



# MultiChill

**Modular Chiller with Free Cooling & Heat Pump**

53kW–103kW



# MultiChill

## Connect with comfort

**With an increased focus on health and wellness in society, more attention is being given to thermal comfort and its relationship to productivity, general wellbeing, and staff and customer retention.**

From the workplace to leisure venues such as gyms, cinemas, and retail outlets, end-user expectations are much more sophisticated and competition is high, meaning factors such as air quality, air temperature and low background noise are no longer seen a benefit, they are a must-have.

In urban areas where demand for space is tight and plant equipment can be cumbersome, consultants and contractors are tasked to provide energy-efficient thermal comfort solutions that meet the brief of the end-user, whilst adhering to legislation like Ecodesign and Part L building regulations.

Meeting the needs of end-users whilst complying with regulations and budgets can be a headache for the supply chain. Airedale understands these market dynamics and has developed a range of flexible solutions for comfort applications.



**In industries where cooling is critical, you need a critical cooling specialist. Airedale is a world leader in the delivery of innovative thermal management solutions in mission critical environments like data centres, healthcare and telecoms. As part of the US-based Modine group, our global organisation aims to engineer a cleaner, healthier world.**



At Airedale, we believe that air conditioning has a critical role to play in an ever-changing world. We also passionately believe that air conditioning manufacturers must play a responsible role in an era where sustainability is key to the preservation of our planet.

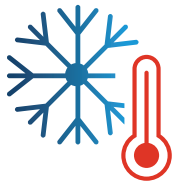
Airedale's success is testament to its long standing history of providing flexible, innovative, and efficient cooling solutions.

Our systems approach and ability to combine hardware and software ensure that HVAC systems work smarter, not harder, to deliver more cooling for less power and ensure a stable environment with 24/7 availability.

Airedale's product pedigree is backed up with significant software capabilities, providing complete visibility, harmony and autonomy of our installations.

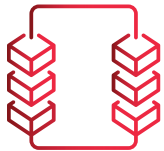
# MultiChill

MultiChill™ is Airedale's range of smaller capacity chillers and heat pumps, designed for modular installation. It is part of our more sustainable range of cooling and heating solutions, offering an energy efficient free cooling option and a lower GWP refrigerant.



Optimised for lower GWP refrigerant R32, MultiChill delivers excellent efficiency, versatility and performance.

MultiChill has the flexibility of being able to connect up to 16 units in a local network, delivering a total capacity of 1360kW cooling and 1456kW heating (HP).



Delivering sustainable cooling and heating solutions, MultiChill delivers high efficiency, low noise performance, covering 5 different module sizes from 53kW to 85kW cooling capacity and 53kW to 91kW heating capacity. It also provides the added benefit of free cooling models with up to 103kW, allowing multiple configurations to be selected to meet the exact design requirements without compromising on performance.



Operational in ambient temperatures from  $-25^{\circ}\text{C}$  (cooling only) and  $-15^{\circ}\text{C}$  (heat pump) up to  $48^{\circ}\text{C}$ , MultiChill is suitable for both process and comfort applications, with the heat pump delivering hot water up to  $55^{\circ}\text{C}$ .



Optimised for R32, MultiChill delivers SEER of up to 4.89, making this a sensible, sustainable option.



Cooling only:  
53–85kW (cooling)  
Heat Pump:  
53–85kW (cooling)  
53–91kW (heat)



Free Cooling models  
58.6–103kW  
EER up to 4.14



SEER up to 5.51  
(heat pump)  
EER up to 4.14  
(free cool)



Connect up to 16  
units in a local cooling  
/heating network



Inverter compressors  
R32 – GWP of 675



Water production:  
 $-8^{\circ}\text{C}$  to  $55^{\circ}\text{C}$

# MultiChill Chiller and Heat Pump Features and Benefits explained

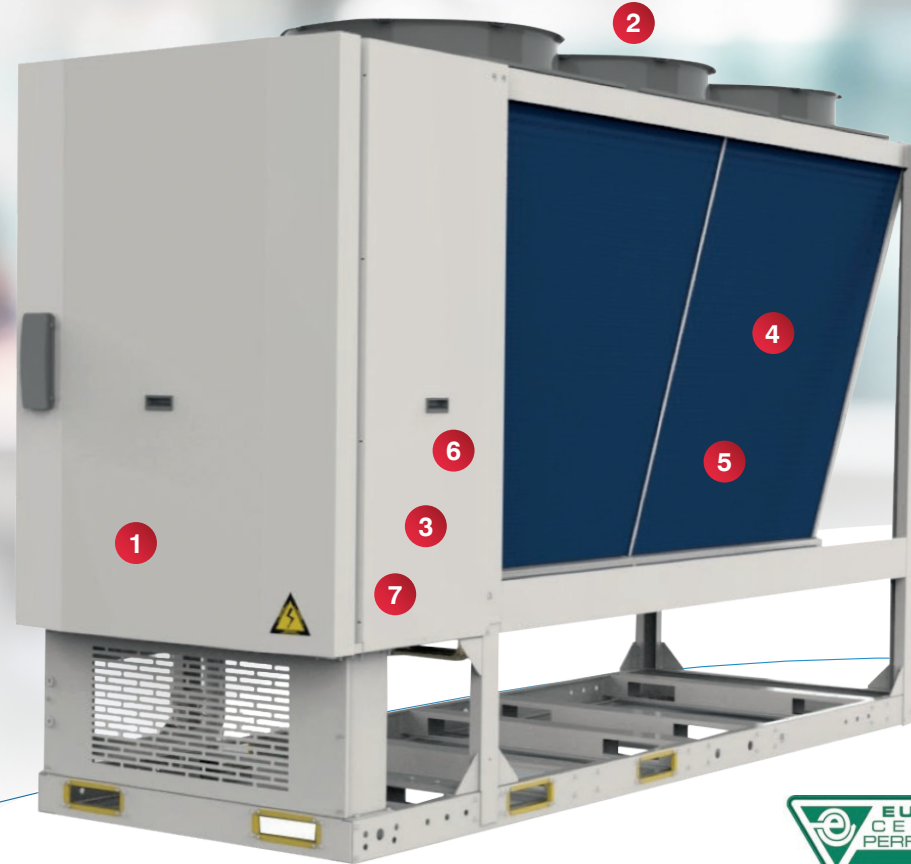
## Controls

The inbuilt, pre-programmed controller offers:

- Auto-restart function.
- Timer on/off setting; day/weekly schedule.
- Display components status.
- Query, malfunction code, parameters.
- Two multi-authorisation control levels.
- Modbus connection as standard.
- Connection of up to 16 units in parallel.
- Suitable for remote use.

**Climatic compensation with outdoor air temperature:**

- Cooling operation: if outdoor temperature increases outlet water set-point will decrease automatically to allow a higher cooling capacity to the system.
- Heating operation: if outdoor temperature decreases, heating capacity supplied will increase automatically in order to keep comfortable heating performance.



## Advanced features

- Lower GWP refrigerant R-32.
- High seasonal efficiency in heating and in cooling.
- Class A Eurovent.
- Silent mode and super silent mode for night operation.
- Modular solution.

- 1 Inverter Controlled Compressor**  
Delivers reduced energy consumption, exact capacity match and superior temperature control.
- 2 DC Inverter Fan**  
DC brushless fan motors help to meet heating and cooling demands with low noise emission and low power consumption. Both fans and fan guards are designed with CFD technology, ensuring silent and highly efficient operation.
- 3 Plate heat exchanger**  
High efficiency heat exchanger, providing low pressure drop and a reduction in pump power.

- 4 DX Microchannel Coil (Cooling Only/ Free Cooling)**  
Long Life Alloy aluminium coil for higher corrosion resistance and longer life. Up to 30% reduction in the refrigerant charge compared to traditional coils. Protective treatment for industrial and marine environments (E-Coated) available.

**Hydrophilic Coil (Heat Pump)**  
External exchanger is made by:

- Inner threaded copper pipes that optimise the heat exchange efficiency.
- Hydrophilic treatment allows the correct evacuation of condensing water and prevents ice formation.

- 5 Free Cooling**  
MultiChill FreeCool allows the system to operate without mechanical intervention, significantly reducing energy consumption. The unit can operate in a blend of full free cooling, part free cooling and mechanical cooling, depending on the ambient temperature.

- 6 Optional Inverter-Controlled Pump and System Tank**  
Reduces installation time, cost and space requirement.

- 7 Electronic Expansion Valve**  
EEVs are included on all units as standard. An EEV's ability to maintain control of the suction superheat at reduced head pressures provides significant energy savings. This can result in an EER\* increase of up to 30%.

\*Energy Efficiency Ratio

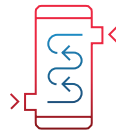
# Sustainable as standard

At Airedale, we believe that energy efficiency should be driven, not only by legislation, but by a genuine will to reduce air conditioning's cost to our customers and the environment. As part of this commitment, the MultiChill range includes the following energy saving technologies as standard:



## R32 Refrigerant:

MultiChill has been specifically developed for use with next generation R32 refrigerant. With both a lower GWP and zero ODP, R32 has a lower impact on the environment. It uses 16% less refrigerant volume per kW when compared to R410A and has a GWP of 675, compared to R410A at 2088. R32 is in line with F-Gas phase-down regulations and is A2L rated, meaning it has low toxicity and lower flammability. R32 offers a lower carbon footprint, making it eligible for 2 BREEAM points.



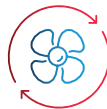
## Heat Exchanger:

MultiChill comes with a plate heat exchanger as standard, delivering large exchange surfaces to maximise thermal efficiency.



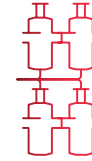
## Compressors:

All Multichills are supplied as standard with low-noise DC Inverter compressors for a wide operating envelope, exact capacity match and best part load efficiency. This enables system water volumes to be reduced and lowers energy consumption by more than 30%.



## Condenser Fans:

Condenser fans are DC brushless type providing low noise and minimum low power consumption.



## Pump Options:

A single inverter pump is available as an option for increased efficiency and reduced energy use. Optional integrated pumps save:

- Time and cost for the set-up.
- Floor area for pumping equipment and relevant clearance.



## Electronic Expansion Valve:

EEVs are included on all units as standard. An EEV's ability to maintain control of the suction superheat at reduced head pressures provides significant energy savings. This can result in an EER\* increase of up to 30%.



## Free Cooling Technology:

MultiChill FreeCool allows the system to operate without mechanical intervention, significantly reducing energy consumption. The unit can operate in a blend of full free cooling, part free cooling and mechanical cooling, depending on the ambient temperature.



## Buffer Tank:

Factory fitted buffer tanks are available as an option, in two sizes, providing either 170L or 275L depending on model size. The buffer tank assists in providing minimum water volume and reduced compressor cycling.

\*Energy Efficiency Ratio

# MultiChill

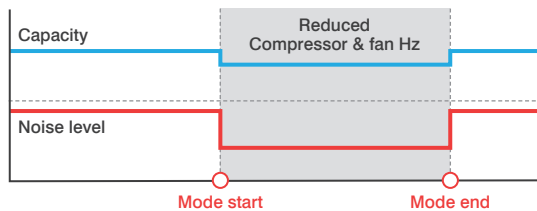
## Advanced Features

MultiChill chillers and heat pumps are available with various options and a wide range of operating temperatures.

### Acoustic Performance

MultiChill has three different sound configurations for maximum flexibility in noise sensitive applications:

Standard sound levels	
Silent	sound levels are reduced by –6dB
Super Silent	sound levels are reduced by –10dB



### Superior Temperature Control

We offer superior temperature control across all our models, to deliver optimum efficiencies.

MultiChill	Ambient air temperature		
	Min °C	Max °C	Water temperatures
Cooling only	–10°C	48°C	5°C to 20°C
Free Cooling – cooling only	–25°C	48°C	5°C to 20°C
Heat pump – DHW at up to 55°C	–15°C	43°C	15°C to 55°C

# MultiChill

## Modular Configuration

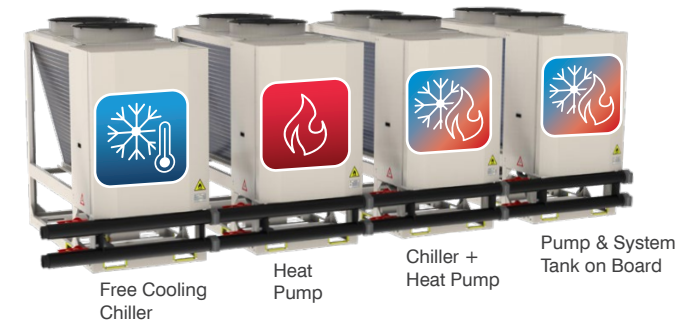
MultiChill is available as a modular system, enabling simple interconnection of up to 16 units in a 4 x 4 arrangement delivering up to 1360kW of installed capacity. The controller can manage 16 Multichill units to deliver increased system efficiency, part load operation and redundancy.

In a modular configuration, the part load efficiency benefits of MultiChill are further enhanced, with the system able to reduce to just 2% of the total cooling capacity. Each unit can perfectly adjust its output thanks to the single advanced microprocessor that controls the process with optimal precision. In the event full load capacity is not required, the system will balance the load across the installed chillers, proving maximum part load efficiency.

### The benefits of modular configuration:

- Perfect solution when full capacity is needed only for short time during the year.
- Scalability – to suit the needs of the site and the physical space.
- System management is simple and operates up to 16 units grouped in a 4 x 4 arrangement.
- Load balancing improves part load performance.
- When full system capacity is not requested, modules do not operate at 100%.
- Capacity supplied is set by the master unit, based on the outlet water temperature and set-point temperature.
- Activation of the slave units follows “first in, first out” logic.
- Loading/unloading of the units depends on temperature differential vs. set-point and the availability of adjacent units.
- In a multi-unit system, if one module fails, the other modules provide backup so that the system can continue operating.
- Duty cycling – equalizing the running time of the outdoor units in a multiple-unit system significantly extends compressor lifespan.
- Separate electrical feeds provide true electrical redundancy.
- Independent refrigerant circuits provide true mechanical redundancy.
- Protection mode assures system continuity if master unit suffers malfunction. If master unit fails, the master address is assigned to another module.
- Different capacity modules can be combined together.
- Simplified handling and installation – MultiChill units are pre-wired in the factory with fast connections between units. This guarantees a remarkable installation speed. MultiChill also offers scalability: it is possible to add more units if the load increases.

A variety of connected combinations are possible to deliver optimum efficiency.



Different capacity units can be installed together.



System requiring 50% of installed capacity.





# MultiChill

Space-saving installation with all the benefits of modularity.

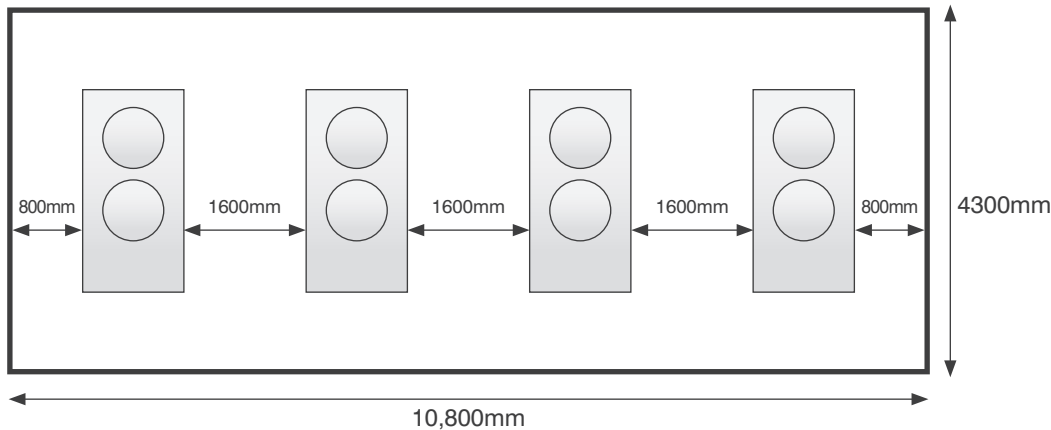
- Optimised air flow for minimum clearance.
- Frame design specially developed for modularity.
- Integrated system tank.

## Case study

240kW cooling load | Same redundancy

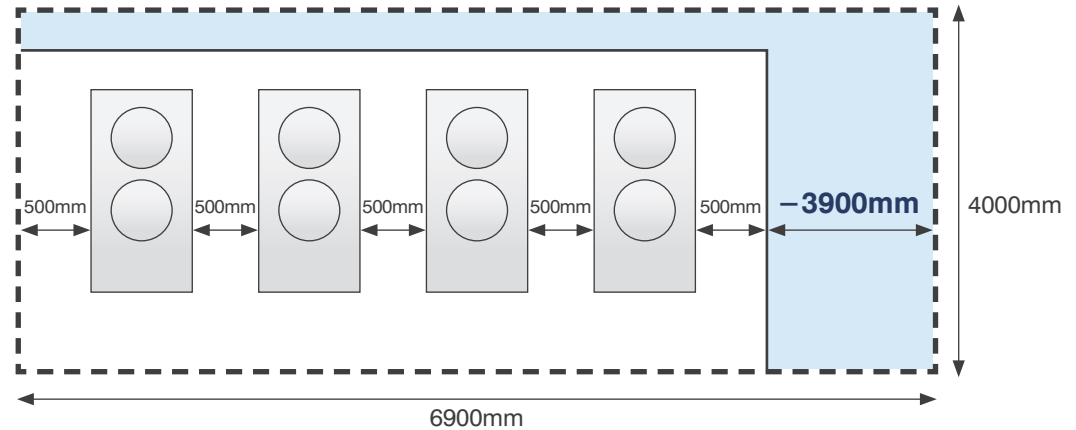
### Competitor A

Size: 4 x 60kW



### Airedale MultiChill

Size: 4 x 60kW



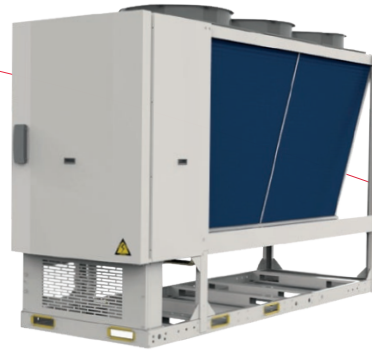
**40%**  
Space  
saving

# MultiChill

## Technical and Performance Data

### MultiChill Cooling Only MultiChill Heat Pump MultiChill Free Cool

The tables opposite detail the model selections available. Alternative data for other selections is available on request.



### MultiChill Cooling Only

based on chilled water at 7/12°C in a 35°C ambient

MultiChill CO	Number of circuits	Nominal cooling capacity (kW)	EER	Sound pressure @ 10m dB(A)	Dimensions (mm) (H x W x L)	SEER (gross)	SSCEE compliance	Weight (kg)
MCCO 18.2	1	53.1	3.10	50.1	2155 x 1130 x 2364	4.85	190.8	580
MCCO 20.2	1	59.2	3.00	51.1	2155 x 1130 x 2364	4.84	190.6	580
MCCO 25.2	1	72.2	3.21	48.6	2155 x 1130 x 3220	4.89	192.6	780
MCCO 30.2	1	77.5	3.20	51.6	2155 x 1130 x 3220	4.81	189.5	780
MCCO 35.2	1	85.1	3.10	53.6	2155 x 1130 x 3220	4.74	186.4	796

### MultiChill Heat Pump

based on chilled water at 7/12°C in a 35°C ambient and hot water at 40/45°C ambient 7°C

MultiChill HP	Number of circuits	Nominal cooling capacity (kW)	EER	Nominal heating capacity (kW)	COP	Sound pressure @ 10m dB(A)	Dimensions (mm) (H x W x L)	SEER (gross)	SSCEE compliance	SCOP - W35	SSHEE - W35	Weight (kg)
MCHP 18.2	1	53.1	2.95	53.3	3.21	50.1	2155 x 1130 x 2364	4.57	179.8	4.04	159%	560
MCHP 20.2	1	58.8	2.90	66.7	3.21	51.1	2155 x 1130 x 2364	4.51	177.0	4.03	158%	560
MCHP 25.2	1	72.4	3.15	79.1	3.33	48.6	2155 x 1130 x 3220	4.64	183.0	4.08	160%	710
MCHP 30.2	1	78.4	3.10	85.0	3.29	51.6	2155 x 1130 x 3220	4.62	182.0	4.07	160%	710
MCHP 35.2	1	85.3	2.91	91.2	3.25	53.6	2155 x 1130 x 3220	4.50	177.0	4.06	159%	710

### MultiChill Free Cool

based on chilled water at 18/23°C in a 35°C ambient

MultiChill FC	Number of circuits	Nominal cooling capacity (kW)	EER	Free Cooling @ 5°C	Sound pressure @ 10m dB(A)	Dimensions (mm) (H x W x L)	SEER (gross)	SSCEE compliance	SEPR	Weight (kg)
MCFC 18.2	1	58.6	4.00	69.6	50.1	2155 x 1130 x 2364	4.48	190.8	5.84	644
MCFC 20.2	1	68.5	3.69	77.6	51.1	2155 x 1130 x 2364	4.51	190.6	5.61	644
MCFC 25.2	1	83.7	4.14	92.9	48.6	2155 x 1130 x 3220	4.56	192.6	5.52	824
MCFC 30.2	1	89.8	3.99	99.8	51.6	2155 x 1130 x 3220	4.48	189.5	5.45	824
MCFC 35.2	1	103.0	3.74	110.0	53.6	2155 x 1130 x 3220	4.41	186.4	5.38	824

# We are there when you need us

## Life cycle support for critical cooling

Our UK based 24/7 emergency helpline and call out service is available 365 days of the year, ensuring that we are always on hand to provide expert advice and immediate help, day or night. Guaranteed emergency response times mean that a qualified Airedale engineer will be with you in an agreed timeframe, therefore maximising your system's uptime.

For non-UK clients, we offer a service partner network across Europe and the Middle East.

## Choose the right service and maintenance contract for you

Our air conditioning service plans offer a preventative air conditioning maintenance service solution to improve system resilience and increase the longevity of your cooling system.

Planned maintenance not only assists in preventing unit breakdowns in business-critical environments, but also helps to improve energy efficiency and enhance system optimisation for improved performance. Over the life cycle of the product this can lead to reduced running costs, improved carbon footprint and quicker returns on investment.

## Unrivalled spares service

With over £1.5 million worth of stock on site at its Leeds headquarters, Airedale is the UK's largest stockist for air conditioning parts and specialist HVAC spares and can deliver worldwide.



Vodafone data  
centre update

*“Reliability and the level of service that Airedale offers are key issues for a business critical location such as this. The project ran very smoothly.”*



## Headquarters

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