

INDUSTRIAL PROCESS

WATER CHILLERS

CH SERIES



Aircel

LEADING THE WAY IN LIQUID COOLING TECHNOLOGY

IN MANY INDUSTRIAL APPLICATIONS COLD WATER IS USED TO KEEP THE PRODUCTIVITY OF THE MACHINERY AT A CONSTANT HIGH LEVEL. The optimal temperature is often critical, as it ensures the correct operation and highest quality of the production process. Today, most processes require cooling water with much closer defined tolerances. Water chillers provide cooling in a controlled closed circuit. This means that the water used for your production processes is reliable, constant, and defined.

AIRCEL LLC CH SERIES PROCESS WATER CHILLERS GUARANTEE A SECURE AND REPEATABLE PRODUCTION PROCESS, while saving you money and protecting the environment. Total process security at high efficiency levels makes the Aircel water chiller the optimum solution.

EASY OPERATION AND HIGH RELIABILITY have been the cornerstones in the design of this high-efficiency process water chiller series. Aircel LLC manufacturers a complete line of industrial process water chillers from 25-500 ton.

CHILLER APPLICATIONS

ELECTRONIC DEVICES

To ensure accuracy by maintaining low span temperature control and pure coolant for electronic microscopes; blood cooling; diffusion pumps; spectrometers; scanners; and many other sensitive electronic devices.

WATER-COOLED AIR/GAS COMPRESSORS

To recirculate and chill water, eliminating the cost of tap water and build-up of mineral deposits in the heat exchanger.

FOOD PROCESSING

For use with all stainless steel evaporators and pumps in steam cleaning systems.

INJECTION AND BLOW MOLDING

For quick cooling of the molder increasing production speed and quality of the product.

MACHINE TOOLS

To increase speed and useful life of machines by providing accurate cold water temperature.

LASERS

To remove laser heat with deionized water in a closed-loop system.

HIGH SPEED ROLLERS

To accurately control coolant temperature increasing the speed and dependability of paper converting, laminating, printing and waxing machines.

WELDERS

To increase tip life while reducing water consumption by recirculating a clean coolant at optimum temperatures.

PLASMA CUTTING

For cooling to extend the electrode life and improve the cut quality.

POWER SUPPLIES

To ensure dependability by recirculating a clean coolant of certain temperature and flow.

CH-500

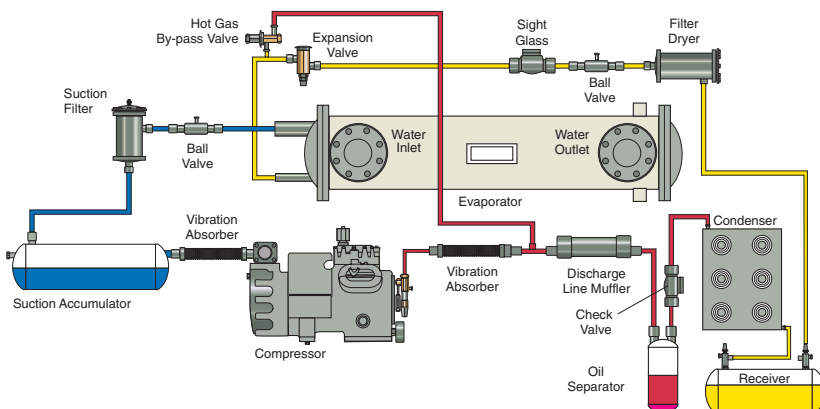


► CH SERIES FEATURES AND BENEFITS

- ▲ Continuous operation – all components are designed for reliable performance.
- ▲ High performance shell and tube heat exchangers to ensure maximum heat transfer.
- ▲ Temperature controllers for precision temperature control.
- ▲ Unloading capacity up to 25% (CH-3000 and up).
- ▲ Refrigerant analyzer gauges.
- ▲ Water inlet temperature gauge.
- ▲ Water inlet pressure gauge.
- ▲ Low ambient fan cycle control (air-cooled models only).
- ▲ Compressor oil sight glass.
- ▲ Compressor crankcase heater.
- ▲ Oil return separator (CH-3000 and up).
- ▲ Heavy-duty industrial structural frame.
- ▲ ASME coded shell and tube evaporator.
- ▲ ASME coded water-cooled condenser with water regulating valve (water-cooled units).
- ▲ Refrigerant pressure safety relief valve.
- ▲ Vibration isolator pads.
- ▲ Built-in safety features for safer, more reliable operation:
 - High-pressure switch protects the refrigeration system against excessive pressure caused by an insufficient cooling water supply (on water-cooled models).
 - High-amperage draw switch shuts off the compressor and pump in case of an overload to the system.
 - Freeze-control protection.

HOW THE CH SERIES WORKS

TYPICAL REFRIGERANT FLOW



Re-circulates clean coolant at a constant temperature and pressure to increase the stability and productivity of all water-cooled machinery, compressors and instruments. The evaporators are designed with clean-out and fill-port valves to prevent coolant expansion and fouling. The optional pump re-circulates the coolant at a constant pressure and flow, which is adjustable with a manual-regulating valve.

CHILLER SIZING AND CAPACITY CORRECTION FACTORS

Use the heat load calculation formula to determine the total heat load in Btu/Hr, and then select the CH Chiller model with that capacity.

TOTAL HEAT LOAD BTU/HR = (Rated Capacity) x (Correction Factor).

RATED CAPACITY BTU/HR = Flow rate (US gal/min) x 500 x specific heat of cooling fluid x ΔT .

FLOW RATE = Measure the flow rate by determining the length of time it takes to fill a container of known volume.

DT = (water inlet temperature) – (water outlet temperature)
Obtain ΔT by measuring both the incoming and outgoing water temperature of your equipment. The difference is the ΔT .

CAPACITY CORRECTOR FACTOR FOR % GLYCOL SOLUTION

% GLYCOL	0	10	20	30	40	50
FREEZING TEMPERATURE	32°F	25°F	14°F	3°F	-14°F	-34°F
FACTOR	1.0	.98	.96	.94	.90	.87

TO SIZE THE CHILLER

▶ TOTAL HEAT LOAD = (GPM X 500 X ΔT) X CORRECTION FACTOR

**SELECTED
CHILLER
MODEL**
CH-500

EXAMPLE

FLOW RATE:
120 GPM

COOLING FLUID:
Water

WATER GLYCOL:
20%

TEMPERATURE INLET:
60°F

TEMPERATURE OUTLET:
50°F

TOTAL HEAT LOAD =
[120 x 500 x 1 x (60-50)] x 0.96

TOTAL HEAT LOAD =
576,000 Btu/Hr

INDUSTRIAL PROCESS WATER CHILLERS DIMENSIONS AND SPECIFICATIONS

MODEL	CAPACITY ¹		FLOW (GPM)	CONNECTION (FNPT / ANSI)	DIMENSIONS (INCHES)			WEIGHT (LBS)	CONDENSER FAN CONFIGURATION (# FANS LENGTH X # FANS WIDTH)
	TONS	BTU/HR			HEIGHT	WIDTH	DEPTH		
CH-250	25	300,000	60	2"	72	50	114	3,300	1 x 2
CH-300	30	360,000	72	2"	72	50	162	3,960	1 x 3
CH-350	35	420,000	84	2"	72	50	162	4,620	1 x 3
CH-400	40	480,000	96	2.5"	72	98	116	5,280	2 x 2
CH-500	50	600,000	119	2.5"	72	98	116	6,600	2 x 2
CH-600	60	720,000	143	3"	72	98	162	7,920	2 x 3
CH-700	70	840,000	167	3"	72	98	162	9,240	2 x 3
CH-800	80	960,000	191	3"	72	98	162	10,560	2 x 3
CH-1000	100	1,200,000	239	4"	72	130	210	13,200	2 x 4
CH-1200	120	1,440,000	287	4"	72	130	258	15,840	2 x 5
CH-1500	150	1,800,000	358	6"	72	130	306	19,800	2 x 6
CH-1700	170	1,040,000	406	6"	CF*	CF*	CF*	CF*	CF*
CH-1800	180	2,160,000	430	6"	CF*	CF*	CF*	CF*	CF*
CH-2000	200	2,400,000	478	6"	CF*	CF*	CF*	CF*	CF*
CH-2400	240	2,880,000	573	6"	CF*	CF*	CF*	CF*	CF*
CH-3000	300	3,600,000	716	6"	CF*	CF*	CF*	CF*	CF*
CH-3600	360	4,320,000	860	8"	CF*	CF*	CF*	CF*	CF*

TOTAL HEAT LOAD (BTU/HR) = (GPM x T x 502)

¹Capacity is based on 100°F ambient temperature.

List is representative of base models only - units can be designed to meet a wide range of temperature drops, flow rates, and process fluids. Consult an Aircel representative for more information.

CH WATER CHILLER OPTIONS

- ✦ Voltages – single-phase or three-phase, 50 or 60 Hz are available.
- ✦ Condensers – water-cooled or remote air-cooled condensers (instead of standard air-cooled condensers) are available.
- ✦ Electrical – all electrical wiring options for controls and motors to meet 4, 4X, 9, 12 and Class I, Division II, Group C-D (NEMA 7) explosion-proof equipment requirements for hazardous environments.
- ✦ Pumps – close-coupled, single and duplex pumps with back flow preventor and isolation valves. Stainless steel centrifugal pumps. Positive displacement pumps (high pressure).
- ✦ Heater/chiller combination – for processes that require two different outlet temperatures at the same time. Combination system with precision controllers are available.
- ✦ Back-up refrigeration and pumps. Available on single skid.
- ✦ Stainless steel heat exchangers and pumps. Stainless steel evaporators and pumps for fluid compatibility.
- ✦ Liquid filters – complete line of industrial process water filters from 1 gpm to 600 gpm with replacement elements and pressure differential indicators.

TRUST AIRCEL LLC® TO DELIVER A COMPLETE RANGE OF COMPRESSED AIR PURIFICATION SOLUTIONS THAT IMPROVE

AIR QUALITY THROUGHOUT YOUR PLANT - from the compressor room to all points of use. Aircel LLC manufactures a complete line of drying and filtration equipment in an innovative, cutting-edge design with energy efficient operation and reliable performance to increase your productivity and lower your operating cost for the air volume that fits your needs.

Aircel LLC offers a wide variety of solutions to reduce your energy costs, improve your productivity, guarantee production quality and help preserve the environment.

PRODUCTS

- ▲ **Activated carbon filters**
- ▲ **Adsorption dryers**
- ▲ **Breathing-air purifiers**
- ▲ **Cartridge filters**
- ▲ **Chillers**
- ▲ **Condensate drains**
- ▲ **Coolers**
- ▲ **Cyclone separators**
- ▲ **Demisters**
- ▲ **Disposable filters**
- ▲ **Elements**
- ▲ **Emulsion separators**
- ▲ **Filters**
- ▲ **Fine filters**
- ▲ **Filter housing**
- ▲ **High-performance filters**
- ▲ **High-pressure filters**
- ▲ **Medical vacuum filters**
- ▲ **Membrane dryers**
- ▲ **Oil/vapor absorbers**
- ▲ **Oil/water separation systems**
- ▲ **Pre-filters**
- ▲ **Pre-separators**
- ▲ **Process filter elements**
- ▲ **Process filter housing**
- ▲ **Pure gas filters**
- ▲ **Refrigeration compressed air dryers**
- ▲ **Silicon-free filters**
- ▲ **Steam filters**
- ▲ **Sterile filters**
- ▲ **Submicro filters**
- ▲ **Systems engineering**
- ▲ **System solution**
- ▲ **Vacuum filters**
- ▲ **Vent filters**



AIRCEL LLC
323 Crisp Circle
Maryville, Tennessee
37801

PHONE
(800) 767-4599
Local: (856) 681-7066
Fax: (865) 681-7069

SALES INFORMATION
sales@aircelcorp.com
REQUEST LITERATURE:
litrequest@aircelcorp.com