

MPC Water Chillers



- Industrial Process Cooling
- Medical Equipment Cooling
- Specialized HVAC Systems
- 1/2 - 60 Tons Capacity



motivair[™]

COOLING SOLUTIONS

www.motivaircorp.com



Motivaire is a world-class supplier of water chillers for industrial process cooling and specialty HVAC systems. The MPC chillers offer an unparalleled range of cooling capacities, and available options that allow customers to select a chiller best suited to their needs. Designed with three goals in mind; reliability, flexibility and ease of use, the MPC range of water chillers have earned a quality reputation, trusted around the world to provide reliable cooling for critical process applications.

MPC RANGE OF WATER CHILLERS

RELIABILITY

The MPC range of chillers is manufactured using the highest quality components. All components must pass a rigorous test cycle before being selected for production use. All fan & pump motors are TEFC or TEAO, and are therefore suitable for outside use. All electrical components are UL and CSA listed. MPC chillers are CE certified, and are also certified by ETL to be in compliance with UL 1995 and CSA C22.2 standards. The combination of innovative design, premium components, and universal certification yields a final product worthy of the most demanding cooling applications.



MPC-A 4000-7200

EASE OF USE

MPC chillers are designed for simplicity and ease of use.

- “Cycling” refrigeration circuit
- Integrated centrifugal circulation pump
- Large internal storage reservoir
- Microprocessor controls
- NPT water connections
- Single point power connection



MPC-A 0500

FLEXIBILITY

Process cooling and HVAC heat loads often change throughout the workday. The MPC range features a unique “CYCLING” design that allows the chiller to adapt automatically to any heat load from zero to 100% of its capacity. This cycling design utilizes a large storage reservoir, to insure close water temperature control regardless of the load, or the load change. The MPC evaporators are NOT immersed in the reservoir, and are therefore readily accessible for service, repair or replacement. The reservoir also acts as a buffer against temporary surge loads. Substantial energy savings can be achieved during low load chiller operation. MPC chillers do not utilize a hot gas bypass valve, common to other chillers, because these valves create an artificial heat load, which requires the chiller to operate when the load is reduced. The unique MPC cycling design also allows it to be used on multiple processes in a single building.

TAKE CONTROL OF YOUR MPC CHILLER...

THE MICROPROCESSOR

The standard Motivair microprocessor controller is a very powerful, yet user-friendly device. It offers a wide range of standard controls and alarms to suit any chiller application. It can control up to 4 stages of cooling in the chiller. Optional communication features include a serial card connection to a remote PC and a full-feature, remote wall-mounting controller, connected via an RS485 cable up to 500 feet away. For those applications requiring up to 8 cooling stages, and/or a higher level of remote communication, the PC02 advanced PLC system is available from the MPC 2200 and above.



Micro Chiller



PC02 Board



PC02 Display

All MPC controllers feature a plug-in wiring harnesses, so they can be quickly and easily changed without tools.

MPC model	Standard	Optional
MPC 0005-0010	XR-10C	N/A
MPC 0150-0300	XR-10C	Micro
MPC 0500-1500	Micro	N/A
MPC 2200-7200	Micro	PC02

Standard Features and Alarms

	XR-10C	Micro	PC02
Highly visible digital display	x	x	x
Multi-character LCD display			x
Remote start/stop relay		x	x
General alarm relay		x	x
Supply water temp. display	x	x	x
Return water temp. display		x	x
Adjustable water set point	x	x	x
Adjustable alarm set points	x	x	x
°F/°C adjustable	x	x	x
Manual alarm reset	x	x	x
High refrigeration pressure alarm		x	x
Low refrigeration pressure alarm		x	x
Freeze alarm	x	x	x
Irregular voltage alarm		x	x
High water temperature alarm	x	x	x
Low water temperature alarm	x	x	x
Adjustable anti-compressor short cycle feature		x	x
Low water/glycol flow alarm		x	x
Compressor failure alarm		x	x
RS 232/RS 485 communication		consult factory	x
Ethernet communication			x
LON, BACNET, MODBUS communication		consult factory	x

INDUSTRIAL AND COMMERCIAL APPLICATIONS

MPC INDUSTRIAL WATER CHILLERS

The MPC chillers can be applied to a wide range of industrial and commercial applications. Some common applications for MPC chillers include:

Oncology Machines

MRI Machines

CT Scan Machines

HVAC

Pharmaceutical Mfg.

Plastics Processing

Printing Processes

Hydraulic Cooling

Welding Machines

Lasers

Metal Spraying

Food Processing



FEATURES:

- High efficiency, stainless steel, brazed plate evaporators
- Stainless steel, centrifugal circulation pumps with close-coupled TEFC motors
- Oversized thermal storage reservoirs rated for 45 PSIG with fill, drain & vent ports
- Powerful, easy to use, non-proprietary microprocessors - "plug & play"
- Heavier frame construction – greater resistance to shipping, handling & operation abuse.
- Standard weatherproof enclosures on all models 5 tons and above.
- Removable access panels for easy service & maintenance
- Standard high-pressure and low-pressure refrigeration gauges 5 tons and above.
- Adjustable low pressure and fan pressure switches for flexibility in operation.
- Rotalock valves, liquid line solenoid valve & liquid receiver standard on larger models.

OPTIONS:

- 100% non-ferrous water circuit
- Laser (+/- 1°F) temperature controls
- High-pressure pump
- Duplex pump package
- Low ambient package
- High ambient package
- Castors for portability
- Centrifugal fans
- R-134A, R-407C, R-404A, R-507
- Remote control panel

DYNAMIC ENERGY SAVINGS

The Motivair MPC chillers all contain an oversized thermal storage reservoir. This unique feature allows the chiller to cycle its compressor(s) and fan(s) off during reduced process loads, while the pump runs continuously. This will maintain water temperatures within +/- 3°F of set point. Competitive chillers typically use a hot gas by-pass valve to balance the chiller capacity against reduced loads, therefore wasting energy and causing unnecessary wear and tear on the chiller.

REFRIGERATION COMPRESSORS

- Premium Danfoss compressors are standard on all models above MPC 0010
- 100% gas cooled compressor motor windings
- Resistant to liquid slugging
- Stronger mechanical construction allows maximum compression ratio of 12:1
- Crankcase heaters installed on all models for improved low ambient lubrication
- Superior anti-vibration mountings protect compressor & refrigerant piping
- 2 compressors in MPC 2200-3500; 4 compressors & dual circuits in MPC 4000 through 7200.

INTEGRATED “FREE-COOLING” MPC-FC 2200-7200

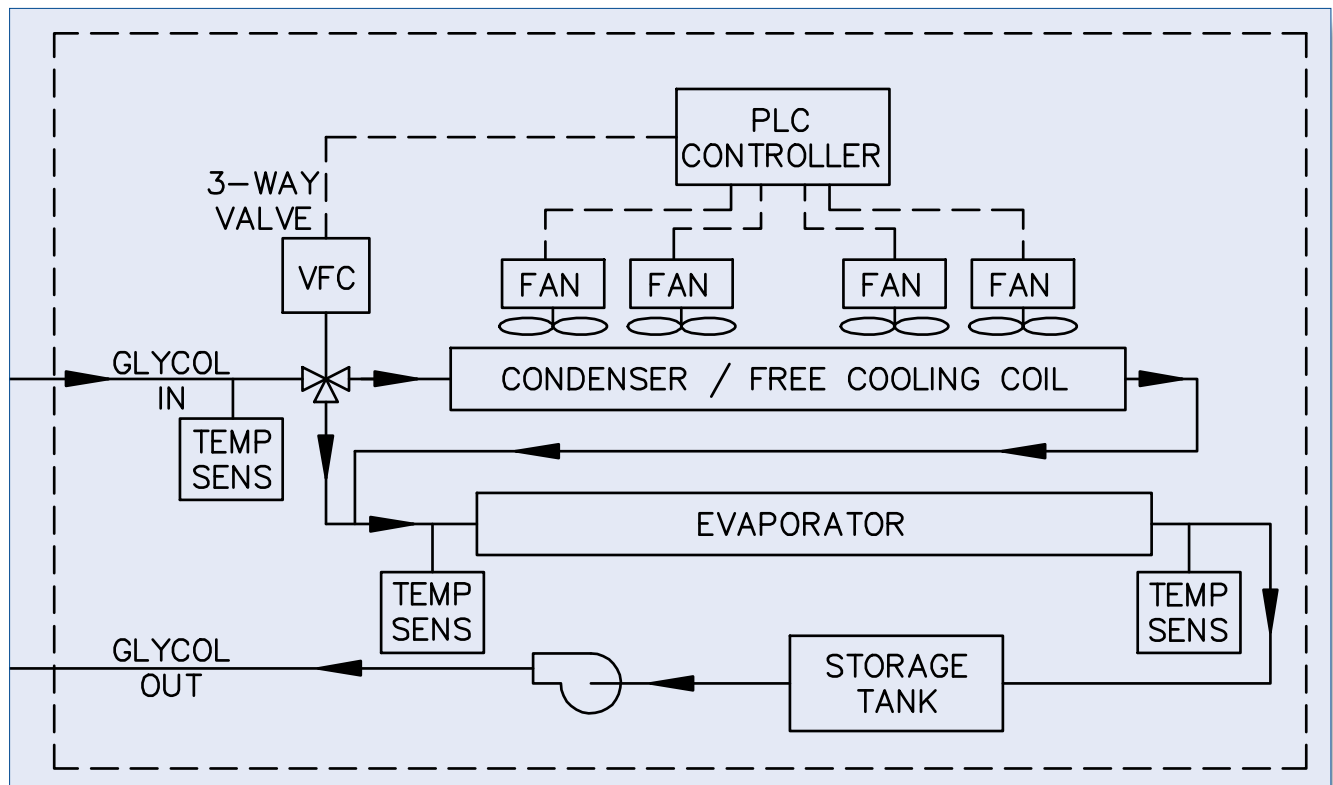
THE ULTIMATE SOLUTION FOR OPTIMAL ENERGY SAVINGS

The Motivaire MPC-FC chillers with “Free-Cooling” capability are designed to provide the owner with optimal performance, year round, in varying ambient temperatures. This “Free-Cooling” option, available on models MPC 2200-7200 is supplied complete with pump and storage reservoir, “Free-Cooling” coil and the PCO2 advanced PLC control package – a unique single package for year-round energy savings.

The refrigeration plant is designed to cool the designated heat load during the highest summer temperatures. When ambient temperatures fall overnight or during cooler seasonal weather, the integrated “Free-Cooling” system is automatically activated. The system operates by directing the return chilled glycol through the “Free-Cooling” coil, before it enters the evaporator. This is achieved via an automatic motorized valve, controlled by the PLC,

whenever the ambient falls below the return chilled glycol temperature set point. The glycol is either partially or completely cooled in the “Free-Cooling” coil for maximum energy savings. As a result, less mechanical refrigeration is required to achieve the chilled glycol set point, and the refrigeration compressors are cycled off by the PLC, which continuously monitors the system.

Energy savings in areas with cooler winter months are substantial. Wear and tear on chiller components is dramatically reduced, due to fewer running hours during winter months. Automatic switching between mechanical cooling and “Free-Cooling” allows for optimal performance year round. As a general rule of thumb, “Free-Cooling” savings *more than pay for the initial investment in the first year of operation!*



MPC SPECIFICATIONS

AIR-COOLED	MPC-A	0005	0010	0150	0200	0300	0500	0800	1000	1200	1500	2200	3000	3500	4000	5000	6000	7200	
Capacity (1)	BTU/h	5,500	12,700	19,000	28,000	37,000	56,000	81,000	106,000	132,000	153,700	212,000	265,000	290,300	326,000	421,000	530,000	634,000	
Current	FLA	6.3	10.7	5.9	7.5	10.1	13.1	18.9	23.7	28.7	33.8	48.7	56.5	58.4	76.7	99.2	114.8	131.4	
Power	kW	1.2	2.1	3.0	4.1	5.5	7.4	10.5	13.7	17.1	17.9	28.1	34.0	36.1	42.1	56.4	68.3	78.2	
Axial Fans	Qty.	1	1	1	1	1	1	2	2	2	2	3	3	2	5	5	5	5	
	Total HP	0.10	0.15	0.25	0.25	0.25	0.75	1.50	1.50	1.50	2.00	3.00	3.00	4.00	5.00	5.00	5.00	6.00	
	Total CFM	445	760	1,200	1,460	1,970	3,620	7,500	7,300	7,200	7,982	14,000	13,400	14,726	29,300	28,600	28,000	33,000	
Sound Pressure Level (4)	dBA	58	58	58	58	63	63	64	64	64	66	69	69	70	71	71	71	75	
Net Weight	Lbs.	220	242	462	470	506	616	1,078	1,100	1,155	1,230	1,980	2,310	2,680	2,992	3,146	3,234	3,630	
FREE-COOLING OPTION*	MPC - FC							0800	1000	1200	1500	2200	3000	3500	4000	5000	6000	7200	
100% Free-Cooling Capacity																			
at 45°F LWT; 25°F Ambient	BTU/h	N/A	N/A	N/A	N/A	N/A	N/A	81,000	106,000	132,000	153,700	212,000	265,000	290,300	326,000	421,000	530,000	634,000	
Net Weight	Lbs.	N/A	N/A	N/A	N/A	N/A	N/A	2,400	2,700	2,810	3,100	3,400	3,550	3,620	4,100	4,400	4,650	5,100	
WATER-COOLED	MPC-W	N/A	N/A	0150	0200	0300	0500	0800	1000	1200	1500	2200	3000	3500	4000	5000	6000	7200	
Capacity (2)	BTU/h	N/A	N/A	22,000	30,600	41,000	62,000	91,000	118,000	148,000	170,600	235,000	285,000	320,000	CF	CF	CF	CF	
Current	FLA	N/A	N/A	5.5	7.0	9.5	12.5	18.0	21.5	26.3	31.1	44.2	53.1	68.2	CF	CF	CF	CF	
Power	kW	N/A	N/A	2.7	3.6	5.2	7.2	9.6	12.8	16.2	16.9	26.2	32.2	45.4	CF	CF	CF	CF	
Condenser Water @ 85°F	GPM	N/A	N/A	3.2	4.1	5.5	8.3	12.1	15.7	19.1	23.2	31.3	37.9	44.0	CF	CF	CF	CF	
Net Weight	Lbs.	N/A	N/A	441	449	481	586	1023	1035	1090	1165	1855	2185	2545	CF	CF	CF	CF	
Compressor Qty.		1	1	1	1	1	1	1	1	1	1	2	2	2	4	4	4	4	
Refrigeration Circuits	Qty.	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	
Electrical Supply	V/P/Hz	230/1/60	230/1/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60
Tank Capacity	Gallons	5	10	15	15	15	35	75	75	75	75	90	90	90	125	125	125	125	
Standard Pump	HP	0.5	0.5	1.0	1.0	1.0	1.0	1.5	1.5	3.0	3.0	3.0	3.0	5.0	5.0	5.0	7.5	7.5	
Nominal Flow	GPM	1	3	4	6	8	11	16	21	26	31	42	53	58	65	84	106	127	
Available Head	Ft	65	80	68	68	72	72	72	80	78	78	78	78	78	78	80	68	68	
STANDARD DIMENSIONS (Inches)																			
	Length	24.2	24.2	31.8	31.8	31.8	35.4	63.0	63.0	63.0	63.0	87.0	87.0	87.0	130.1	130.1	130.1	130.1	
	Width	20.5	20.5	25.5	25.5	25.5	29.5	33.4	33.4	33.4	33.4	39.4	39.4	39.4	51.6	51.6	51.6	51.6	
	Height	42.1	42.1	48.0	48.0	48.0	55.0	59.1	59.1	59.1	59.1	76.0	76.0	79.0	83.0	83.0	83.0	83.0	
Chilled Water Connections	NPT	1/2"	1/2"	3/4"	3/4"	1"	1"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	

* Capacity changes with operating conditions - Consult Motivair for assistance ** Consult factory for Free Cooling Dimensions

Notes

(1) Air-cooled rating for 55F EWT; 45F LWT; 95F ambient temperature
 (3) Allow for piping losses when calculating cooling capacity

(2) Water-cooled rating for 55F EWT; 45F LWT; 85F condenser cooling water
 (4) Measurement taken in open field, 10 feet away from chiller

MPC CAPACITY CORRECTION CHART

Capacity Correction Factors (cf)	(Multiply catalog capacities by correction factors)						
Chilled Water Temp. (°F)	23	32	40	45	50	55	60
cf1 °F	0.63	0.77	0.93	1	1.1	1.2	1.3
Ambient Temp. (°F)	85	90	95	100	Consult Motivair		
cf2 °F (MPC-A)	1.06	1.03	1	0.96			
Condenser Water temp. (°F)	75	80	85	90	95	100	105
cf3 °F (MPC-W)	1.06	1.03	1	0.96	0.93	0.9	0.87
Glycol % (by weight)	0	10	20	30	40	50	Consult Motivair
cf4	1	0.99	0.98	0.97	0.96	0.94	

APPLICATION, INTEGRATION & SOLUTIONS FOR ALL YOUR COOLING NEEDS:



MLC & MHR

60-500 ton air cooled, water-cooled & split system chillers for industrial or HVAC applications. Integrated Free-Cooling or simultaneous heat recovery options.



CTC

10-200 ton low temperature process chillers with integrated pump/tank stations.



PTS

Pump/Tank Stations for chillers and cooling systems



PFS

Plate & Frame water to water cooling systems



MOT & MEC

Open draft or closed loop evaporative cooling towers for process cooling or HVAC applications



MFC

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

motivairTM

COOLING SOLUTIONS

25 John Glenn Drive

Amherst, NY 14228

Tel: 716-689-0222

Fax: 716-689-0073

www.motivaircorp.com