Temperature Corp

Modular Chillers for Process Cooling

WHAT IS A MODULAR CHILLER COOLING SYSTEM?

A cooling system with multiple chillers that couple together to make a complete or expandable chilling system, each chiller has dual compressors with a dual circuit evaporator and condenser. You can add up to 12 chillers (total of 24 compressors) in one bank. Each bank is controlled from a System Remote Master (SRM) that stages the compressors on leaving chilled water temperature and lead–lags the compressors to equalize run time, it logs the number of compressor starts, compressor run hours, and stores up to 100 alarm faults in its memory.

The SRM can talk to your plant PLC and send as much of the operating and fault conditions as you require, the number of compressors operating and those off line and why.

Combined with our chilled water and tower water pump packages, you have a complete cooling system that communicates the operating and fault conditions of each piece of equipment in the system to your plant PLC and can be expanded as your plant grows.

WHY DO I NEED A MODULAR CHILLER COOLING SYSTEM?

A modular cooling system solves many of the problems faced in central or plant wide cooling systems:

1 It is easily expandable up to the maximum size of your pumping system, you can just leave space for the future modules or install the water headers now (chilled water and tower water) with shut-off valves, and add future chiller module(s) as required with no interruption to your existing system.

2 With multiple modules you have more compressors to match the chilling cooling capacity of your varying cooling load, preventing short cycling of compressors while maintaining a constant process water temperature.

3 It is easy to add a redundant chiller for back-up or to cover the day you need that extra cooling capacity.

4 It also allows the cooling system to turn down to one compressor for times when little or no plant cooling load is needed.

5 The cooling system will reduce your energy consumption: When the cooling system unloads, the compressors are shut off saving energy, with larger chillers the compressors unload and operate at an inefficient energy point. You can also use a VFD on the chiller pump saving additional energy by slowing it down to match the reduced chiller water required as the compressors shut-off. Motorized valves are required on the chillers to use this feature.

6 The chillers are certified by AHRI for cooling capacity, EER and power consumed by each model.

7 Our System Remote Master (SRM) will stage all the compressors in the system to match the cooling load and if a chiller stops due to a fault condition the SRM starts the next chiller in line with no interruption to the cooling load and signals the SRM that a chiller has failed. If the SRM is connected to your plant PLC it will immediately forward the information to it.

8 The same applies to our pump packages. If a pump stops due to a fault condition the SRM will start the stand-by pump with no interruption to the water flow and signal the SRM that a pump has failed.

9 The total cost might be slightly higher than one or two large chillers but the benefits far outweigh the additional cost.

MODULES ARE AVAILBLE: Water Cooled, Remote Condenser Air Cooled, And Outdoor Air Cooled.

ALL THE CHILLERS ARE COMPLETE WITH THE FOLLOWING:

Dual scroll compressors, dual refrigeration circuits, compressor crankcase heaters, pressure relief valves, complete refrigeration system, head pressure control system, EEMAC / NEMA 4 control panel with thru-the-door non-fused disconnect, compressor fuses and contactors, control transformer with primary and secondary fuses, chiller controller with door mounted key-pad display. The chiller is certified to CAN/CSA C22.2 No. 236 / UL 1995 3rd 2005 Heating and Cooling Equipment.

Chiller controller with door mounted key pad display that shows all of the operating and fault conditions in English and senses and displays suction and discharge refrigeration pressures (psi) and temperature (F), evaporator and water cooled condenser entering and leaving water pressures and temperatures, compressor internal fault protector, phase monitor with under voltage protection and flow switch faults. The default screen displays two icons, one for each compressor that indicates which one is off, operating or in alarm; as well as the entering and leaving chilled water temperatures.

HIGH EFFICIENCY WATER COOLED CHILLERS with brazed plate evaporator and condenser.

MODEL NUMBER	LEAVING CHILLED WATER TEMPERATURE	CONDENSER WATER IN TEMPERATURE		CONDENSER WATER IN TEMPERATURE		CONDENSER WATER IN TEMPERATURE		CONDENSER WATER IN TEMPERATURE	
		75 F - 20 C	POWER KW	80 F - 26 C	POWER KW	85 F - 29 C	POWER KW	90 F - 32 C	POWER KW
WC030DZV	45 F - 7.2 C	29 tons	18.0 kw	28 tons	19.0 kw	27 tons	20.0 kw	26 tons	21.1 kw
	50 F - 10 C	32 tons	21.1 kw	31. tons	19.3 kw	**30 tons**	**20.3 kw**	29 tons	21.4 kw
	55 F - 12.7 C	35 tons	22.8 kw	34 tons	19.6 kw	33 tons	20.5 kw	32 tons	21.6 kw
WC055DZV	45 F - 7.2 C	54 tons	34.7 kw	52 tons	36.4 kw	51 tons	36.4 kw	49 tons	40.3 kw
	50 F - 10 C	59 tons	35.2 kw	58 tons	36.8 kw	**56 tons**	**38.7 kw**	54 tons	40.6 kw
	55 F - 12.7 C	65 tons	35.6 kw	63 tons	37.2 kw	62 tons	39.0 kw	60 tons	41.0 kw
WC080DZV	45 F - 7.2 C	78 tons	47.1 kw	75 tons	50.0 kw	73 tons	53.2 kw	71 tons	56.6 kw
	50 F - 10 C	85 tons	47.3 kw	83 tons	50.2 kw	**81 tons**	**53.3 kw**	78 tons	56.7 kw
	55 F - 12.7 C	93 tons	47.6 kw	91 tons	50.5 kw	89 tons	53.6 kw	86 tons	57.0 kw
WC140DZV	45 F - 7.2 C	137 tons	94 kw	134 tons	95.5 kw	130 tons	100 kw	126 tons	105 kw
	50 F - 10 C	150 tons	95 kw	147 tons	97 kw	**140 tons**	**101 kw**	128 tons	106 kw
	55 F - 12.7 C	137 tons	96 kw	160 tons	99 kw	155 tons	103 kw	150 tons	108 kw

SHADED AREA NOMINAL DESIGN CONDITIONS – chilled water flow 2.4 gpm per ton, 50° F leaving water, condenser water flow 3 gpm ton, entering 85° F (29 C).

HIGH EFFICIENCY REMOTE AIR COOLED CONDENSER CHILLERS with a brazed plate evaporator, dual circuit copper tube - aluminum fin condenser with high efficiency – low noise propeller fans.

MODEL NUMBER	LEAVING CHILLED WATER TEMPERATURE	CONDENSER ENTERING AIR TEMPERATURE		CONDENSER ENTERING AIR TEMPERATUREE		CONDENSER ENTERING AIR TEMPERATURE		CONDENSER ENTERING AIR TEMPERATURE	
		85 F - 29 C	POWER KW	90 F - 32 C	POWER KW	95 F - 35 C	POWER KW	100 F - 37 C	POWER KW
RC030DZV	45 F - 7.2 C	30.0 tons	26.0 kw	29.0 tons	27.5 kw	28.0 tons	29.2 kw	26.0 tons	27.5 kw
	50 F - 10 C	33.0 tons	26.4 kw	31.0 tons	27.7 kw	**30.0 tons**	**29.0 kw**	29.0 tons	27.7 kw
	55 F - 12.7 C	36.0 tons	27.0 kw	35.0 tons	28.1 kw	33.0 tons	29.5 kw	32.0 tons	31.1 kw
RC050DZV	45 F - 7.2 C	49 tons	42.6 kw	47 tons	44.9 kw	45 tons	47.5 kw	44.0 tons	47.4 kw
	50 F - 10 C	54 tons	42.9 kw	52 tons	45.2 kw	**50 tons**	**47.7 kw**	48.0 tons	47.7 kw
	55 F - 12.7 C	59 tons	43.2 kw	57 tons	45.5 kw	55 tons	48.0 kw	53.0 tons	48.0 kw
RC080DZV	45 F - 7.2 C	77 tons	67.8 kw	74 tons	72.2 kw	71 tons	77.0 kw	68 tons	82.0 kw
	50 F - 10 C	85 tons	68.0 kw	82 tons	72.4 kw	**80 tons**	**77.1 kw**	76 tons	82.1 kw
	55 F - 12.7 C	93 tons	68.2 kw	90 tons	72.5 kw	87 tons	77.2 kw	83 tons	82.0 kw
RC125DZV	45 F - 7.2 C	122 tons	110 kw	118 tons	116 kw	114 tons	122 kw	110 tons	129 kw
	50 F - 10 C	134 tons	111 kw	130 tons	117 kw	**125 tons**	**123 kw**	121 tons	130 kw
	55 F - 12.7 C	147 tons	112 kw	142 tons	118 kw	138 tons	124 kw	133 tons	131 kw

SHADED AREA NOMINAL DESIGN CONDITIONS – chilled water flow 2.4 gpm per ton, 50 F leaving water, 95 F (35 C) condenser entering air temperature.
KW – Chiller only, does not include condenser fans.

HIGH EFFICIENCY OUTDOOR AIR COOLED CHILLERS with a brazed plate evaporator, copper tube aluminum fin condenser with high efficiency – low noise EC variable speed propeller fan motors.

MODEL NUMBER	LEAVING CHILLED WATER TEMPERATURE	CONDENSER ENTERING AIR TEMPERATURE		CONDENSER ENTERING AIR TEMPERATURE		CONDENSER ENTERING AIR TEMPERATURE		CONDENSER ENTERING AIR TEMPERATURE	
		85 F - 29 C	POWER KW	90 F - 32 C	POWER KW	95 F - 35 C	POWER KW	100 F - 37 C	POWER KW
AC030DZV	45 F - 7.2 C	29.5 tons	30.0 kw	28.5 tons	31.2 kw	27.5 tons	32.9 kw	26.0 tons	34.5 kw
	50 F - 10 C	32.0 tons	30.2 kw	31.0 tons	31.6 kw	**30.0 tons**	**33.1 kw**	29.0 tons	34.7 kw
	55 F - 12.7 C	35.0 tons	30.6 kw	34.0 tons	31.9 kw	33.0 tons	33.3 kw	31.0 tons	35.0 kw
AC040DZV	45 F - 7.2 C	39.1 tons	33.8 kw	37.7 tons	35.6 kw	36.0 tons	37.5 kw	35 tons	39.6 kw
	50 F - 10 C	43.2 tons	34.1 kw	41.7 tons	36.0 kw	**40.0 tons**	**37.9 kw**	38.6 tons	40.0 kw
	55 F - 12.7 C	47.6 tons	34.5 kw	46.0 tons	36.4 kw	44.0 tons	38.3 kw	42.6 tons	40.4 kw
AC060DZV	45 F - 7.2 C	62.0 tons	54.3 kw	60.0 tons	57.7 kw	58.0 tons	61.4 kw	55.0 tons	65.3 kw
	50 F - 10 C	68.0 tons	54.5 kw	66.0 tons	57.9 kw	**64.0 tons**	**61.5 kw**	61.0 tons	65.4 kw
	55 F - 12.7 C	75.0 tons	54.7 kw	73.0 tons	58.0 kw	70.0 tons	61.7 kw	67.0 tons	65.5 kw

SHADED AREA NOMINAL DESIGN CONDITIONS – chilled water flow 2.4 gpm per ton, 50 F leaving water, 95 F (35 C) condenser entering air temperature.

CHILLED WATER & WATER/GLYCOL and TOWER WATER PUMP TANK PACKAGES:

Tanks with internal baffles and lid are fabricated from 304 stainless steel, s/s internal bands on the smaller tanks and painted mild steel external bands on the large tanks. Tanks insulated with ¾" close cell flexible thermal insulation. Electrics range from EEMAC / NEMA 1 pump motor starter for each pump mounted to the tank and pre-wired to the pump motors to complete EEMAC / NEMA 4 control panel with thru-the-door non fused disconnect, pump fuses and motor starters, control transformer with primary and secondary fuses, pump controller. Optional low level alarm, alarm light and/or alarm horn, pump VFD's and chemical treatment packages.

Pumps can be arranged the following ways:

Single pump – one chilled water pump or with a stand-by pump, normally used on a small system.

Double pumps – one chilled or tower water pump and one process water pump.

Three pump manual stand-by - one chilled or tower water pump, one process water pump and one stand-by pump manually operated that can back up either pump.

Four pump automatic stand-by – two chiller or tower water pumps and two process water pumps, one pump operates while the other is in stand-by and automatically swings over if lead pump fails.

Multiple pumps – three or four chilled or tower water pumps and three or four process pumps each with its own stand-by pump that automatically swings over if one of the lead pumps fails.

Chilled Water Pump Tanks Packages: CWPT-50, CWPT-100, CWPT-150, and CWPT-200

Tower Water Pump Tanks Package: TWPT-50, TWPT-100, TWPT-150, and CWPT-200

Larger tonnage pump tank systems available upon request.

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