

- **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**

APT-RC & WPT SERIES

- Central Chilling Modules
- Water-Cooled and Air-Cooled Models
- 5 to 180 Tons
- 20°F to 70°F
- Using Non-Ozone Depleting Refrigerants
- For Indoor Installaion

WARRANTY

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



CC-60WPT model shown.



Typical air-cooled condenser used on APT-RC systems.

APPLICATIONS

APT-RC & WPT central chilling modules can be used on a variety of process applications that require 20°F to 70°F chilled water.



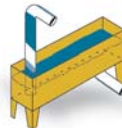
Molds & Dies



Nozzles, Barrels & Tools



Heat Exchangers



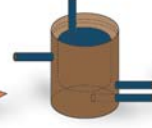
Troughs & Tanks



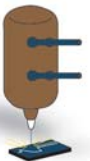
Rolls



Radiators and Air Coils



Jacketed Vessels and Mixers



Lasers

COMPRESSORS

The compressor is the heart of a chiller's refrigeration cooling system. The compressor removes the refrigerant vapor from the evaporator to a point where the desired process fluid set point can be maintained and it raises the pressure of the refrigerant vapor to a level high enough so that the available condensing medium can effectively remove the process heat.



Scroll Compressors

APT-RC & WPT chilling modules are equipped with either hermetic scroll compressors or rotary screw compressors. Both compressor styles use rotary technology for smooth, efficient operation with fewer moving parts and low torque variation for better reliability compared to traditional reciprocating compressors. Compressor suppliers are selected for the advanced performance features of their product along with their service history and aftermarket support capabilities.



Screw Compressor

EVAPORATORS

The recirculated process fluid is cooled in the chiller evaporator. Liquid refrigerant boils or evaporates, absorbing heat from the process fluid as it changes into a vapor. This critical component is carefully selected to provide optimum process fluid cooling. Each refrigerant zone is equipped with its own fully independent evaporator which is protected by a process fluid freeze-stat, flow switch and low pressure limit switch. APT-RC & WPT chilling module use either brazed plate or shell & tube evaporators depending on system capacity and desired duty.

Brazed plate evaporators are made of stainless steel plates brazed together with copper brazing material. This design promotes turbulent flow and high heat transfer rates in a compact, non-ferrous package. A cleanable basket strainer filter is included to protect the brazed plate evaporator from water born contamination.



Brazed plate evaporator

Shell & tube evaporators are used on larger capacity systems. Refrigerant is circulated through copper tubes within the carbon steel shell to cool the process fluid that surrounds the tubes. Shell & tube evaporators are fully insulated and provide flexible, efficient heat transfer.



Shell & tube evaporator

CONDENSERS

APT-RC & WPT chilling module are offered with Air-Cooled or Water-Cooled condensers. The selection is influenced by the industrial environment where the chilling modules will be installed including available condensing water supply and plant ambient temperatures. The condenser is a heat exchanger where the heat absorbed by the refrigerant during the evaporating process is given off to the condensing medium. As heat is given off by the high temperature, high pressure refrigerant vapor, its temperature falls and the vapor condenses to a liquid.

APT-RC series air-cooled units use outdoor remote condensers, 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. Ambient operation to -20°F is standard. Air-cooled condensers are field installed by the owner. Installation includes refrigerant piping system and charging.



Remote air-cooled condenser

WPT series water-cooled units use tube and shell condensers with removable heads for cleaning. The condenser is equipped with a water regulator valve that maintains stable refrigerant pressures under a wide range of condensing water temperatures and pressures. Water-cooled condensers are manifolded to provide a single process connection.



Water-cooled condenser

COMPONENTS

Phone: 317-887-0729

Web: www.AdvantageEngineering.com

PRESSURE GAUGES...

High and low refrigerant pressure gauges are provided for each independent refrigeration zone. These gauges provide a diagnostic tool that can save the owner money on unneeded service calls compared to many competitive units that do not include refrigerant pressure gauges. A system water pressure gauge is also included.



ALARMS... An audible and visual alarm is included and is triggered by process water temperature and process water pressure along with refrigeration system errors.

LIMIT DEVICES...

Limit devices provide protection against machine damage from out-of-specs operating conditions. Standard limit devices include high and low refrigerant pressure, evaporator flow, coolant freeze-stat and motor overload.



REFRIGERANT COMPONENTS...

Refrigerant components are selected for historic reliability and performance, including pressure limit switches, freeze-stat, expansion valve, relief valve, filter dryer and sight glass/moisture indicator.

CHILLER CONTROL



Multi zone controller & display.

The Advantage Multizone Control Instrument (MZO) has the experience of over 8 years of field service. The control instrument consists of the cabinet door mounted operator interface display and control instrument and internal cabinet mounted intelligent zone boards.

INTELLIGENT ZONE BOARDS

One intelligent zone board is provided for each refrigeration zone. The control instrument communicates with the zone

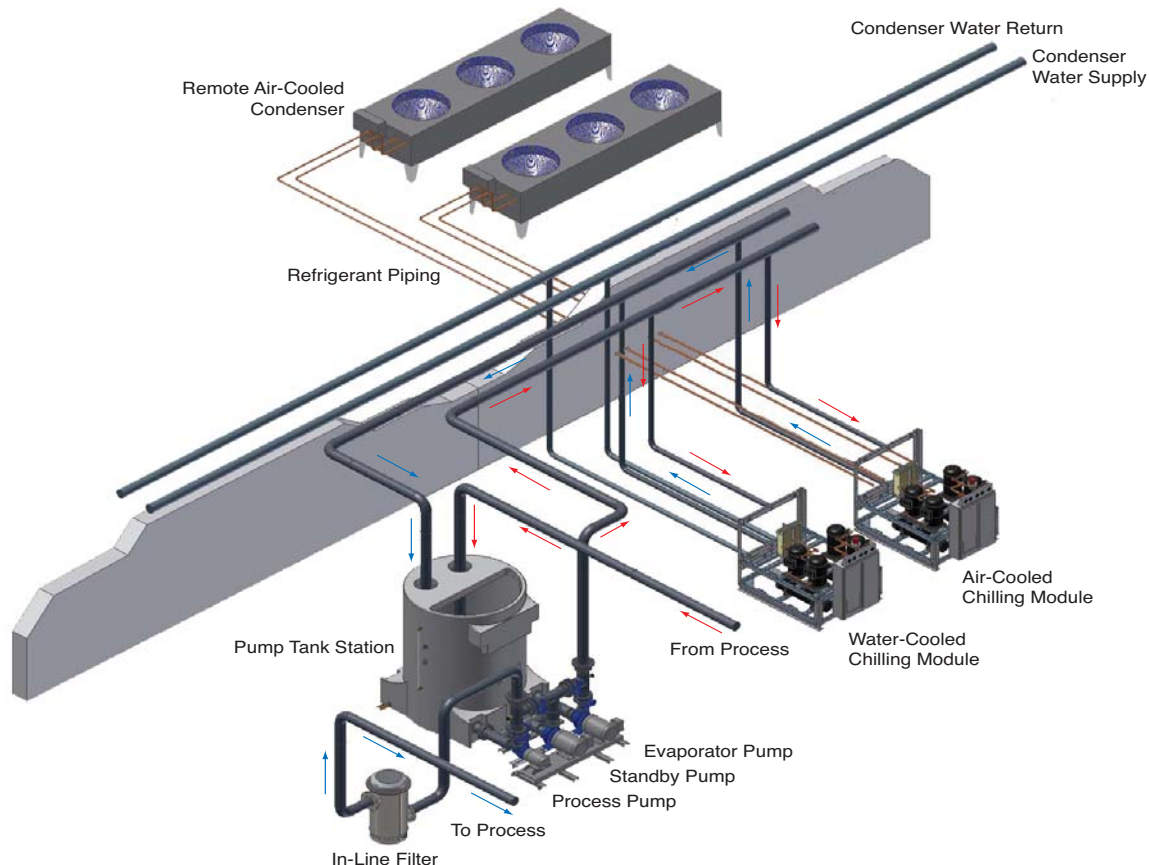
boards to stage each refrigeration zone independently. This brings the process temperature in line with the set point quickly and accurately. In the event of a communication failure, the zone boards assume the control of their respective refrigeration zones and will continue to operate. The instrument provides control of up to 6 refrigeration zones. Although not all are used on the chiller, the extra zone control can be used for future capacity expansion where **APT-RC** or **WPT** chilling modules are installed and controlled by the chiller control.



DISPLAY CONTROLS & LIGHTS

Soft key controls are provided for selection of zone displays and setpoint. Two large display windows continuously show temperature for **to process** and **setpoint**. Temperatures can be shown in Fahrenheit or Celsius. **From process** temperatures can be displayed momentarily when selected by the operator. The display windows also display setup options. Status lights are provided for seven system components: **probe**, **low flow**, **high pressure**, **low pressure**, **low oil**, **compressor** and **freezestat**. The condition is indicated by multi-colored LED's. **Solid green** indicates the component is at the run condition. **Flashing red** indicates that an error condition exists. **Solid red** indicates that an error condition was once present, but is now in an acceptable run condition. Pressing the 'select' button changes a solid red indication into a solid green indication. The instrument provides an alarm status light on the display, as well as an audible and visual alarm beacon. A selectable refrigeration zone lead/lag mode is a standard feature of the instrument.

CIRCUIT SCHEMATIC



WATER DISTRIBUTION SYSTEM

APT & WPT central chilling modules require the use of an independent pumping system to distribute chilled water to the process use points and to return process water to the chilling module.

Advantage offers Tough Tank® and CPTS Series pump tank stations for this purpose.



Tough Tank®
450-3200 gallons

CPTS 200-3000 gallons

FUTURE CAPACITY & REFRIGERANT ZONES

APT-RC & WPT central chilling modules are offered in standard capacities with water-cooled or remote air-cooled condensers. Future capacity expansion is possible by adding additional **WPT** or **APT-RC** modules. Single, dual and triple refrigerant zone models are available. Each refrigerant zone operates independently, providing greater capacity staging, tighter temperature control and continued operation during service.

STANDARD FEATURES

REFRIGERANT CIRCUITS:

- Hermetic scroll or rotary screw compressors
- Liquid line solenoid valve
- Refrigerant sight glass with moisture indicator
- Thermostatic expansion valve
- Brazed plate or shell & tube evaporator
- Hot gas by-pass or unloading capacity control systems
- Water-cooled Condenser Models
 - regulator valve
 - single connection with manifold and isolation valves
 - removable heads
- R410A or R407C refrigerant
- Air-cooled Condenser Models
 - remote, outdoor condenser
 - variable speed fan
 - pressure staging

COOLANT CIRCUIT:

- Large capacity process pump:
 - suction service valve
 - discharge service valve
- Evaporator pump:
 - suction service valve
 - discharge service valve
 - discharge basket strainers (brazed plate evaporators only)

PRESSURE GAUGES:

- Refrigerant high pressure
- Refrigerant low pressure
- Coolant pressure

LIMIT DEVICES:

- Refrigerant circuit:
 - high pressure limit
 - low pressure limit
 - evaporator flow limit
- Instrument control circuit fuse

ELECTRICAL:

- Nema rated electrical cabinet
- Fused pump motor starters
- Fused compressor motor starters
- Fused transformer
- Power entry terminal block

WARRANTY:

- 1 year covering parts and labor

CHILLER CONTROL INSTRUMENT:

- Microprocessor based multizone controller
- Intelligent zone boards
- Each compressor staged individually
- Large temperature display in °F or °C for *to process* and *from process*
- Large setup display
- Refrigerant circuit indicators per zone: *probe, low flow, high pressure, low pressure, compressor, freezestat, capacity*
- Water circuit indicators: *temperature deviation, low pressure, probe, phase*
- SPI communications interface
- Selectable lead/lag mode
- Audible and visual alarm
- Audible and visual alarm

OPTIONS

REFRIGERANT CIRCUIT:

- Compressor CCPR valve (for temperatures above 70°F)
- Discus compressor
- Compressor hour meter
- Oversize condensers for higher efficiency and for higher operating ambients

ELECTRICAL:

- UL listed electrical panel
- Disconnects

INSTRUMENTATION:

- Remote display kit
- PLC instrument with color touch screen
- Modbus RTU or TCP interface

WARRANTIES:

- Extended compressor warranty

REFRIGERANT:

- R410A refrigerant
- R407C refrigerant
- R404A refrigerant for low temperature systems

Model Designator

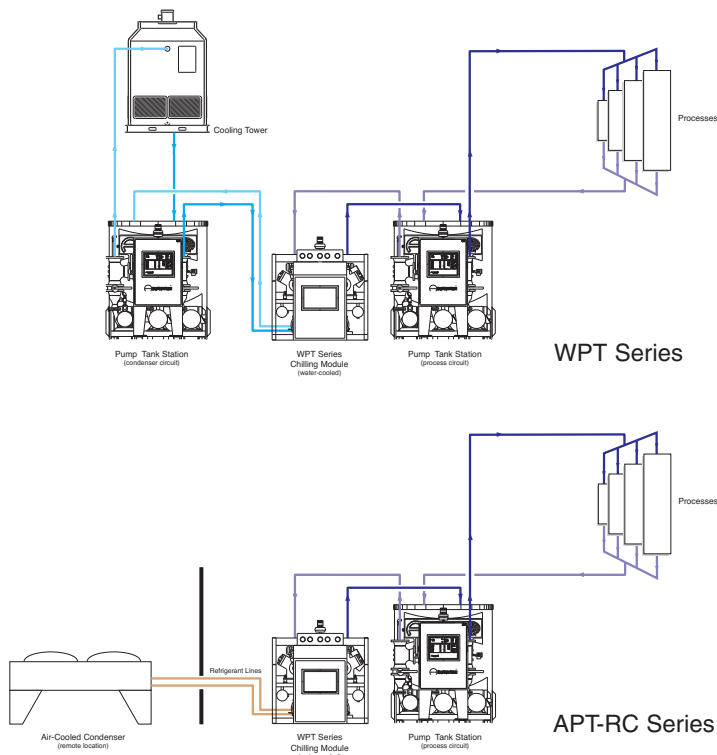
C-40APT-RC

C : Single Zone
CC : Dual Zone
CCC : Triple Zone

Condenser Type
APT-RC: Remote Air-Cooled
WPT: Water-Cooled

Tons of Capacity

INSTALLATION SCHEMATICS



OTHER PRODUCTS



Phone: 317-887-0729 Web: www.AdvantageEngineering.com

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

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