

Energy-Saving Industrial Water Chillers



- *Cycling operation saves power*
- *Large storage reservoir*
- *Stainless steel pump*
- *Microprocessor controls*

MPC Industrial Water Chillers

Motivair is a world-class supplier of water chillers for industrial use. The MPC range of Motivair chillers was designed to satisfy the most demanding industrial applications for chilled water, while saving energy under partial load conditions.

Plastics molding
Welding
Hydraulics
Food & pharmaceutical

MRI machines
Chill rollers
Lasers

All of these applications require a totally reliable & dedicated cooling system in order to function to their maximum efficiency.

The Motivair MPC chillers are an improved version of the previous range, building on years of experience in the industrial cooling market.

Features

- Heavier frame construction – greater resistance to shipping, handling & operation abuse
- Simpler, more powerful microprocessor control – non proprietary, plug-in module
- Double electrical panel doors with Plexiglass viewing window – improved weatherproof & safety feature
- High efficiency evaporator – reduced risk of internal leaks & improved efficiency
- Improved access for service
- Larger condenser coil face area – operates to 100°F ambient without nuisance shut-downs
- Adjustable low pressure & fan pressure switches for flexibility in operation
- Rotalock valves, hot gas muffler, liquid line solenoid valve, & liquid receiver – all standard
- Suitable for indoor & outdoor operation (minor factory modifications required for outdoors)

Options

- 100% non-ferrous water circuit
- Laser ($\pm 1^\circ\text{F}$) temperature controls
- High head pump & standby pump
- Outside (low ambient) package
- Casters for complete portability
- Other refrigerants available

Inside or Outside Installation

Standard weatherproof enclosure
Galvanized steel housing, etched & coated in baked epoxy powder
Optional low ambient controls

Now, take a closer look & see what the Motivair MPC chillers can do for your industrial process!



Dynamic Energy Savings

All models feature an insulated storage reservoir, suitable for (return) water pressure of 60 psig. An oversized reservoir allows the compressor(s) to cycle off & on a maximum of 8 times per hour, while the pump runs continuously and the water temperature remains within $\pm 3^{\circ}\text{F}$. Competitive chillers with smaller reservoirs can not maintain close temperature control while cycling, or they must waste energy by using a hot gas by-pass valve to balance the chiller capacity against the reduced load. Compare our reservoir capacity and save energy on reduced loads!

High Ambient Operation

Larger condenser coil face area for operation up to 100°F ambient*
All models are also available water-cooled with coaxial condensers & water regulating valves

Low Noise Level

Multiple low-speed fans insure quiet operation inside or outside

Modular Installations

Any number of MPC chillers may be installed in parallel to provide step control & increased redundancy.

*see correction factors



MPC 0800-1200



MPC 0500

Refrigeration Compressors

- Premium Maneurop compressors are standard on all models above MPC 0010
- 2 compressors in MPC2200 to 3000, 4 compressors & dual circuits in MPC4000 through 7200.
- Built-in suction gas accumulator protects compressor against liquid slugging
- Stronger mechanical construction allows maximum compression ratio of 12:1
- Thermal protection in motor windings for reliable high temperature shut-down
- Crankcase heaters installed on all models for improved low temperature lubrication
- Superior anti-vibration mountings protect compressor & refrigerant piping



MPC 2200-3000

MPC 4000-7200

High Quality Refrigeration Components

- High efficiency evaporator has true counter-flow of water & refrigerant. Maximizes cooling performance. Heavy gauge construction insures leak-proof operation
- Adjustable LP & fan pressure switches for non-standard chilled water & ambient temperatures
- Hot-gas muffler for reduced compressor noise & gas pulsation
- Refrigerant liquid receiver for smoother & more reliable expansion valve operation
- Liquid line solenoid valve for increased compressor protection
- Service valves on all models from MPC 0150
- Sight glass & filter/dryer

Stainless Steel Pumps

- 100% 304 stainless steel impellers & casing
- TEFC close-coupled motors
- Built-in pump by-pass to prevent dead-head condition

Quick & Easy Maintenance Access

- Plexiglass viewing panel for controls in front door
- Lockable, hinged outer control panel door
- Interlocked disconnect through NEMA 4 inner control panel door
- All panels remove easily for service

Microprocessor Controls

- Main power disconnect & on/off switch
- Non-proprietary, plug-in microprocessor board
- 3-digit LED in polycarbonate display panel
- Compressor 1 & 2 running LED display
- 4 push-buttons for selecting control & alarm parameters
- Selection for °F or °C
- Optional remote control/alarms

Alarms

- High or low water temperature
- Refrigerant HP (circuits 1 & 2)
- Refrigerant LP (circuits 1 & 2)
- Compressor overload (circuits 1 & 2)
- Fan overload
- Anti-freeze
- Memory failure
- Sensor failure
- High or low supply voltage
- Power supply noise
- High ambient temperature
- Pump failure



Specifications

AIR-COOLED	MPC(A)	0005	0010	0150	0200	0300	0500	0800	1000	1200	2200	3000	4000	5000	6000	7200
Capacity (Btu/h) (1)		5500	12700	19000	28000	37000	56000	81000	106000	132000	212000	265000	326000	421000	530000	634000
Current	FLA	6.25	10.67	5.9	7.5	10.1	13.13	18.86	23.72	28.65	48.73	56.52	76.71	99.19	114.78	131.4
Power	kW	1.2	2.08	3.03	4.06	5.45	7.41	10.49	13.73	17.11	28.05	34.01	42.08	56.38	68.3	78.2
Axial fans	Qty.	1	1	1	1	1	1	2	2	2	3	3	5	5	5	5
	Total HP	0.07	0.15	0.25	0.25	0.25	0.75	1.5	1.5	1.5	3	3	5	5	5	6
	Total CFM	445	760	1200	1460	1970	3620	7500	7300	7200	14000	13400	29300	28600	28000	33000
WATER-COOLED	MPC(W)	-	-	0150	0200	0300	0500	0800	1000	1200	2200	3000	-	-	-	-
Capacity (Btu/h) (2)		-	-	22000	30600	41000	62000	91000	118000	148000	235000	285000	-	-	-	-
Current	FLA	-	-	5.5	7	9.5	12.5	18	21.5	26.3	44.2	53.1	-	-	-	-
Power	kW	-	-	2.7	3.9	5.2	7.2	9.6	12.8	16.2	26.2	32.2	-	-	-	-
Condenser water	GPM	-	-	3.2	4.1	5.5	8.3	12.1	15.7	19.1	31.3	37.9	-	-	-	-
Compressor Qty.		1	1	1	1	1	1	1	1	1	2	2	4	4	4	4
Electrical Supply		230/1/60					460/3/60									
Tank Capacity	Gallons	5	10	15	15	15	35	75	75	75	135	135	105	105	105	105
Standard Pump	HP	1/2	1/2	1	1	1	1	1.5	1.5	3	3	3	5	5	7.5	7.5
Nominal Flow	GPM	1.1	2.5	4.2	5.6	8	11	16	21	26	42	53	65	84	106	127
Available Head	Ft	65	80	68	68	72	72	72	80	78	78	78	78	80	68	68
Dimensions	Width	13.6	20.5	33.3	33.3	33.3	39.4	39.4	39.4	39.4	51.2	51.2	51.2	51.2	51.2	51.2
	Depth	15.4	24.2	31.5	31.5	31.5	57.1	63	63	63	78.8	78.8	141.7	141.7	141.7	141.7
	Height	29.9	42.1	51.2	51.2	51.2	48.8	63.8	63.8	63.8	81.1	81.1	81.1	81.1	81.1	81.1
Net Weight	Lbs	73	242	462	470	506	616	1078	1100	1155	1980	2310	2992	3146	3234	3630
Chilled water conns.	NPT	3/8"	1/2"	3/4"	3/4"	1"	1"	1-1/2"	1-1/2"	1-1/2"	2"	2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"

Notes

- (1) Air-cooled rating for 55F EWT; 45F LWT; 95F ambient temperature
- (2) Water-cooled rating for 55F EWT; 45F LWT; 85F condenser cooling water
- (3) Cooling capacity is gross. For net capacity (BTU/H) subtract pump HPX2545 from gross total
- (4) Allow for piping losses when calculating cooling capacity

Capacity Correction Factors (cf) (Multiply catalog capacities by correction factors)

Chilled water temperature	23	32	40	45	60	Consult	Motivair
cf1	0.63	0.77	0.93	1	1.25		
Ambient temperature	85	90	95	100		Consult	Motivair
cf2 (MPC-A)	1.06	1.03	1	0.96			
Condenser water temperature	75	80	85	90	95	100	105
cf3 (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
cf4	1	0.99	0.98	0.97	0.96	0.94	Motivair

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- Non-cycling refrigeration dryers
- Regenerative dryers
- Aftercoolers, separators & traps
- Drain valves & timer/solenoids
- Particulate & oil coalescing filters

Industrial Water Cooling Systems

- Dry-type closed loop cooling systems
- Evaporative closed loop, cooling systems
- Plate and Frame cooling systems
- Shell & tube cooling systems
- Liquid pumping systems



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