THERMAL PRODUCTS INC.
Engineered Solutions To Industrial Applications

OACS Outdoor Air-Cooled Central Chillers

Proudly Made In The USA

ADVANTAGE®
MAKING WATER WORK
since 1977

Thermal Products, Inc. / Phone: (518) 877-0231 / Email: sales@thermalproducts.com / Website: www.thermalproducts.com

ADVANTAGE®
MAKING WATER WORK

A Complete Central Chiller System

- Complete Central Chiller system with Integrated Reservoir and Pump all mounted on a single frame
- Outdoor installed Air-Cooled design
- 5-210 ton models
- 20˚-80˚F fluid temperature range for models using R410A refrigerant
- 20˚-65˚F fluid temperature range for models using R407C refrigerant

Advantage's OACS Outdoor Air-Cooled Central Chiller line has capacities ranging from 5 to 210 tons of cooling.

The standard Advantage OACS Central Chiller is configured with reservoirs and pumps housed in a single frame – making it a complete self-contained package which reduces installation costs compared to other systems. In addition, the OACS systems are designed to be installed outdoors, saving valuable indoor manufacturing space for other operations.

OACS Series central chillers combine 1 or 2 independent refrigeration circuits along with an integrated reservoir and pump system to make a compact yet powerful plant wide chilling system. The integrated reservoir and pump system includes a large reservoir with process pump (1 pump systems) or independent process and recirculating pump (2 pump systems) for system flexibility. Models with 2 independent refrigeration circuits allow for system redundancy and energy efficient capacity control.

Systems can be configured for future expansion to meet your growing cooling needs. When an existing reservoir and pump(s) are already in place the standard integral reservoir and pump system can be eliminated.

All Advantage OACS Chillers are precisely engineered and manufactured using only the finest components the industry has to offer. Delivered fully charged with non-ozone depleting refrigerant, tested and ready to run…just place on a pad, connect power to the unit and fill with water and glycol.

Contact Advantage and let us help you find the best central chiller package to fit your specific needs!

MODEL DESIGNATOR FOR OACS SERIES

OACS – 10S – MG – 1P

- OACS: OACS® Series
- 10: Nominal Tons of Capacity
- S: Circuits — S: Single Circuit, D: Dual Circuits
- MG: Control Instrument — MG: Single Zone, MZC: Dual Zone (optional on Single Zone models)
- 1P: Number of Pumps — 1P: Single Process Pump, 2P: Process & Evaporator Pumps, 3P: Process, Evaporator & Standby Pumps, APT: Model without Integral Pumps & Tank

Proudly Made In The USA

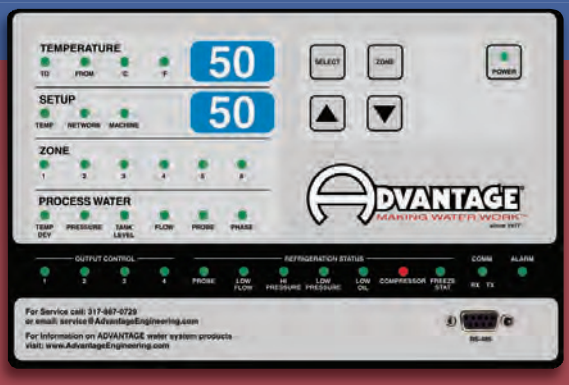
www.AdvantageEngineering.com

Thermal Products, Inc. / Phone: (518) 877-0231 / Email: sales@thermalproducts.com / Website: www.thermalproducts.com

Control Instrumentation To Fit Your Needs

MZC III INSTRUMENT

The **MULTIZONE INSTRUMENT (MZCIII)** is the standard control instrument on units with two refrigeration circuits. It is optional on single circuit units.



MZCIII INSTRUMENT FEATURES:

- Tailor made for Advantage chillers used in critical industrial cooling applications
- Monitors the complete system operation and provides precise control of process fluid temperature
- **INDUSTRY 4.0 READY** – Can communicate via Modbus RTU or SPI protocol
- Unique design distributes risk of system downtime due to control instrument problem

DESIGN ELEMENTS CONSIST OF:

» Operator interface **DISPLAY BOARD**

* Intuitive design using discrete push buttons to index through circuit information and status
* Dual display windows continuously show "to process" and setpoint temperatures
* Green LED lights provide at a glance confirmation of proper system operation
* Lights change to flashing red to indicate the system is out of proper operating parameters
* Can control up to 6 refrigeration circuits

» Individual refrigeration circuit **ZONE BOARDS**

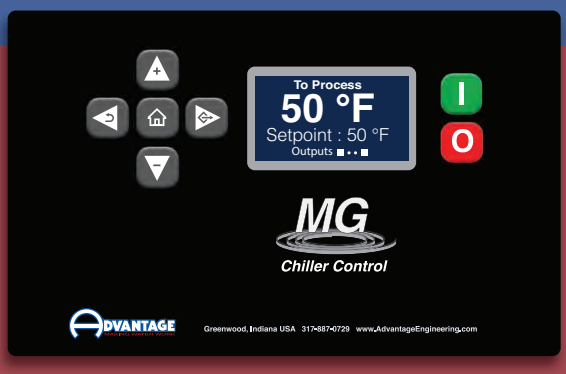
* Communicate information about refrigeration circuits to Display Board
* During the unlikely event of a display or zone board failure, the unaffected zone boards continue to run their refrigeration circuits
* Highly configurable for controlling central chillers with any combination of reciprocating, screw or scroll compressor

» Independent panel mounted **PUMP CONTROLS**

* Control and operate pumps independently of chiller control system
* Include pump on/off selectors and indicating lights
* Functions are not tied to a single PLC or discrete control system

MG INSTRUMENT

The **MG INSTRUMENT** is the standard control instrument used on models with a single refrigeration circuit.



MG INSTRUMENT FEATURES:

- Graphic LCD display with intuitive navigation
- Accurate control of fluid temperature
- Digital refrigerant pressure display
- Digital water pressure display
- **INDUSTRY 4.0 READY** – Modbus RTU or SPI communication included
- Plain language error message reporting
- Controls hot gas bypass or digital scroll compressor for capacity control
- Alarm output with audible signal
- High water temperature shut down feature

Durably Constructed With Quality Components

RUGGED REFRIGERATION CIRCUIT(S)

- Environmentally-friendly, non-ozone depleting refrigerant
- Complete system with liquid line solenoid valve, thermostatic expansion valve, capacity control system, refrigerant receiver and filter drier
- High/low refrigerant limits and pressure indicators
- Refrigerant sight glass and moisture indicator
- Heavy-Duty Compressor
  - » Hermetic scroll, tandem scroll or screw compressors using rotary technology for smooth and efficient performance
- Brazed Plate Evaporators
  - » Units with 60 tons or smaller refrigeration zones
  - » Constructed of corrosion resistant stainless steel plates brazed together with copper brazing material
  - » The compact plate spacing and alternating refrigerant and water flow through the plates makes them highly efficient
- Shell & Tube Evaporators
  - » Used in most systems when refridgeration zone exceeds 60 tons
  - » Refrigerant is circulated through copper tubes within the carbon steel shell to cool the process fluid

CONDENSER

- Air-cooled condensers are industrial grade using copper tubing with aluminum fins with direct drive fan motors housed in a sheet metal enclosure
- EC variable speed drive motors on the header end and pressure staged fans provide low refrigerant pressure control when ambient conditions are as low as negative 20˚F
- Full rated capacity is achieved at ambient temperatures up to 95˚F or an optional alternate condenser can be selected for higher ambient conditions and high altitude installations
- For operation in extremely low ambient temperatures, flooded head pressure control is available as an option

COOLANT CIRCUIT

- All standard OACS models include an integrated process fluid reservoir and pumping system
- These central chillers feature an industrial rotationally molded polyethylene Tough Tank® or welded stainless steel reservoir
- OACS models include a dedicated process pump with a nominal rating of 2.4 gallons per minute per ton.
- Dual circuit OACS models (optional on single circuit OACS models) include a dedicated chiller recirculation pump that provides excellent system control and performance when process flow varies
- Pumps include suction and discharge valves along with a process pressure display
- Pump motor starters are mounted and wired in the system electrical panel

ELECTRICAL

- Electrical components are UL Listed and housed in a UL508A enclosed electrical panel designed for industrial environments
- OACS models use weather resistant outdoor rated cabinets. The cabinet that houses the control instrument includes a viewing window for easy access to system information
- All electrical panels include branch circuit protection of components
- Electrical circuit has a standard SSCR rating of 5 kA

WARRANTY

1st Year: Covering parts and labor

(Please visit the Advantage web site and reference our Product Warranty forms W-700 & W-700E for details)

Chiller Options

- Choice of reservoir construction; Rotationally molded polyethylene or welded stainless steel
- Oversized condensers for higher efficiency and full rated performance in higher ambient conditions
- Condensers utilizing all EC fan motors for higher energy efficiency
- Higher flow or pressure process pumps
- An optional standby pump is available on all models – lessening the chance of downtime should the primary pump fail
- Remote control instrument display (MZCIII only)
- Modbus TCP Communication capability
- Drain-back prevention system for use with overhead piping systems
- Supply & return isolation valves
- Automatic low flow bypass valve
- External filters
- A main power disconnect
- 4 year extended compressor warranty

OACS® Specifications

Single Circuit Units	Model	OACS-5S	OACS-7.5S	OACS-10S	OACS-15S	OACS-20S	OACS-25S	OACS-30S	OACS-40S	OACS-50S	OACS-60S	OACS-75S	OACS-95S	OACS-105S	OACS-125S
Cooling Capacity[1]	Tons	5	7.5	10	15	20	25	30	40	50	60	73	94	105	125
	KW	17.6	26.4	35.2	52.7	70.3	87.9	105.5	140.6	175.8	211.0	256.7	330.5	358.7	432.5
Compressor[2]	Type	DSC	SC	DSC	DSC	SC	SC	SC	SC	TSC	TSC	SR	SR	SR	SR
Refrigerant	Type	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R407C	R407C	R407C	R407C
Control	Model	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MZCIII	MZCIII	MZCIII	MZCIII
Unit Dimensions	Height	87	87	87	87	87	91	91	91	104	104	99	99	99	99
	Width	60	60	60	54	54	54	54	54	97	97	90	90	90	90
	Length	75	75	75	127	127	200	200	200	126	180	240	240	300	240
Tank	Material[6]	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE	SS	SS	SS	SS
	Capacity (gal.)	68	68	68	68	68	100	100	100	150	300	350	350	350	900
Process Pump	Horsepower	2	2	2	3	3	5	5	7.5	7.5	7.5	10	15	20	20
Process Flow	Rate (gpm)	12	18	24	36	48	60	72	96	120	144	180	228	252	300
Evaporator Pump	Horsepower	–	–	–	–	–	–	–	–	–	5	5	7.5	7.5	7.5
Full Load Amperage[3, 5]	230/3/60	35.8	44.2	56.2	88.4	102.4	132.4	161.2	200.2	246.4	328.2	–	–	–	–
	460/3/60	17.9	22.1	28.1	44.2	51.2	66.2	80.6	100.1	123.2	164.1	214	242	291	321
	575/3/60	14.32	17.68	22.48	35.36	40.96	52.96	64.48	80.08	98.56	131.28	161	182	219	241
Unit Weight (pounds)	Shipping[4]	980	1103	1230	1755	1940	2375	3300	3800	4650	5250	7350	8295	8950	9250
	Operating[5]	1544	1667	1794	2319	2504	3205	4130	4630	5895	7740	10850	11795	12450	18250

Dual Circuit Units	Model	OACS-10D	OACS-15D	OACS-20D	OACS-25D	OACS-30D	OACS-40D	OACS-50D	OACS-60D	OACS-80D	OACS-100D	OACS-120D	OACS-150D	OACS-190D	OACS-210D
Cooling Capacity[1]	Tons	10	15	20	25	30	40	50	60	80	100	120	146	188	204
	KW	35.2	52.7	70.3	87.9	105.5	140.6	175.8	211.0	281.3	351.6	421.9	513.4	661.1	717.4
Compressor[2]	Type	DSC	SC	DSC	SC	DSC	SC	SC	SC	TSC	TSC	TSC	SR	SR	SR
Refrigerant	Type	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R407C	R407C	R407C	R407C
Control	Model	MZCIII	MZCIII	MZCIII	MZCIII	MZCIII	MZCIII	MZCIII	MZCIII	MZCIII	MZCIII	MZCIII	MZCIII	MZCIII	MZCIII
Unit Dimensions	Height	87	87	87	101	101	101	101	101	97	97	97	99	99	99
	Width	54	54	54	97	97	97	97	97	88	88	97	96	96	90
	Length	127	127	127	130	130	130	130	186	246	246	304	360	408	408
Tank	Material[6]	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE	SS	SS	SS
	Capacity (gal.)	100	100	100	200	200	200	200	400	400	400	400	900	900	900
Process Pump	Horsepower	3	3	3	5	5	7.5	7.5	7.5	10	15	20	25	30	30
Process Flow	Rate (gpm)	24	36	48	60	72	96	120	144	192	240	288	351	452	490
Evaporator Pump	Horsepower	1.5	2	2	3	3	3	3	5	5	7.5	7.5	10	15	15
Full Load Amperage[3, 5]	230/3/60	66.2	85	136.6	168.6	196.6	230.4	270.4	350.4	435.6	539	650.2	–	–	–
	460/3/60	36.6	46	71.8	84.3	98.3	115.2	135.2	175.2	217.8	269.5	325.1	415	470	542
	575/3/60	30.68	38.2	58.84	67.44	78.64	92.16	108.16	140.16	174.24	215.6	260.08	312	353	407
Unit Weight (pounds)	Shipping[4]	1830	2005	2180	3175	3425	4000	4575	5400	6625	7325	8300	9300	11350	13500
	Operating[5]	2660	2835	3010	4835	5085	5660	7065	8720	9945	10645	11620	18300	20350	22500

1. Tons or kilowatts capacity at 12,000 BTU/hr/ton @ 50˚F LWT, 95˚F ambient and 115˚F condensing.
2. SC = hermetic scroll. DSC = Copeland Digital Scroll™. TSC = Tandem Scroll. SR = Screw.
3. Full load amps are higher than run load amps and must be used for sizing disconnects and supply wiring. Amps shown are approximate for standard units. Custom configurations or options may change power requirement. Consult factory before installing.
4. Approximate unit dimensions and weight crated for shipment. Not for construction purposes.
5. Selection of certain options may change dimensions, weight and amps required. Confirm with factory before starting construction.
6. Tank Materials: PE = Non-rusting polyethylene. SS = Welded stainless steel

Since product innovation and improvement is our constant goal, all features and specifications are subject to change without notice or liability.

www.AdvantageEngineering.com


ADVANTAGE®
MAKING WATER WORK™
ADVANTAGE ENGINEERING, INC.
525 East Stop 18 Road
Greenwood, IN 46142
Phone: 317.887.0729
www.AdvantageEngineering.com
Proudly Made In The USA