps & Tank may effect dimensions *** Does not include Optional pump(s) or tank (1) Series heat recovery configuration. Pumps and tank not available on MHR-W

motivair®
COOLING SOLUTIONS

MPC & MPC-FC

1/2-50 ton packaged air-cooled or water-cooled chillers for Industrial cooling, Medical cooling or custom HVAC applications. Includes integrated microprocessor, pump station, and storage reservoir.

MLC-SC Air-Cooled Scroll Chillers

100 – 285 tons air-cooled with scroll compressors to accommodate a wide range of operating points and customization for today's advanced industrial manufacturing and mission critical environments. Available Integrated Free-Cooling.

PTS

Pump/Tank Stations for chillers and cooling systems. Standard and custom designs available.

MFC

Closed loop dry-coolers for process cooling and remote "Free-Cooling" applications.

Chilled Door® Rack Cooling System

Advanced server rack cooling system fits and standard or OEM computer rack. Removes up to 75 kW of server heat per door. Learn more at www.chilleddoor.com

CDU

The Coolant Distribution Unit (CDU) provides 100% sensible cooling up to 1.25MW, depending on the model. For use with the ChilledDoor® or other IT cooling systems.

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