motivair®
COOLING SOLUTIONS

INNOVATE | DESIGN | APPLY

www.motivaircorp.com

MPC Air-Cooled Chillers
MPC-FC Free-Cooling Chillers

½ - 100 Tons

OUR BUSINESS IS COOLING YOURS.

When commercial grade isn't enough

Motivair® is a world-class supplier of water chillers for industrial process cooling, medical equipment and specialty HVAC systems.

The MPC and MPC-FC chillers offer an unparalleled range of cooling capacities, and available options that allow customers to select a chiller best suited to their business's needs.

The MPC range of water chillers have earned a quality reputation, trusted around the world to provide reliable cooling for critical applications. Let our experienced team work with you to provide the right chiller for your application.

motivair®
COOLING SOLUTIONS

Defining Mission Critical Cooling

MPC-A 4000-7200

MPC-A 0500

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.

Flexibility

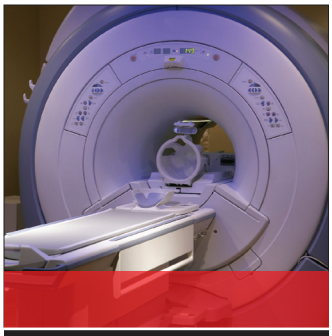
Process cooling and HVAC heat loads often change throughout the workday. The MPC range features a unique “CYCLING” design that allows the chiller to adapt automatically to any heat load from zero to 100% of its capacity. This cycling design utilizes a large storage reservoir, to insure close water temperature 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.

Simple and Effective

MPC chillers are designed for simplicity and ease of use.

- “Cycling” refrigeration circuit
- Integrated centrifugal circulation pump
- Large internal storage reservoir
- Microprocessor controls
- Integrated Free Cooling Option
- Single point power connection

Application Defined Features & Options



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
- IT Rooms
- Pharmaceutical Mfg.
- Plastics Processing
- Printing Processes
- Hydraulic Cooling
- Welding Machines
- Lasers
- Metal Spraying
- Food Processing

"Cycling" Design for 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.

Scroll Compressors

Multiple high efficiency scroll compressors with R-410A refrigerant.

Designed to operate at high efficiency across the entire operating range with lower sound and vibration than traditional compressors. Unique scroll compressor design allows for resistance to liquid slugging.

Features

- R-410A environmental friendly refrigerant
- High efficiency, stainless steel, brazed plate evaporators
- Centrifugal circulation pumps with close-coupled TEFC motors
- Oversized thermal storage reservoirs with fill, drain & vent ports
- Powerful, easy to use, non-proprietary micro-processors - "plug & play"
- Heavier frame construction – greater resistance to shipping, handling & operation abuse.
- Removable access panels for easy service & maintenance
- Standard high-pressure and low-pressure refrigeration gauges 5 tons and above.

Options

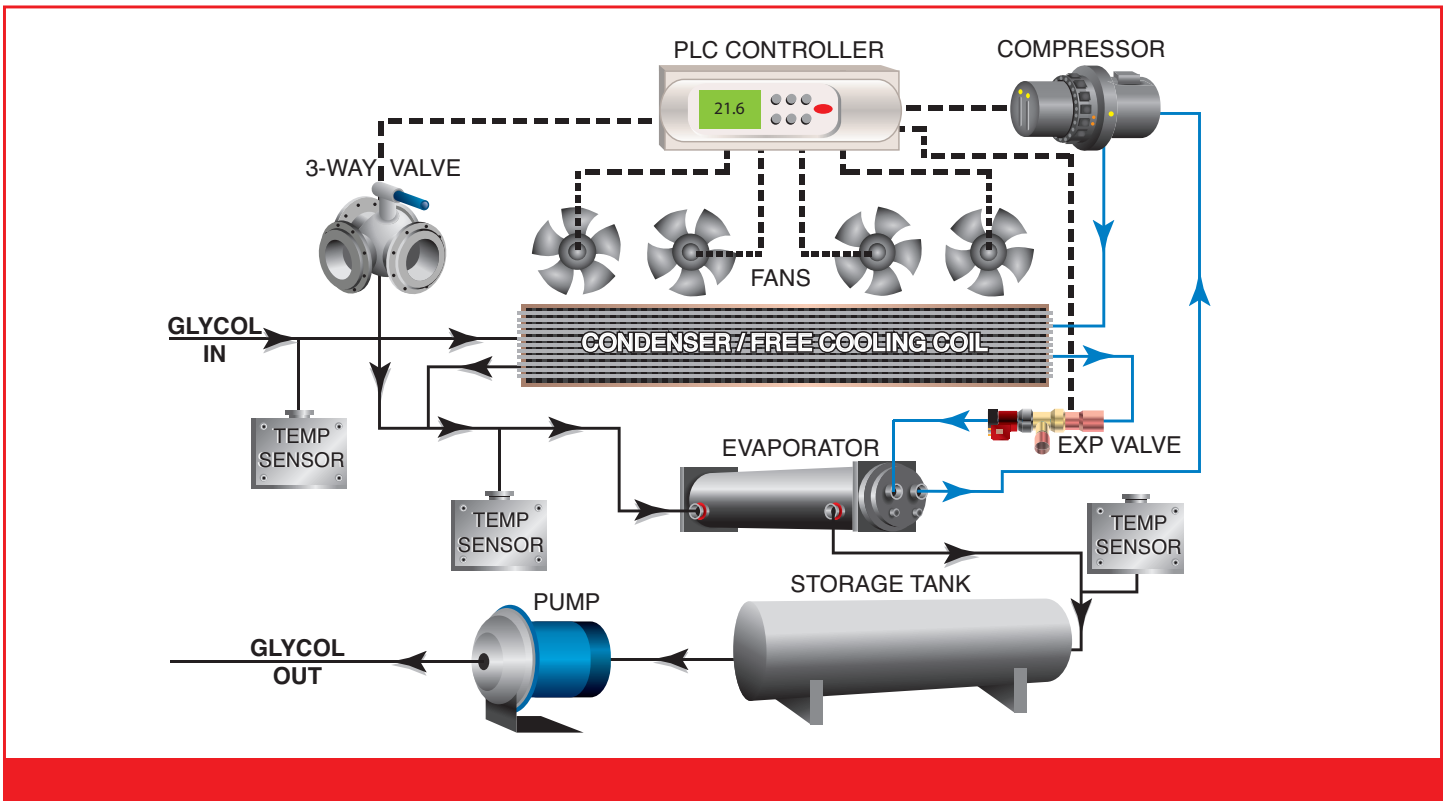
- Integrated Free Cooling
- 100% non-ferrous water circuit
- Laser (+/- 1°F) temperature controls
- High-pressure pump
- Duplex pump package
- Low ambient package
- High ambient package
- Castors for portability
- Centrifugal fans
- R-404A, R-134A

Motivair® Free-Cooling Chillers: The Ultimate Solution for Optimal Energy Savings

The Motivair® 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 0800-9000 is supplied complete with pump and storage reservoir, "Free-Cooling" coil and the PCO3 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!***



Advanced Controls

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 PC05 advanced PLC system is available from the MPC 2200 and above.

Standard Features & Alarms	XR-30C	Micro Chiller 2SE	PC05
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
Phase/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 overload alarm		x	x
RS 232/RS 485 communication		consult factory	x
Ethernet communication			x
LON, BACNET, MODBUS communication		consult factory	x
Optional remote wall mount controller		x	x

MPC model	Standard	Optional
MPC 0005-0010	XR-30C	N/A
MPC 0150-0300	XR-30C	Micro Chiller 2SE
MPC 0500-1500	Micro Chiller 2SE	N/A
MPC 2200-9000	Micro Chiller 2SE	PC05

Micro Chiller 2SE

PC05 Display

PC05 Board

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

MPC/MPC-FC Specifications

AIR COOLED CHILLERS WITH SCROLL COMPRESSORS	MPC-A	0200	0300	0500	0800	1000	1200	1500	2200	3000	3500	4000	5000	6000	7200	8000	8500	9000
Cooling Capacity *	Tons	2.2	3.0	4.2	5.7	8.9	11.3	13.3	17.8	22.6	26.6	30.0	35.7	44.5	50.2	67.1	81.5	95.7
Elevation	FT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refrigerant	Type	R-410A																
Number of Compressors	Qty	1	1	1	1	1	1	1	2	2	2	2	4	4	4	4	4	4
Refrigerant Circuits	Qty	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
Compressor Running Current	A	4.3	5.5	8.3	12.1	14.8	18.5	23.8	14.85	18.5	23.8	26.3	14.85	18.825	25.7	28.625	37.275	42.075
Compressor Locked Rotor Amprage	A	35	46	62	95	125	150	179	125	150	179	225	125	150	179	225	272	310
Max Absorbed working current per Compressor	A	8	11	15.2	23	28	35	41	28	35	41	47.5	28	35	41	47.5	65.4	85
Evaporator Flow Rate	GPM	5	7	10	14	21	27	32	43	59	64	72	86	107	121	161	196	230
Minimum Fluid Flow Rate	GPM	5	5	5	13	13	26	26	26	42	42	29	70	70	132	132	159	159
Maximum Fluid Flow Rate	GPM	19	19	19	29	29	70	70	70	70	101	101	141	141	203	247	282	365
Maximum Pump Absorbed Power	kW	0.75	0.75	0.75	1.1	1.1	2.2	2.2	2.2	3	3	3	4	4	5.5	5.5	7.5	11
Maximum Pumps Absorbed Current	A	1.6	1.7	1.7	2.4	2.4	4.3	4.3	4.3	5.85	5.85	5.85	7.7	7.7	10	10	13.2	20
Integrated Pump External Pressure	PSI	38.11	38.16	36.92	37.68	33.51	36.74	36.53	34.95	34.77	31.94	29.81	34.05	31.76	34.05	35.65	43.39	51.51
Integrated Tank Volume	GAL.	13	13	13	30	50	50	50	100	100	100	100	100	100	100	130	130	130
Number of Condenser Coils	Qty	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Condenser Fan(s)	Qty	1	1	1	1	2	2	2	2	2	2	2	3	3	3	5	5	6
Total Absorbed Power	kW	1.05	1.05	1.05	1.42	2.1	2.84	2.1	4.36	4.36	4.36	4.36	6.54	6.54	6.54	10.9	10.9	13.08
Absorbed Current	A	1.57	1.57	1.57	2.54	3.14	5.08	3.14	7.6	7.6	7.6	7.6	11.4	11.4	11.4	19	19	22.8
NOISE DATA	*Distance measured in an open field at 33 Feet from Condenser*																	
Sound Pressure Level at 32.8'	dBA	53.4	53.6	53.8	60.0	57.4	63.2	58.7	60.4	60.7	61.4	63.0	62.5	62.8	63.8	67.5	69.6	69.4
ELECTRICAL DATA	*Includes Integrated Pump*																	
Nominal Power	kW	4.56	5.3	7.45	10.62	12.84	17.29	18.65	25.84	31.86	36.06	41.31	49.1	60.74	75.24	94.2	121.2	140.08
Maximum Absorbed current (FLA) based on compressor MCC	A	11.27	14.27	18.47	27.94	33.54	44.38	48.44	67.9	83.45	95.45	101.95	131.1	159.1	185.4	219	293.8	343.6
Electrical	V/PH/Hz	460/3/60																
Full Load Current (FLA)	A	7.5	8.8	11.6	17.0	20.3	27.9	31.2	41.6	50.5	61.1	66.1	78.5	94.4	124.2	143.5	181.3	211.1
Min Circuit Ampacity (MCA)	A	8.5	10.1	13.6	20.1	24.0	32.5	37.2	45.3	55.1	67.0	72.6	82.2	99.1	130.6	150.7	190.6	221.6
Max Overcurrent Protection (MOP)	A	12.8	15.6	21.9	32.2	38.8	51.0	61.0	60.2	73.6	90.8	98.9	97.1	117.9	156.3	179.3	227.9	263.7
Sound Pressure Level at 32.8' (Low Noise)	dBA	53.1	53.2	53.2	59.8	56.6	62.9	57.5	59.6	59.7	60.0	60.8	61.4	61.6	62.2	64.9	66.3	66.8
EQUIPMENT DIMENSIONS & WEIGHTS																		
Length	IN	32.3	32.3	32.3	39.8	63.4	63.4	63.4	87.4	87.4	87.4	87.4	132.1	171.5	132.1	171.5	132.1	171.5
Width	IN	24.2	24.2	24.2	28.3	33.9	33.9	33.9	43.3	43.3	43.3	43.3	43.5	43.5	43.5	43.5	43.5	43.5
Height	IN	53.5	53.5	53.5	62.2	60.6	60.6	60.6	82.7	82.7	82.7	82.7	85.8	85.8	85.8	85.8	85.8	85.8
In & Out Connection Size	IN	1"	1"	1"	1"	1.5"	1.5"	1.5"	2"	2"	2"	2"	2.5"	2.5"	2.5"	5"	5"	5"
Estimated Shipping Weight	LBS	386	397	408	573	860	882	948	1,786	1,830	1,885	2,050	3,417	4,630	3,505	4,630	3,638	4,850
MPC-W - WATER COOLED (OPTION)	**MPC-W**	**0200**	**0300**	**0500**	**0800**	**1000**	**1200**	**1500**	**2200**	**3000**	**3500**	**4000**	**5000**	**6000**	**7200**	**8000**	**8500**	**9000**
**Cooling Capacity - Water Cooled (Tons)	BTU/Hr.	28,746	38,586	53,895	73,169	115,022	145,972	171,451	230,081	291,943	342,938	386,626	460,163	573,717	647,988	864,962	1,051,355	1,234,811
Condenser Fluid Flow	GPM	6	8	11	16	25	32	38	51	71	77	88	105	133	151	203	249	295
Full Load Current (FLA)	A	5.9	7.2	10.0	14.5	17.2	22.8	28.1	34.0	42.9	53.5	58.5	67.1	83.0	112.8	124.5	162.3	188.3
Min Circuit Ampacity (MCA)	A	7.0	8.6	12.1	17.5	20.9	27.4	34.1	37.7	47.5	59.4	65.0	70.8	87.7	119.2	131.7	171.6	198.8
Max Overcurrent Protection (MOP)	A	11.3	14.1	20.4	29.6	35.7	45.9	57.9	52.6	66.0	83.2	91.3	85.7	106.5	144.9	160.3	208.9	240.9
Estimated Shipping Weight	LBS	361	372	383	548	835	857	923	1,761	1,805	1,860	2,025	3,392	4,605	3,480	4,605	3,613	4,825

Motivair reserves the right to make changes to product specifications without notice.

FREE COOLING CHILLERS WITH SCROLL COMPRESSORS	MPC-FC	1000	1200	1500	2200	3000	3500	4000	5000	6000	7200	8000	8500	9000
Cooling Capacity	Tons	8.6	10.9	13.0	17.1	21.7	25.7	29.2	34.3	44.0	52.5	63.8	77.3	88.9
100% Free Cooling Ambient	°F	32	34	33	33	33	34	33	33	32	30	31	28	21
Refrigerant	Type	R-410A												
Number of Compressors	Qty	1	1	1	2	2	2	2	4	4	4	4	4	4
Refrigerant Circuits	Qty	1	1	1	1	1	1	1	2	2	2	2	2	2
Evaporator Flow Rate	GPM	21	26	31	41	52	62	70	83	106	126	153	186	214
PSI Drops (Evap+Valves+Piping)	PSID	5.71	5.72	5.96	6.30	6.65	7.00	6.88	7.82	9.45	10.96	5.83	5.83	6.07
F.C. PSI Drop (F.C.+Evap+Valve+Piping)	PSID	11.31	9.11	9.81	9.92	11.43	12.96	12.14	14.47	14.47	17.16	11.08	12.84	11.67
Integrated Pump External Pressure	PSI	27.52	32.71	31.68	30.70	41.46	36.58	39.33	36.20	38.51	40.32	40.32	36.28	46.37
Integrated Tank Volume	Gallons	50	50	50	100	100	100	100	130	130	130	130	130	130
Condenser Fan(s)	Qty	2	2	2	2	2	3	3	4	5	5	6	6	6
NOISE DATA	*Distance measured in an open field at 33 Feet from Condenser*													
Sound Pressure Level at 32.8'	dBA	61.2	60	60.4	60.4	60.8	62.5	63.8	63.3	64.3	64.9	67.7	69.8	69.4
ELECTRICAL DATA	*Includes Integrated Pump*													
Electrical	V/PH/Hz	460/3/60												
Full Load Current (FLA)	A	23.2	32.0	37.0	43.7	55.7	69.7	73.9	86.5	111.8	131.4	156.4	193.2	224.8
Min. Circuit Ampacity (MCA)	A	27.1	37.0	43.3	47.7	60.8	76.0	80.8	90.5	116.8	137.6	163.9	203.0	236.2
Max. Overcurrent Protection (MOP)	A	42.9	57.1	68.4	63.6	81.0	101.3	108.2	106.4	136.7	162.4	194.0	242.3	281.7
EQUIPMENT DIMENSIONS & WEIGHTS														
Length	IN	63.4	87.4	87.4	132.1	132.1	132.1	171.5	171.5	210.6	210.6	250.0	250.0	250.0
Width	IN	33.9	43.3	43.3	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5
Height	IN	60.6	82.7	82.7	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8
In & Out Connection Size	IN	1.5"	1.5"	1.5"	2"	2"	2"	2"	2.5"	2.5"	2.5"	5"	5"	5"
Estimated Shipping Weight	LBS	1,323	1,676	1,764	3,208	3,241	3,329	4,630	4,850	5,335	5,445	6,162	6,603	7,154

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* Air Cooled Capacity Rated @ 44°F LWT / 54°F EWT / 95°F Ambient / 100% Water ** Water Cooled Capacity Rated @ 44°F LWT / 54°F EWT / 85°F ECWT

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OUR BUSINESS IS COOLING YOURS™

MLC & MLC-FC
60-500 tons air-cooled, water-cooled & split system chillers for industrial or HVAC applications. Available Integrated Free-Cooling.

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 any 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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