CENTRAL CHILLERS

- **Temperature Control Units**
  Water & Oil
  30° - 500°F
- **Portable Chillers**
  Air & Water-Cooled
  20° - 70°F
- **Central Chillers**
  Air & Water-Cooled
  Packages & Modules
  20° - 70°F
- **Pump Tank Stations**
  Chilled or Tower Water
  200 - 3600 gallons
- **Cooling Tower Cells**
  45 - 540 tons
- **Filters**
- **Heat Exchangers**
- **Heat Recovery Units**

WARRANTY

- **1 Year:**
  Covering parts and labor
- **2nd Year:**
  Complementary visit for preventive maintenance consultation

Southgate Process Equipment, Inc.

OACS® SERIES

- **Complete Central Chiller & Pump Tank Package**
- **Designed For Outdoor Installations**
- **Capacity: 5 to 210 Tons**
- **Fluid Temperature: 20°F to 70°F**
- **Using Non-Ozone Depleting Refrigerants**

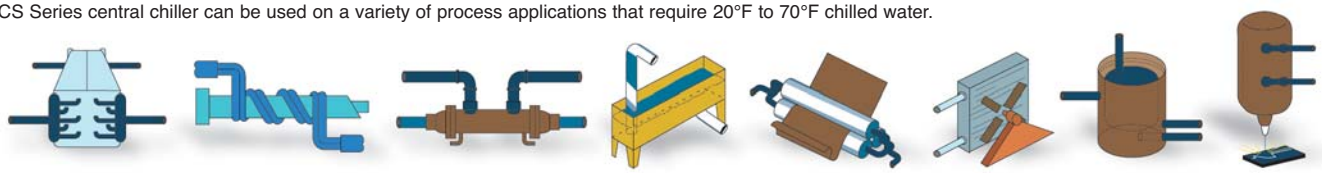
OACS Series chillers are designed for outdoor installations in many climates. The fully charged air-cooled refrigerant chiller, and pump tank station are packaged in a single frame that minimizes costly field installation.

Advantage OACS Series central chillers won't let you down. Every Advantage chiller is supported by application expertise, engineering know how, and un-surpassed service support from experienced technicians.

Since 1977 Advantage has been applying, designing and servicing the best chillers available.

APPLICATIONS

OACS Series central chiller can be used on a variety of process applications that require 20°F to 70°F chilled water.

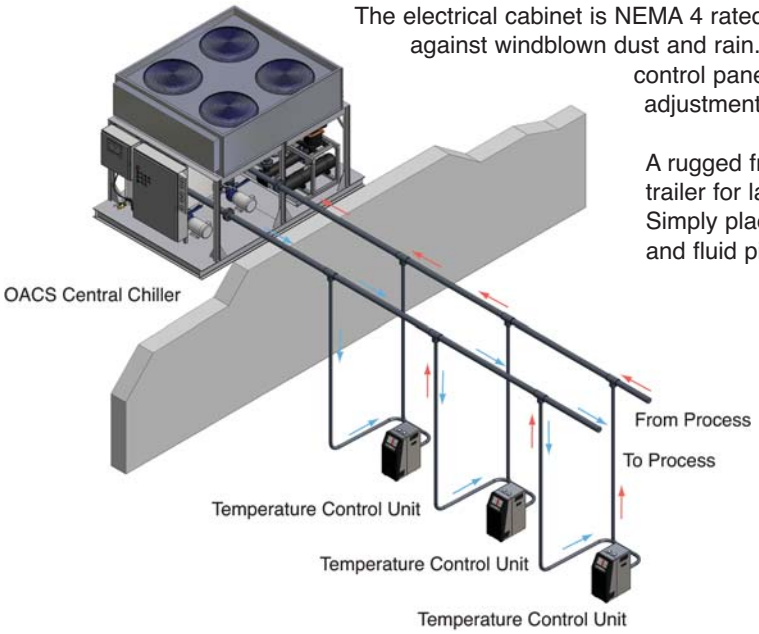


Molds & Dies | Nozzles, Barrels & Tools | Heat Exchangers | Troughs & Tanks | Rolls | Radiators and Air Coils | Jacketed Vessels and Mixers | Lasers

Made In America

OUTDOOR DESIGN

The OACS central chiller was designed from the ground up to endure outdoor environments in nearly any climate. ADVANTAGE Engineers have selected only the highest quality components that are manufactured for outdoor installation.



The electrical cabinet is NEMA 4 rated which means it is designed for outdoor use to provide protection against windblown dust and rain. The control instrument is visible through a viewing window in the control panel so that the chiller status can be easily monitored and adjustments can be made.

A rugged frame supports the components. Shipment is made via a flat bed trailer for large capacity units or enclosed trailer for small capacity units. Simply place the chiller on a field supplied pad or roof, connect the power and fluid piping, fill with coolant and the system is ready to cool.

COOLANT CIRCUIT

OACS central chillers include an integral reservoir and fluid pumping system. The reservoir is constructed of non-ferrous wetted surfaces, either rotationally molded polyethylene or stainless steel. The non-rusting reservoir is generously sized to support the process needs. Units with stainless steel tanks can be equipped with a sump heater. A water glycol mixture is required when operating at setpoints below 48°F and when ambient temperatures are expected to fall below 38°F and for some high flow applications.

Coupled to the reservoir are centrifugal pumps to provide process flow. Single refrigeration zone chillers up to 50 tons typically use a single pump system that delivers the cooling fluid to process then returns it through the chiller's evaporator and into the reservoir.

Dual refrigeration zone chillers and single zone units above 50 tons typically use a two-pump system where independent pumps are included: one for process flow and a second for flow through the chiller's evaporator. A two-pump system allows for high process flows, constant flow through the chiller when the process flow varies and provides superior temperature control.

Advantage product specialists determine whether a single pump or two pump system is best for your application.

All pumps include TEFC motors designed for outdoor operation along with suction and discharge valves. Connection sizes are selected based on application specific flow and pressure requirements. Most OACS chillers can be equipped with a dedicated installed standby pump and manifold.

CAPACITY & REFRIGERANT ZONES

OACS central chillers are available with cooling capacities from 5 - 210 tons (17 - 735 KW) and with single or dual refrigeration zones. Single zone models are best when the cooling load will be steady and when few use points will be serviced.

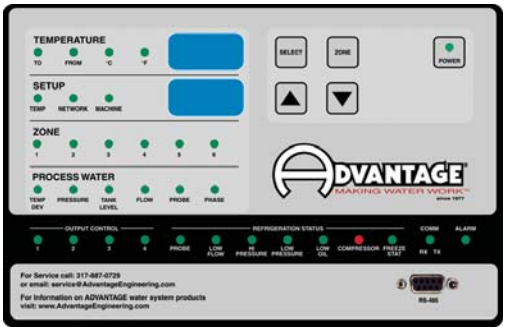
Models with dual refrigeration zones are best for applications where the cooling load may fluctuate and where multiple fluid use points are being serviced. Dual zone units provide superior capacity control by staging refrigeration zones to match the chiller capacity to the process demand. Dual zone units also provide built in redundancy. If one refrigeration zone requires service, the second can operate providing 50% of the chiller capacity.

OACS-40D-MZC-2P shown

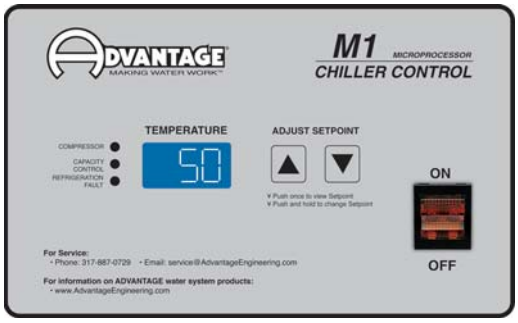
ENGINEERING DESIGN SERVICE

Advantage staffs a complete CAD based Engineering Department with experienced water system designers. Working from customer supplied facility and process information, Advantage designers analyze the entire system and select the correct component combinations to provide the most efficient output. If one of our standard systems does not fit your application requirements, then Advantage will design a custom system from a long list of available options.

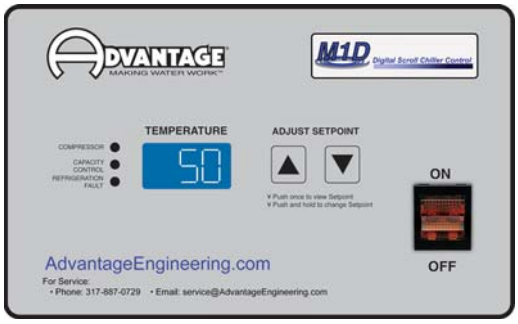
CHILLER CONTROLS



Multizone Controller (MZC)



M1 Controller



M1D Controller

MULTIZONE CONTROLLER (MZC) is used on dual zone models and large capacity single zone models and is optional on smaller capacity single zone models. The control instrument consists of a main operator interface display and an intelligent zone board for each refrigeration zone and has a long history of reliable field service. The main display communicates with the zone boards to stage each refrigeration zone independently to bring the process temperature in line with the set point. If communications fails between the zone boards and the display, the zone boards assume control of their respective refrigeration zones and continue to operate.

- Soft key controls are provided for display selection and setpoint.
- Two windows display set point and actual process temperatures in °F or °C and selectable zone evaporator in and out temperatures along with unit set up parameters.
- Status lights are provided for seven system components:
  - Probe
  - Low Flow
  - High Pressure
  - Low Pressure
  - Low Oil
  - Compressor
  - Freezestat
- Alarm status light is provided.
- A selectable refrigeration zone lead/lag mode is a standard feature.
- Modbus RTU communication is provided via the DB-9/RS-485 connector.

M1 CONTROLLER is used on single zone units.
- A window displays set point or to process temperature in °F or °C.
- Soft key controls are provided for setpoint temperature and operating parameter selection.
- Status lights are provided for:
  - Compressor On
  - Capacity Control
- Basic chiller diagnostics is indicated by the Refrigeration Fault light.
- The illuminated On/Off switch indicates that the chiller and coolant circuit is on or off.

M1D DIGITAL SCROLL CONTROLLER is used on single zone units with Copeland Digital scroll compressors. The M1D controller includes all the features of the standard M1 controller plus the added circuitry and control logic to operate the advanced capacity control system of the digital scroll compressor.

COMPONENTS

COMPRESSOR...
Hermetic scroll or rotary screw compressors are standard on all models. Selected for their reliability, the compressors have few moving parts; offer low torque variation and high tolerance to liquid slugging.


Screw Compressor

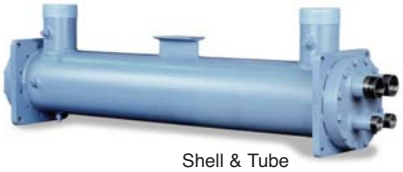

Tandem Scroll Compressor


Scroll Compressor

CONDENSER...
Constructed of a heat transfer coil that has copper tubes and aluminum fins for full rated performance at 95°F ambient. The coil is housed in a sheet metal enclosure with fans that provide a vertical air discharge. Low ambient operation to -20°F is standard.


Typical air-cooled condenser

EVAPORATOR...
Brazed plate and shell & tube evaporators are used for high heat transfer rates. Each refrigerant zone is equipped with its own evaporator.


Shell & Tube


Brazed plate

STANDARD FEATURES

REFRIGERANT ZONES:

- Hermetic scroll compressors on 5-60 ton single zone units and dual zone units through 120 ton using HFC-410A refrigerant
- Rotary screw compressors on 75 - 125 ton single zone units and 150 - 210 ton dual zone units using HFC-407C refrigerant
- Liquid line solenoid valve
- Refrigerant sight glass with moisture indicator
- Thermostatic expansion valve
- Brazed plate or shell & tube evaporators
- System Capacity Control
  - Hot gas by-pass (single zone units with scroll compressors)
  - Unloading (single zone units with screw compressors)
  - Compressor staging & hot gas bypass (dual zone units with scroll compressors)
  - Compressor staging & unloading (dual zone units with screw compressors)
  - Digital compressor unloading (single zone units with digital scroll compressors)
  - Digital compressor unloading and compressor staging (single zone or dual zone models with tandem or multiple compressors)
- Air-cooled condenser with vertical air discharge
- Fully charged with non-ozone depleting refrigerant

PRESSURE INDICATION:

- Refrigerant low pressure (per zone)
- Refrigerant high pressure (per zone)
- Coolant pressure

COOLANT CIRCUIT:

- Large capacity process pump:
- Evaporator pump (when included)
- Reservoir
  - Polyethylene or stainless steel (wetted surfaces) construction
  - Full insulation
  - Tank lid

ELECTRICAL:

- Outdoor rated electrical cabinet
- Branch circuit fusing
- 5 kA RMS SSCR

WARRANTY:

- 1 year on parts and labor

CHILLER CONTROLS:

- M1 (single zone units)
- Multizone (dual zone and large capacity single zone units)
- M1D (single zone units with digital scroll compressor)

[1] Features for units customized to meet specific customer needs may be different than listed above.

OPTIONS

REFRIGERANT ZONES:

- Digital Scroll Compressor
  - For energy saving capacity control (not available on all models)
- Condenser coils with protective coating
  - For longer life in harsh environments
- Oversized condenser
  - For full system capacity at ambient air temperatures above 95°F
- Staged tandem scroll compressors on single zone units
  - For superior capacity staging

COOLANT CIRCUIT:

- Larger process pumps
- Standby pumps and/or manifold
- Reservoir heater (mild or stainless steel tanks only)
- No pumps or reservoir
- Basket strainer (standard on dual zone units)
- Overhead piping kit
- Low reservoir level switch (standard on dual zone units)
- Epoxy coated mild steel reservoir construction

ELECTRICAL:

- Main power disconnect
- Line voltage & phase monitor
- UL labeled sub panel

WARRANTIES:

- Extended compressor warranty

MODEL DESIGNATOR

OACS - 10S - M1 - 1P

OACS Series Chiller Model

Nominal Capacity

Zones
S: Single Zone
D: Dual Zone

Chiller Control
M1: Single Zone
MZC: Dual Zone
PLC: Single or Dual Zone

# of Pumps
1P: Single Process Pump
2P: Process & Evaporator Pumps
3P: Process, Evaporator & Standby Pumps

OTHER PRODUCTS

Pump Tank Stations
Chilled & Tower Water, 450-3600 Gallons

Central Chillers
Air-Cooled & Water-Cooled, 20 - 300 Tons

Cooling Tower Cells
Fiberglass or Metal, 45-540 tons

Temperature Controllers
Water & Oil Units, 30°-500°F

Portable Chillers
Air & Water-Cooled, 1/4-40 Tons

Central Chilling Modules
Air & Water-Cooled, 5-200 Tons

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TEMPERATURE CONTROLLERS · PORTABLE CHILLERS · CENTRAL CHILLERS · PUMP TANK STATIONS · TOWER SYSTEMS · FILTERS

SPECIFICATIONS

OACS Central Liquid Chillers : 5 - 125 Tons Single Zone Units

MODEL[1]	OACS -	5S-M1-1P	7.5S-M1-1P	10S-M1-1P	15S-M1-1P	20S-M1-1P	25S-M1-1P	30S-M1-1P
COMPRESSOR	Type	Single Scroll	Single Scroll	Single Scroll	Single Scroll	Single Scroll	Single Scroll	Single Scroll
CAPACITY[2]	Tons	4.9	7.1	9.8	14.5	18.5	23.1	30
	KW	17.2	24.9	34.4	50.9	64.9	81.0	105.3
CONDENSER	# of FANS	1	1	1	2	2	3	3
	Model	012	014	017	025	032	041	050
EVAPORATOR	TYPE	Brazed Plate	Brazed Plate	Brazed Plate	Brazed Plate	Brazed Plate	Brazed Plate	Brazed Plate
REFRIGERANT[3]		HFC-410A	HFC-410A	HFC-410A	HFC-410A	HFC-410A	HFC-410A	HFC-410A
PROCESS PUMP	HP	2	2	2	3	3	5	5
	GPM	12	18	24	36	48	60	72
	PSI (water)	52	50	48	54	48	60	57
EVAPORATOR PUMP	HP	Optional	Optional	Optional	Optional	Optional	Optional	Optional
STANDBY PUMP[4]		A	A	A	A	A	A	A
TANK	GALLONS	65	65	65	65	65	65	130
	CONSTRUCTION[5]	PE	PE	PE	PE	PE	PE	PE
CONNECTIONS	NPT / FLANGED	1 1/4" N	1 1/4" N	1 1/4" N	2" N	2" N	2" N	2" N
DIMENSIONS[6] (inches)	HEIGHT	86	86	86	86	86	86	86
	WIDTH	54	54	54	54	54	54	54
	LENGTH	78	78	78	122	122	186	186
CONTROL	STANDARD	M1	M1	M1	M1	M1	M1	M1
SYSTEM AMPERAGE[7]	FLA (460v)	15.6	22.8	22.7	38.2	48.8	63.8	69.7
	RLA (460v)	13.5	18.3	21.4	31.6	41.3	48.7	60.7
Factory #	9266	009	109	209	309	409	509	609

MODEL[1]	OACS -	40S-M1-1P	50S-M1-1P	60S-M1-2P	75-MZC-2P	95-MZC-2P	105S-MZC-2P	125S-MZC-2P
COMPRESSOR	Type	Tandem Scroll	Tandem Scroll	Tandem Scroll	Rotary Screw	Rotary Screw	Rotary Screw	Rotary Screw
CAPACITY[2]	Tons	36.7	46.4	60.7	73	94	102	123
	KW	135.1	164.3	209.6	256.7	330.5	358.7	432.5
CONDENSER	# of FANS	4	4	6	8	8	10	10
	MODEL	056	074	096	118	157	167	198
EVAPORATOR	TYPE	Brazed Plate	Brazed Plate	Brazed Plate	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube
REFRIGERANT[3]		HFC-410A	HFC-410A	HFC-410A	HFC-407C	HFC-407C	HFC-407C	HFC-407C
PROCESS PUMP	HP	7.5	7.5	7.5	10	15	20	20
	GPM	96	120	144	175	226	245	312
	PSI (water)	65	63	60	60	70	65	65
EVAPORATOR PUMP	HP	Optional	Optional	5	5	7.5	7.5	7.5
	GPM	--	--	144	175	226	245	312
STANDBY PUMP[4]		A	A	A	A	A	A	A
TANK	GALLONS	130	130	350	350	350	350	900
	CONSTRUCTION[5]	PE	PE	SS	SS	SS	SS	SS
CONNECTIONS	NPT / FLANGED	2" N	3" F	3" F	4" F	4" F	4" F	4" F
DIMENSIONS[6] (inches)	HEIGHT	86	86	99	99	99	99	99
	WIDTH	54	90	90	90	90	90	90
	LENGTH	186	122	186	240	240	300	300
CONTROL	STANDARD	M1	M1	M1	MZC	MZC	MZC	MZC
SYSTEM AMPERAGE[7]	FLA (460v)	87.5	109.2	157.2	214	242	291	321
	RLA (460v)	75.6	90.2	125.1	156	191	231	242
FACTORY #	926	6709	6809	6909	7009	7059	7109	7209

Notes

1. Since product innovation and improvement is our constant goal, all features and specifications are subject to change without notice or liability. Selection of certain optional features may change listed specifications.
2. Tons of capacity at 12,000 Btu/hr/ton @ 50°F LWT @ 115°F condensing temperature. +/- 5% as reserved by compressor manufacturer.
3. This is a non-ozone depleting refrigerant.
4. A = standby pump is available for this model. N/A = Standby pump is not available for this unit.
5. PE = polyethylene reservoirs. SS = stainless steel reservoir.
6. Dimensions are approximate and may change based on options and features selected. Do not use for construction.
7. FLA: full load amps with standard pumps and condenser. RLA: run load amps with standard pumps and condenser. Optional standby pumps, larger pumps or alternate condensers may change this rating. Do not use for construction.

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ADVANTAGE PRODUCTS: TEMPERATURE CONTROLLERS • PORTABLE CHILLERS • CENTRAL CHILLERS • PUMP TANK STATIONS • TOWER SYSTEMS • FILTERS

SPECIFICATIONS

OACS Central Liquid Chillers : 20 - 210 Tons Dual Zone Units

MODEL[1]	OACS -	20D-MZC-2P	30D-MZC-2P	40D-MZC-2P	50D-MZC-2P	60D-MZC-2P
COMPRESSOR	Type	Scroll	Scroll	Scroll	Scroll	Scroll
# OF ZONES		2	2	2	2	2
CAPACITY[2]	Tons	19.6	29	37	46.2	60
	KW	68.8	101.8	129.8	162.1	210.5
CONDENSER	# of FANS	2	4	4	6	6
	MODEL	(2)017	(2)025	(2)032	(2)041	(2)050
EVAPORATOR	TYPE	Brazed Plate	Brazed Plate	Brazed Plate	Brazed Plate	Brazed Plate
REFRIGERANT[3]		HFC-410A	HFC-410A	HFC-410A	HFC-410A	HFC-410A
PROCESS PUMP	HP	3	5	7.5	7.5	7.5
	GPM	48	72	96	120	144
	PSI (water)	48	57	65	63	60
EVAPORATOR PUMP	HP	2	2	3	3	5
	GPM	48	72	96	120	144
STANDBY PUMP[4]		A	A	A	A	A
TANK	GALLONS	130	130	130	130	350
	CONSTRUCTION[5]	PE	PE	PE	PE	SS
CONNECTIONS	NPT / FLANGED	2" N	2" N	2" N	3" N	3" N
DIMENSIONS[6] (inches)	HEIGHT	99	99	99	99	99
	WIDTH	96	96	96	96	96
	LENGTH	78	132	132	186	186
CONTROL	STANDARD	MZC	MZC	MZC	MZC	MZC
SYSTEM AMPERAGE[7]	FLA (460v)	57.0	93.0	116.2	140.6	161.4
	RLA (460v)	47.2	82.6	101.2	110.4	143.4
FACTORY #	926	8009	8109	8209	8309	8409

MODEL[1]	OACS -	80D-MZC-2P	100D-MZC-2P	120D-MZC-2P	150D-MZC-2P	190D-MZC-2P	210D-MZC-2P
COMPRESSOR	Type	Tandem Scroll	Tandem Scroll	Tandem Scroll	Rotary Screw	Rotary Screw	Rotary Screw
# OF ZONES		2	2	2	2	2	2
CAPACITY[2]	Tons	73.4	93.7	119.5	146	188	204
	KW	257.6	328.7	419.3	513.4	661.1	717.4
CONDENSER	# of FANS	8	8	10	14	14	14
	MODEL	(2)064	(2)079	(2)095	(2)115	(2)135	(2)135
EVAPORATOR	TYPE	Brazed Plate	Brazed Plate	Brazed Plate	Shell & Tube	Shell & Tube	Shell & Tube
REFRIGERANT[3]		HFC-410A	HFC-410A	HFC-410A	HFC-407C	HFC-407C	HFC-407C
PROCESS PUMP	HP	10	15	20	25	30	30
	GPM	192	240	288	350	451	490
	PSI (water)	60	70	69	60	60	60
EVAPORATOR PUMP	HP	5	7.5	7.5	10	15	15
	GPM	192	240	288	350	451	490
STANDBY PUMP[4]		A	A	A	A	A	A
TANK	GALLONS	350	350	350	900	900	900
	CONSTRUCTION[5]	SS	SS	SS	SS	SS	SS
	NPT / FLANGED	4" F	4" F	4" F	6" F	6" F	6" F
CONTROL	STANDARD	MZC	MZC	MZC	MZC	MZC	MZC
DIMENSIONS[6] (inches)	HEIGHT	99	99	99	99	99	99
	WIDTH	96	96	96	96	96	96
	LENGTH	240	240	296	360	408	408
SYSTEM AMPERAGE[7]	FLA (460v)	193.2	253.2	327.6	415	470	542
	RLA (460v)	169.4	215.2	263.4	299	368	408
FACTORY #	926	8509	8609	8709	8809	8909	9009

Notes

1. Since product innovation and improvement is our constant goal, all features and specifications are subject to change without notice or liability. Selection of certain optional features may change listed specifications. 2. Tons of capacity at 12,000 Btu/hr/ton @ 50°F LWT @ 115°F condensing temperature. +/- 5% as reserved by compressor manufacturer. 3. This is a non-ozone depleting refrigerant. 4. A = standby pump is available for this model. N/A = Standby pump is not available for this unit. 5. PE = polyethylene reservoirs. SS = stainless steel reservoir. 6. Dimensions are approximate and may change based on options and features selected. Do not use for construction. 7. FLA: full load amps with standard pumps and condenser. RLA: run load amps with standard pumps and condenser. Optional standby pumps, larger pumps or alternate condensers may change this rating. Do not use for construction.

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