PRODUCT SERIES - RACK MOUNTED CHILLERS

Traditional cooling systems can take up precious space in laboratories and data centres. Rack mounted chillers are cooling systems designed to fit into standard electrical housings, ideal for a reduced footprint. However, rack mounted chillers are not always mounted into electrical housing. They can be mounted into any electrical frame, such as a test rig.



Rack mounted chillers use a refrigeration cycle to remove unwanted heat from heat transfer fluids. The heat transfer fluid may be water, glycol (ethylene glycol or propylene glycol) or oil.

How Do Rack Mounted Chillers Work?

The cooling system within a rack mounted chiller consists of a compressor, a condenser, an expansion valve, and an evaporator.

Heat is taken away from the application within the heat transfer fluid to the evaporator. Here the refrigerant flows alongside the heat transfer fluid absorbing the unwanted heat. The refrigerant then passes through the compressor where it is compressed and cooled. Following this, refrigerant passes through the expansion valve where it expands and cools further. This cycle continues until the desired temperature within the heat transfer fluid has been reached.

The cooled heat transfer fluid is then taken to a tank where it will be pumped back to the application to continue the cycle.





How Do Rack Mounted Chillers Work?



ATC 19" Rack Mounted Chillers

Applied Thermal Control manufacture rack mounted chillers designed to fit within standard electrical housings with a minimum depth of 600mm. Mounting a chiller within existing electrical racking reduces the loss of valuable floorspace, making no addition to the existing footprint of the system.

This is particularly beneficial for system integration. As technology advances, components become smaller, allowing for cooling systems to be integrated into existing racking as equipment is refurbished and modernised.





ATC 19" Rack Mounted Chillers

The R-Series from Applied Thermal Control ranges from 500W to 2kW in cooling capacity, delivered in a compact and reliable design. With powerful cooling outputs and coolant flow rates, the R-series is a versatile range, suited to a range of applications. The use of ATC 19" rack mounted chillers is particularly beneficial where 19" racks are already in situ and have space to accommodate a chiller. It is important to note that the R-Series of Rack Mounted Chillers provide a supply of heat transfer fluids at constant pressure, in order to remove unwanted heat from an associated process and should not be confused with systems designed to provide chilled air to cool the internal air temperature of housing.

The R-Series is primarily an air-cooled refrigeration system, although water cooled condensers are available as an option. All chillers within the R-Series have a stainless-steel reservoir, offering optimal thermal buffering, and a stainless-steel evaporator, ensuring corrosion free operation. Both 'over temperature' and 'low liquid level' signals are fitted as standard, making it easy to carry out visual checks. Other standard features include:

- Industry standard 6-pin signal plug
- Low noise operation
- Non-ferrous coolant circuit
- Pressure relief valve
- Convenient liquid fill point

Applied Thermal Control offer several options, resulting in a chiller tailored to the needs of the application. Continue reading for more information.

Typical Applications:

- Laser sources
- RF signal generations
- Electrical components
- X-ray sources
- Optical devices
- 3D printing
- Ozone disinfecting
- Older electro-microscopes







ER05

The ER05 provides the option to control the rate of cooling, making it both environmentally friendly, and the most economical choice of rack mounted chiller.



HEIGHT OF UNIT 5U High

PUMP OPTIONS Centrifugal Pump

POWER SUPPLY OPTIONS

Universal Power Supply available Internals operate on 24V DC Single-phase

COOLING CAPACITY

500W Cooling Capacity at 20°C +/- 0.1 °C Temperature Stability

SETTABLE RANGE

Standard: +4°C to +35°C Extended: -5°C to +65°C

- Universal power supply available
- Water cooled
- Low flow alarm
- Standard Volt Free Connections
- In-line deionising cartridge and fittings
- Stainless steel non-return solenoid valves
- CPC quick release connectors
- Installation kit

- Particulate filter
- Flow meter pack
- Fan speed control (proportional) manual, adjust for noise only
- Seismic mounts
- In-line UV decontamination
- External manifolds (2- to 10- way)
- Fluid adapters



R05

A built-in touch screen controller, variable fan speed and compressor make the R05 perfect for quiet laboratory environments, and the most environmentally friendly chiller currently offered by ATC.

RACK MOUNTED CHILLER



HEIGHT OF UNIT 5U High

PUMP OPTIONS Centrifugal Pump

POWER SUPPLY OPTIONS

Universal Power Supply available Internals operate on 24V DC Single-phase

COOLING CAPACITY

500W Cooling Capacity at 20°C +/- 0.1 °C Temperature Stability

TEMPERATURE RANGE Standard: +4°C to +35°C Extended: -5°C to +65°C

- Universal power supply available
- Low temperature pack, available to -10°C
- High temperature pack, available to +65°C
- Water cooled
- Low flow alarm
- Onboard RS485 Communications Protocol, available via 9 pin D-sub
- Standard Volt Free Connections
- In-line deionising cartridge and fittings
- Stainless steel non-return solenoid valves

- CPC quick release connectors
- Installation kit
- Particulate filter
- Flow meter pack
- Flow meter pack to RS485
- Seismic mounts
- In-line UV decontamination
- External manifolds (2- to 10- way)
- Fluid adapters



R10

The R10 uses a PID controller, which is proven to be a reliable method for temperature control, whilst being economical and making it easy to add heating capacity.

RACK MOUNTED CHILLER



HEIGHT OF UNIT 6U High

PUMP OPTIONS Positive Displacement Pump

POWER SUPPLY OPTIONS Single-phase

COOLING CAPACITY

1.15kW Cooling Capacity at 20°C +/- 0.1 °C Temperature Stability

TEMPERATURE RANGE

Standard: +4°C to +35°C Extended: -5°C to +65°C

- Low temperature pack available to 0°C until mod to PHE, then -5°C
- High temperature pack, available to +65°C
- Onboard RS485 Communications Protocol, available via 9 pin D-sub
- Standard Volt Free Connections, available via 9 pin D-sub
- In-line deionising cartridge and fittings, internally mounted in bypass
- Installation kit
- KT filter kit, available internally 40micron
- Particulate filter
- Fan speed control (on/off), stability to ±2°C

- Fan speed control (proportional), stability to ±0.5°C
- In-line UV decontamination
- Stainless enclosure
- De-branding of standard model
- External manifolds (2- to 10- way)
- Fluid adapters
- Remote stop/start
- Pressure sensor
- Pressure sensor to RS485
- Conductivity sensor
- Conductivity sensor to RS485





R20

Similar to the R10, but with double the cooling capacity, the R20 uses a PID controller to reliable control temperature whilst making it easy to add heating capacity and remain economical.

RACK MOUNTED CHILLER



HEIGHT OF UNIT 8U High

PUMP OPTIONS Positive Displacement Pump

POWER SUPPLY OPTIONS Single-phase

COOLING CAPACITY 1.9kW Cooling Capacity at 20°C +/- 0.1 °C Temperature Stability

+/- 0.1 °C Temperature Stabilit

Standard: +4°C to +35°C Extended: -5°C to +65°C

TEMPERATURE RANGE

- Low temperature pack available to 0°C until mod to PHE, then -5°C
- High temperature pack, available to +65°C
- Onboard RS485 Communications Protocol, available via 9 pin D-sub
- Standard Volt Free Connections, available via 9 pin D-sub
- Installation kit
- KT filter kit, available internally 40micron
- Particulate filter
- Fan speed control (on/off), stability to ±2°C
- Fan speed control (proportional), stability to ±0.5°C

- In-line UV decontamination
- Stainless enclosure
- De-branding of standard model
- External manifolds (2- to 10- way)
- Fluid adapters
- Remote stop/start
- Pressure sensor
- Pressure sensor to RS485
- Conductivity sensor
- Conductivity sensor to RS485

