



MCHILL-XL-US SERIES PROCESS WATER CHILLERS

Manufacturing Forward





Mikropor began its journey in 1987 with a passion to create "Tomorrow's Technology" and has become one of the leading manufacturers of atmospheric air filtration solutions and compressed air treatment systems for a variety of industries.

By closely following the latest developments in technology, Mikropor's "Best in Class" products and solutions are appreciated by customers in more than 100 countries.

The company's sustainable growth has been provided by its passion for innovation and commitment to quality, as well as its dedication to technology. Mikropor is an environmentally conscious company that values people, while developing products that extend the needs and expectations of customers.

With this mission, Mikropor continues to become one of the most recognized brands in the world by expanding its global penetration in the field of technological filtration and contributes to a healthier planet.

www.mikroporamerica.com

MCHILL-XL-US SERIES PROCESS WATER CHILLERS

Mikropor Process Water Chillers are designed to meet the needs of many applications that require stable working conditions with maximum quality and cleanliness of the cold process fluid.

Mikropor's brand-new compact, robust and reliable Water Chiller called "MCHILL-XL-US" is designed for industrial applications and manufactured with the highest quality and safety standards. MCHILL-XL-US is not only extremely compact and easy to use but also ensures an accurate control of water temperature.

Highly Engineered & Compact Design



Refrigeration Circuit

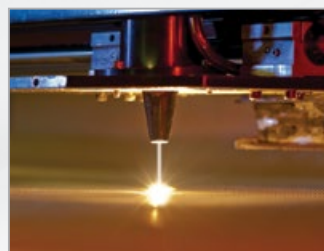
- Chiller Control Management
- EC Fan Motor Fan Speed Control
- Microchannel Aluminium Condenser
- Hermetic Scroll Compressor
- Electronic Expansion Valve
- Refrigerant choice between R410a and R454b
- High and Low-Pressure Gauge
- Process Water Pressure Gauge
- Shell & Tube Evaporator with water tank or without tank and water pump
- Sight Glass

Process Water Circuit

- High Performance Stainless Steel Water Pump on the models with water tank
- Storage Tank

Applications

- Food & Beverage Industries, Wineries, Dairies, Breweries, Bottling, Storage, Distilleries
- Plastic Industries-Injection, Extrusion, Blow Molding, Thermoforming
- Laser Industry-Cutting, Welding, Profiling, Optics, Medical
- Chemical & Pharmaceutical Industry-Natural Gas, Jacketed Vessels, Polyurethane, Laboratories, Healthcare, Petrochemical, Temperature Control
- Engineering Industry-Machine Tools, Welding Machine, Cutting, Profiling, Polishing, Rolling, Presses, Hydraulic Control-Oil Cooling, Heat Treatment



MCHILL-XL-US SERIES ADVANTAGES

Easy Installation

User friendly installation procedure

Optimizes Process Application

MCHILL-XL-US process chillers use a principle called "Closed Circuit". Using this principle the following advantages are obtained:

- Highly precise water temperature control regardless of external conditions
- Maintain consistent operating conditions by responding to sudden changes
- Immediate response to sudden consumption changes with closed loop and suitable pump & tank components
- Constant use of same water-hence, recirculation of water entering the "water loop system" and creating health problems caused by waterborne bacteria

Best Components

All components of MCHILL-XL-US (compressors, condensers, evaporators, tank, pump etc.) are "Best in Class" and specially designed with the right equipment to consume the lowest energy.

Optimum Energy Efficiency

MCHILL-XL-US is designed by skilled engineers to provide maximum energy savings.

- More efficiency and reduced production cycle time
- Minimized production costs and reduced waste
- Less maintenance and downtime during production

Unlike typical water chillers for processes that have been used for many years, the MCHILL-XL-US unit is designed to meet the user's need in the simplest way with minimum operating costs and best performance.

- Wide operating conditions related to both inlet and outlet water temperature
- Thanks to the "Global Design", the MCHILL-XL-US can operate in the highest ambient temperature conditions around the world
- A wide range of optional accessories allow MCHILL-XL-US to be customized for various special applications
- A fully packaged and easy-to-use solution with integrated pumps, tanks and safety systems which make it perfectly suitable to the needs of industrial processes

MCHILL-XL-US Model

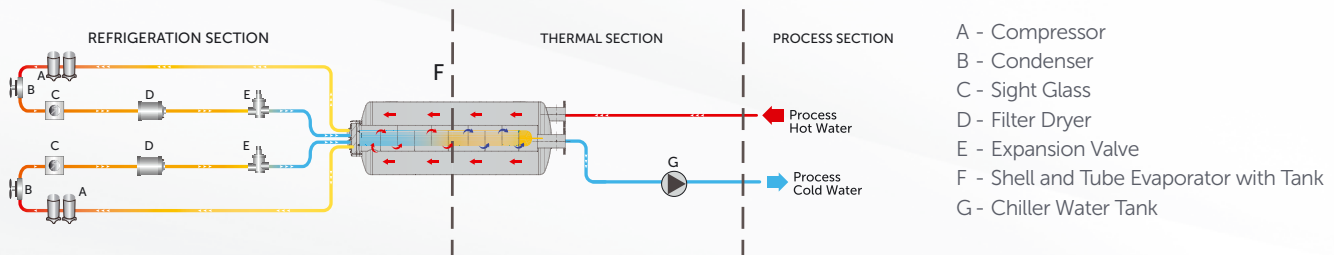


MCHILL-XL-US-NT Model

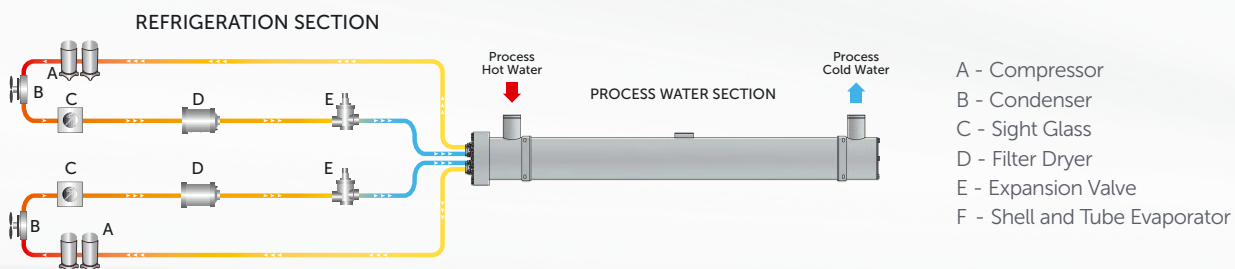


MCHILL-XL-US SERIES-WORKING PRINCIPLE

The MCHILL-XL-US Process Chillers includes 3 sections:



The MCHILL-XL-US-NT Process Chillers includes 2 sections:



How it works

The MCHILL-XL Series process water cooling systems provide a more stable and continuous cooling performance compared to the market standard. As shown in the flow diagrams, two independent cooling circuits equipped with tandem compressor systems enable energy savings by condensing the refrigerant within Microchannel condensers through speed-controlled fans, directing it to the expansion valve, and cooling it according to the required load. In case of maintenance or service requirements, the design prevents the entire system from shutting down completely. Each cooling circuit, with its own dedicated compressors (capable of capacity regulation at 25–50–75–100% depending on demand and performing equal aging at low loads for maximum lifetime), condenser, expansion valve, and fans, allows for optimal control and maximum efficiency.

With its tank-integrated (MCHILL-XL) and tankless (MCHILL-XL-NT) versions, the MCHILL-XL Series can meet the needs of customers who already have their own water circulation systems through its tankless evaporator design, making it suitable for all industries requiring high-capacity process water cooling.



MCHILL-XL-US SERIES STANDARD FEATURES

Refrigerant Circuit-Main Components

Refrigerant Scroll Compressors



- Leading Refrigerant Compressor Brands
- Hermetic Scroll Compressor
- Durable and Long-Life Compressor Models
- Single or Multiple Compressor Operation

R410a and R454b Refrigerant

- R410a and R454b Refrigerant Options
- High Thermodynamic Properties
- Efficient Refrigeration Performance
- Environment Friendly (R454b)

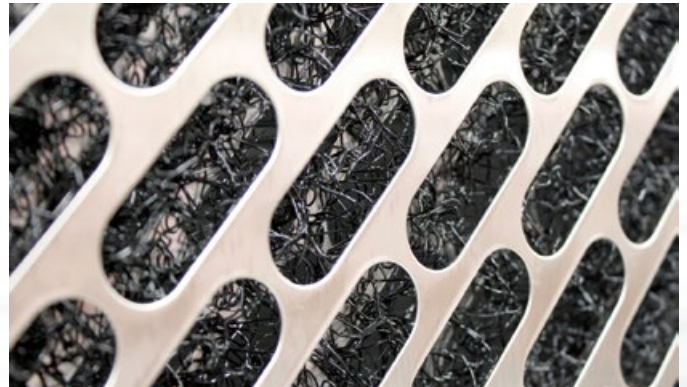


New Technology, Aluminium Microchannel Refrigerant Condenser



- Less Energy Loss with Low Pressure Drop
- High Heat Transfer Capacity
- Surface Coating Protects Against Corrosive Environments
- Requires Less Refrigerant Gas
- Resistant to Any Galvanic Reaction and Corrosion

Cleanable Condenser Pre-Filters



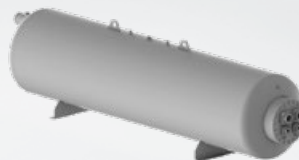
To protect the condensers all MCHILL-XL-US chillers include progressive composite fiber mesh filters which can be easily removed for service and cleaning. Stainless steel frame avoids corrosion even when the filter is washed with water or other washing fluids.

EC Fan Motor-Variable Speed Motor

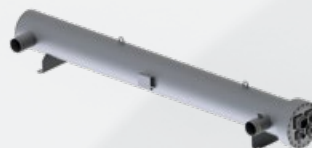


- Leading Fan Motor Brands
- EC-Variable Speed Fan Motor
- Durable and Long-Life Fan Motor Models
- Lower Energy Consumption
- Low Noise Level

Evaporator



Tank-Equipped Evaporator



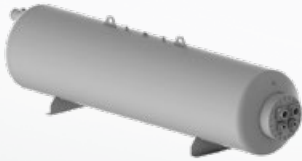
Shell & Tube (Tankless Evaporator)

- Shell & Tube Evaporator
- Extremely Efficient
- High Heat Transfer Surface Area
- Provides continuous and stable cooling with Shell & Tube Evaporator
- Insulated water tank

MCHILL-XL-US SERIES STANDARD FEATURES

Refrigerant Circuit-Main Components

Protection of the Evaporator



Tank-Equipped Evaporator



Shell & Tube (Tankless Evaporator)

MCHILL-XL-US cold water storage tank is heat insulated and made of carbon steel material. The following equipment are also provided together with the storage tank in the MCHILLXL- US system.



Electronic Expansion Valve

- Increases Energy Efficiency, Enabling More Economical Operation
- Provides Precise Control for Enhanced Performance and Reliability

Flow Switch Smart Flow Protection



Equipped with a high-performance flow switch, our chillers guarantee reliable water circulation and instant protection in case of no flow. This intelligent safeguard ensures maximum system efficiency, extended component life, and trouble-free operation.

Water Circuit-Main Components

Expansion Tank



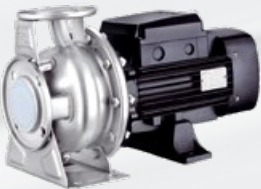
Pressurised

When cooling water temperature increases the water expands. In order not to increase the pressure an expansion tank is used on the water storage tank.



- Expansion Tank
- Safety Valve
- Automatic Venting Valve
- Level Sensor
- Drain Valve
- Water Pressure Gauge
- Flow Switch

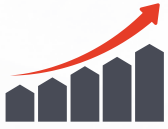
Integrated Water Pump - 43.5 psi (Water tank compatible)



- Stainless Steel Body
- Special Seals for Process Fluids
- High Capacity Centrifugal Pump
- Long Lasting Centrifugal Pump
- Maintenance-Free Operation
- High Efficiency-Stainless Steel Impeller

MCHILL-XL-US STANDARD FEATURES

For Sudden Consumption



The large water storage tank is placed right after the Evaporator water outlet to limit the temperature fluctuations during the sudden load changes. The tank's generous dimensions ensure stable water temperatures.

For Energy Efficiency



Cold water storage tank and cooling capacity of the system are directly associated with each other. When developing the MCHILL-XL, Mikropor's professional engineers have utilized these parameters to provide maximum energy savings by minimizing switch on/off rates of compressors.

For System Protection



Volumetric changes in the system are compensated by the control equipment in the system. Thus, the constant cold-water circulation occurs smoothly in the process circuit.

Control and Safety Groups-Main Components

Electronic Controller

All MCHILL-XL-US models have a standard microprocessor which offers:

- Ease of Use
- Precise Control
- Reliable Operation
- Remote Control
- High Quality PLC and Touch Screen
- High Efficient and Economical Control Algorithm
- User Friendly Touch Screen
- Real-Time P&I and Power Monitoring
- Fieldbus connectivity enables direct integration of smart actuators—such as inverters, EC fans, variable flow-rate pumps, and others—without requiring additional modules.
- Interface Capability with Frequently Used Communication Protocols in BMS Connectivity (Modbus® (RTU and TCP/IP), BACnet™ (MS/ TP and IP), SNMP, LonWorks®, Konnex® and Johnson METASYS®.)
- Remote control and diagnostics enabled by Wi-Fi module. (Optional)



MCHILL-XL-US SERIES STANDARD FEATURES

Refrigerant Gas Pressure Gauges

All MCHILL-XL-US models have a standard refrigerant gas high and low-pressure gauges.

Temperature and Pressure Sensors

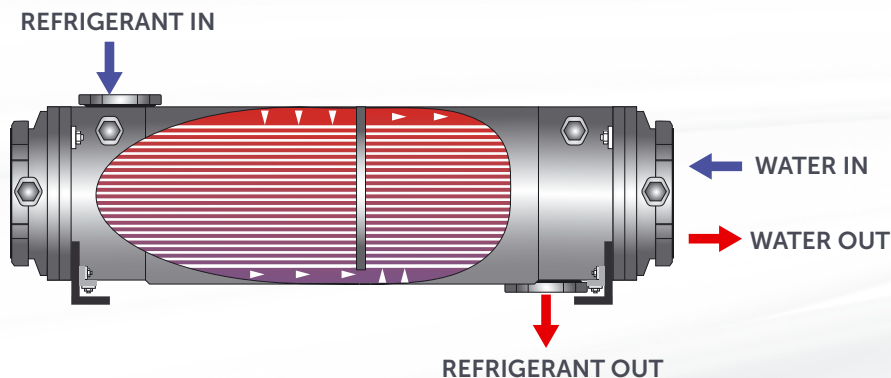
In MCHILL-XL-US systems, pressure and chilling temperatures are measured electronically. The measured data is processed continuously by Microprocess Controller to ensure the safest and most efficient operating conditions within the system. Moreover, the temperature or pressure of both high and low-pressure manifolds and water in the storage tank can also be constantly measured along the system's cooling section.

Together with the standard features, Mikropor also offers the following options for the cold water loop system of MCHILL-XL-US to provide and higher quality cold water when requested by users alternatively. For more information, do not hesitate to contact Mikropor Sales Team.



Water Cooled Option

In applications where air-cooled models cannot be used or a water source is available on site, the MCHILL-XL Series ensures high efficiency with its water-cooled condenser models.

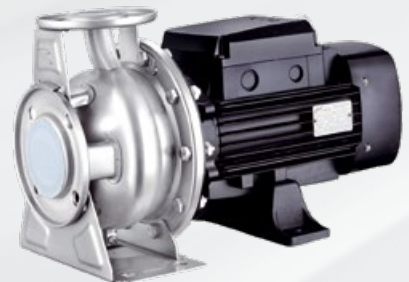


MCHILL-XL-US SERIES STANDARD FEATURES

43.5 psi water pump is supplied as a standard unit, but in some applications more pressurized cooled water may be required. In these cases, a 72.5 psi water pump can be offered as an option.

Other Option Features

- Low Ambient Temperature Option
- High Corrosive Environments Option
- Heater for Storage Tank Option (Water tank compatible)



MCHILL-XL-US MODEL

For R410A

	UNIT	MCHILL-XL-US 236	MCHILL-XL-US 272	MCHILL-XL-US 301	MCHILL-XL-US 331
Cooling Capacity*	kW	285	327	363	400
	kcal/h	245083	281186	312386	343587
	Tons	81	93	103	114
	btu/h	97178	111493	123865	136236
Cooling Capacity**	kW	216	248	275	303
	kcal/h	185726	213246	236844	260442
	Tons	61	71	78	86
	btu/h	73642	84554	93911	103268
Total Installed Power*	kW	78.1	88.3	97.5	114.9
Total Absorbed Current*	A	121.6	133.9	145.2	174.9
Power Supply*	-	460V / 3 / 60 Hz			
Compressor Input Power*	kW	63.7	73.6	81.2	88.7
Number of Compressors	-	4	4	4	4
Fan Input Power*	kW	7	7.1	7.1	17
Number of Fans	-	2 / Ø800 mm	2 / Ø910 mm	2 / Ø910 mm	4 / Ø630 mm
Fan Air Flow*	cfm	27750	31950	31950	41695
Pump Input Power*	kW	7.5	7.5	9.2	9.2
Pump Pressure*	psi	43.5	43.5	43.5	43.5
Water Flow*	gpm	220	264	282	299
Refrigerant Gas	-	R410a			
Compressor Type	-	Hermetic / Scroll			
Evaporator Type	-	Shell & Tube			
Condenser Type	-	Aluminium Microchannel			
Noise Level***	dBA	<80			
Protection Class	-	IP 54			
Storage Tank Capacity	gal	220	220	220	220
Expansion Tank Capacity	gal	6.3	6.3	6.3	6.3
Water Connections	NPT	3"	3"	3"	3"
Dimensions					
Height	mm	2455	2430	2430	2377
	inch	97	96	96	94
Width	mm	2272	2272	2272	2272
	inch	89	89	89	89
Length	mm	3906	3906	3906	3906
	inch	154	154	154	154

For R454B

	UNIT	MCHILL-XL-US 236	MCHILL-XL-US 272	MCHILL-XL-US 301	MCHILL-XL-US 331
Cooling Capacity*	kW	277	317	352	388
	kcal/h	238082	272482	302961	333439
	Tons	79	90	100	110
	btu/h	94402	108042	120127	132213
Cooling Capacity**	kW	211	241	268	295
	kcal/h	181185	206882	230497	254113
	Tons	60	68	76	84
	btu/h	71842	82031	91395	100759
Total Installed Power*	kW	73.1	83.2	91.6	108.1
Total Absorbed Current*	A	121.6	133.9	145.2	174.9
Power Supply*	-	460V / 3 / 60 Hz			
Compressor Input Power*	kW	58.7	68.6	75.2	81.9
Number of Compressors	-	4	4	4	4
Fan Input Power*	kW	7	7.1	7.1	17
Number of Fans	-	2 / Ø800 mm	2 / Ø910 mm	2 / Ø910 mm	4 / Ø630 mm
Fan Air Flow*	cfm	27750	31950	31950	41695
Pump Input Power*	kW	7.5	7.5	9.2	9.2
Pump Pressure*	psi	43.5	43.5	43.5	43.5
Water Flow*	gpm	220	264	282	299
Refrigerant Gas	-	R454b			
Refrigerant Charge	lb	53	60	60	60
Refrigerant Charge	kg	24	27	27	27
Compressor Type	-	Hermetic / Scroll			
Evaporator Type	-	Shell & Tube			
Condenser Type	-	Aluminium Microchannel			
Noise Level***	dBA	<80			
Protection Class	-	IP 54			
Storage Tank Capacity	gal	220	220	220	220
Expansion Tank Capacity	gal	6	6	6	6
Water Connections	NPT	3"	3"	3"	3"
Dimensions					
Height	mm	2455	2430	2430	2377
	inch	97	96	96	94
Width	mm	2272	2272	2272	2272
	inch	89	89	89	89
Length	mm	3906	3906	3906	3906
	inch	154	154	154	154

* Evaporator water inlet/outlet temperature 70/60°F, external air temperature 77°F

** Evaporator water inlet/outlet temperature 55/45°F, external air temperature 77°F

*** Average value obtained in free field on a reflective surface at a distance of 33 ft from the condensate side of the machine and at a height of 5 ft from the unit support base.

(1) Suggested water pump values for "NT" models

MCHILL-XL-US-NT MODEL

For R410A

	UNIT	MCHILL-XL-US 236 NT	MCHILL-XL-US 272 NT	MCHILL-XL-US 301 NT	MCHILL-XL-US 331 NT
Cooling Capacity*	kW	285	327	363	400
	kcal/h	245083	281186	312386	343587
	Tons	81	93	103	114
	btu/h	97178	111493	123865	136236
Cooling Capacity**	kW	216	248	275	303
	kcal/h	185726	213246	236844	260442
	Tons	61	71	78	86
	btu/h	73642	84554	93911	103268
Total Installed Power*	kW	70.6	80.8	88.3	105.7
Total Absorbed Current*	A	121.6	133.9	145.2	174.9
Power Supply*	-	460V / 3 / 60 Hz			
Compressor Input Power*	kW	63.7	73.6	81.2	88.7
Number of Compressors	-	4	4	4	4
Fan Input Power*	kW	7	7.1	7.1	17
Number of Fans	-	2 / Ø800 mm	2 / Ø910 mm	2 / Ø910 mm	4 / Ø630 mm
Fan Air Flow*	cfm	27750	31950	31950	41695
Pump Input Power*	kW	N/A			
Pump Pressure*	psi	87	87	87	87
Water Flow*	gpm	220	264	282	299
Refrigerant Gas	-	R410a			
Compressor Type	-	Hermetic / Scroll			
Evaporator Type	-	Shell & Tube			
Condenser Type	-	Aluminium Microchannel			
Noise Level***	dBA	<80			
Protection Class	-	IP 54			
Storage Tank Capacity	lt	N/A			
Expansion Tank Capacity	lt	N/A			
Water Connections	NPT	4"	4"	4"	4"
Dimensions					
Height	mm	2455	2430	2430	2377
	inch	97	96	96	94
Width	mm	2272	2272	2272	2272
	inch	89	89	89	89
Length	mm	3906	3906	3906	3906
	inch	154	154	154	154

For R454B

	UNIT	MCHILL-XL-US 236 NT	MCHILL-XL-US 272 NT	MCHILL-XL-US 301 NT	MCHILL-XL-US 331 NT
Cooling Capacity*	kW	277	317	352	388
	kcal/h	238082	272482	302961	333439
	Tons	79	90	100	110
	btu/h	94402	108042	120127	132213
Cooling Capacity**	kW	211	241	268	295
	kcal/h	181185	206882	230497	254113
	Tons	60	68	76	84
	btu/h	71842	82031	91395	100759
Total Installed Power*	kW	65.6	75.7	82.4	98.9
Total Absorbed Current*	A	121.6	133.9	145.2	174.9
Power Supply*	-	460V / 3 / 60 Hz			
Compressor Input Power*	kW	58.7	68.6	75.2	81.9
Number of Compressors	-	4	4	4	4
Fan Input Power*	kW	7	7.1	7.1	17
Number of Fans	-	2 / Ø800 mm	2 / Ø910 mm	2 / Ø910 mm	4 / Ø630 mm
Fan Air Flow*	cfm	27750	31950	31950	41695
Pump Input Power*	kW	N/A			
Pump Pressure*	psi	87	87	87	87
Water Flow*	gpm	220	264	282	299
Refrigerant Gas	-	R454b			
Evaporator Type	-	Shell & Tube			
Condenser Type	-	Aluminium Microchannel			
Noise Level***	dBA	<80			
Protection Class	-	IP 54			
Storage Tank Capacity	gal	N/A			
Expansion Tank Capacity	gal	N/A			
Water Connections	NPT	4"	4"	4"	4"
Dimensions					
Height	mm	2455	2430	2430	2377
	inch	97	96	96	94
Width	mm	2272	2272	2272	2272
	inch	89	89	89	89
Length	mm	3906	3906	3906	3906
	inch	154	154	154	154

* Evaporator water inlet/outlet temperature 70/60°F, external air temperature 77°F

** Evaporator water inlet/outlet temperature 55/45°F, external air temperature 77°F

*** Average value obtained in free field on a reflective surface at a distance of 33 ft from the condensate side of the machine and at a height of 5 ft from the unit support base.

(1) Suggested water pump values for "NT" models

MCHILL-XL-US SERIES PROCESS WATER CHILLERS



Mikropor America Inc.

4921 Ohio Street, Michigan City, IN 46360

☎ 219 878 1550 ✉ support@mikroporamerica.com

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www.mikroporamerica.com