MODUCEL

80 - 120 KW
DOWNFLOW COOLING

DRU

DRU
DATA ROOM UNITS

DATA ROOM UNITS

The Moducel range of high efficiency Data Room Units, are designed for high density load areas where a large cooling duty is required from a compact footprint, but without compromising the critical application of data centre cooling.

This downflow range of air conditioning units are available in DX air cooled, water cooled or chilled water media with optional glycol cooling. All configurations have energy reduction features as well as heating or humidification options.

The DRU Range has been designed around a modular frame and panel design providing maximum unit strength as well as all round access where applicable. However, all maintenance and service has been designed for front access only where site restrictions dictate.

The units are designed to take return air at a high level which is then filtered and conditioned before being discharged via the base fan section located in the ventilated raised floor.

Multiple high efficiency direct drive fans provide even, efficient air supply and inherent redundancy. Alternatively, the units can be fitted with speed controllable EC fans.

All DX units are supplied with twin compressor 4-stage cooling, whilst chilled water units provide stepless 0 to 100% cooling. Where applicable glycol economy cooling coils can be coupled to dry coolers or economy cooling chillers to maximise efficiency and minimise running costs.

Where required, the units can be supplied with electrode boiler humidifiers providing high efficiency stepless output of sterile steam, and electric heaters are available in case of reheat requirement.

Model DRU8 shown.

Features	Benefits
Multiple key components share system loads:	Increased efficiency and reduced system impact in the unlikely event of a key component failure.
Vertical AHU frame and panel construction:	All round access and high unit strength and rigidity.
Modular split fan / coil sections:	Ease of installation.
Underfloor multiple backward curved fans:	Efficient air distribution.
Hydrophilic coils:	Long life and efficient moisture removal.
Modular component assembly:	Designed for easy and quick component maintenance/ replacement.
Fully programmable DDC controller:	Customised programming and network capabilities.
Customised control systems:	Ease of integration for existing site upgrades.

UNIT FEATURES

1

2

1. Fan Section.
2. Electrical Section.
3. Compressor Section.

3

DRU

TECHNICAL SPECIFICATION

Model		DRU8	DRU10	DRU12
DX SYSTEM				
Total Cooling	kW	74	97	120
Gross Sensible Cooling	kW	61	85	96
Net Sensible Cooling	kW	54	75	85
CHILLED WATER SYSTEM				
Total Cooling	kW	81.4	98.6	126.4
Gross Sensible Cooling	kW	73.4	92.8	112.4
Net Sensible Cooling	kW	70.9	89.1	108.7
AIR MOVEMENT				
Air Volume	m^3/s (m^3/h)	4.65 (16740)	7.0 (25200)	7.0 (25200)
Design External Pressure Drop	Pa	20	20	20
Number of Fans		2	3	3
Nominal Power Consumption (per Fan)	kW	2.5	2.5	2.5
REFRIGERATION				
Number of Compressors		2	2	2
Refrigerant		R407c	R407c	R407c
HEATING				
Stages		2	2	2
Capacity (per Stage)	kW	7.5	7.5	7.5
HUMIDIFICATION				
Humidifier		Electrode Boiler	Electrode Boiler	Electrode Boiler
Humidification Capacity	Kg/hr	15	15	15
DRU — INDOOR UNIT				
Dimensions (Including Fan Base) — Width x Height x Depth	mm	1700 x 3090 x 1090	2460 x 3090 x 1090	2460 x 3090 x 1090
Filtration		EU4	EU4	EU4
Unit Weight**	Kg	678	921	963
Fan Base Weight	Kg	223	335	335
INCO DX CONDENSER — OUTDOOR UNIT				
Condensers		2 x INCO 2-2	2 x INCO 2-4	2 x INCO 3-2
Dimensions — Width x Height x Depth	mm	2407 x 1100 x 1025.5	2407 x 1100 x 1025.5	3507 x 1100 x 1025.5
Weight	Kg	170	210	240
POWER SPECIFICATION FOR ALL SYSTEMS				
Power Supply	V/PH/Hz	400/3/50	400/3/50	400/3/50
POWER CONSUMPTION — AIR COOLED				
Cooling Only Unit (Fans & Compressors)	a/phase	54.5	67.5	88.5
Temperature Unit (Fans, Compressors & Heaters)*	a/phase	54.5	67.5	88.5
Full AC Unit	a/phase	75.5	89	110
POWER CONSUMPTION — WATER COOLED				
Cooling Only Unit (Fans & Compressors)	a/phase	51	64	82
Temperature Unit (Fans, Compressors & Heaters)*	a/phase	51	64	82
Full AC Unit	a/phase	75.5	89	103
POWER CONSUMPTION — CHILLED WATER				
Cooling Only Unit (Fans & Compressors)	a/phase	12	17	17
Temperature Unit (Fans, Compressors & Heaters)*	a/phase	34	39	39
Full AC Unit	a/phase	55	60	60

Notes

DX Unit cooling duties are based on 24°C / 45% Relative Humidity / 35°C Ambient.

Chilled Water (CW) Unit cooling duties are based on 24°C / 45% Relative Humidity and 6°C Flow / 11°C Return.

*No humidity control. **DX Air Cooled Unit.

CONTROLLER

The DRU is fitted with a fully programmable unitary controller complete with display/user interface. The controller monitors the temperature and relative humidity of the return air and activates cooling humidification or dehumidification to provide precise and efficient conditioning of the supply air.

Additionally, the controller monitors the in-built safety devices of the unit which constantly ensure the healthy state of key components. In the unlikely event of a component malfunction the item is automatically isolated to enable the plant to continue running, and an alarm signal will be generated.

Where required, multiple units can be networked together to provide group or run/standy control.

Units can be monitored locally or remotely, and if required, an enhanced 'web enabled' controller can be supplied, providing password restricted access from a suitable Internet access point.

Control Features

- Fully programmable.
- Data logging.
- Standalone or group control.
- BMS interface.
- Remote monitoring.
- Energy saving control strategies.

Monitored Information and Alarm Points

- Temperature.
- Relative humidity.
- Airflow.
- Filter condition.
- Refrigerant monitoring.
- Water detection.
- Humidifier status.
- Heater status.
- Fire shutdown.
- VFC relay alarms.
- Smoke detection.

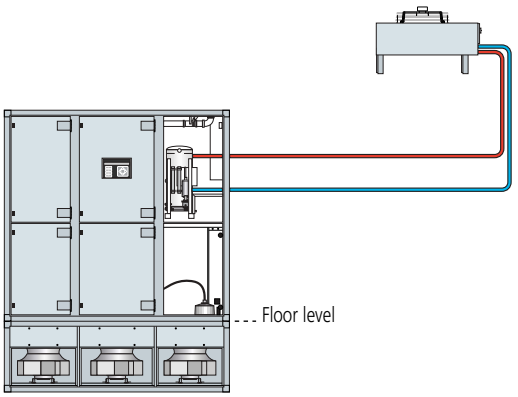
SYSTEM SELECTION

Air Cooled

The air cooled DX system circulates refrigerant to absorb heat from the conditioned space at the indoor unit, which is then rejected at the external air cooled condenser.

Twin evaporator coil / compressor circuits with multiple supply fans, provide redundancy with four stages of cooling and are coupled to two individual low noise level air cooled condensers, complete with fan speed controls.

Optional humidification control can be provided by an electrode boiler humidifier, and optional heaters provide reheat where required during dehumidification mode.

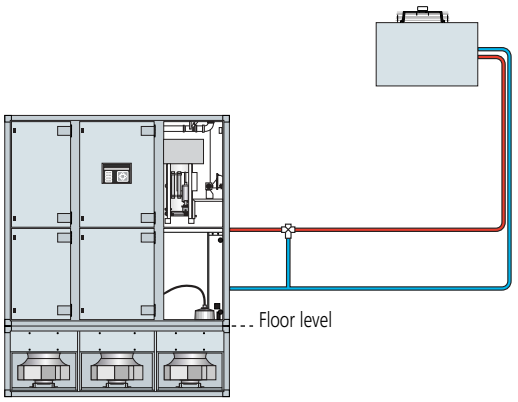


Water Cooled

The water cooled DX system circulates refrigerant to absorb heat from the conditioned space at the indoor unit, which is then rejected via an external dry cooler or similar.

Twin evaporator coil / compressor circuits with multiple supply fans, provide redundancy with four stages of cooling and are coupled with an individual plate heat exchanger for water cooled heat rejection, complete with three port head pressure control valves.

Optional humidification control is provided by an electrode boiler humidifier and optional heaters provide reheat where required during dehumidification mode.

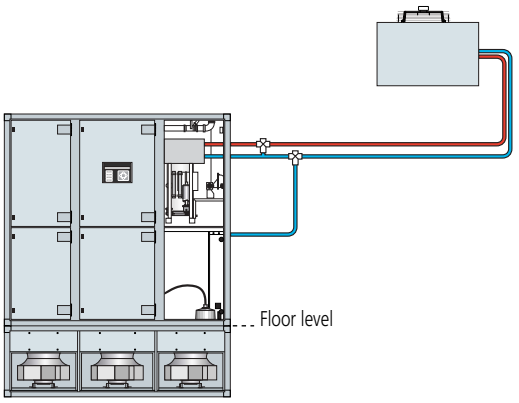


Water Cooled with Glycol Economy Cooling

The water cooled DX system circulates refrigerant to absorb heat from the conditioned space at the indoor unit, which is then rejected via an external dry cooler or similar.

Twin evaporator coil / compressor circuits with multiple supply fans provide redundancy with four stages of cooling and are coupled with an individual plate heat exchanger for water cooled heat rejection, complete with three port head pressure control valves. An additional glycol cooling coil provides low energy cooling when ambient conditions dictate.

Optional humidification control is provided by an electrode boiler humidifier and optional heaters provide reheat where required during dehumidification mode.

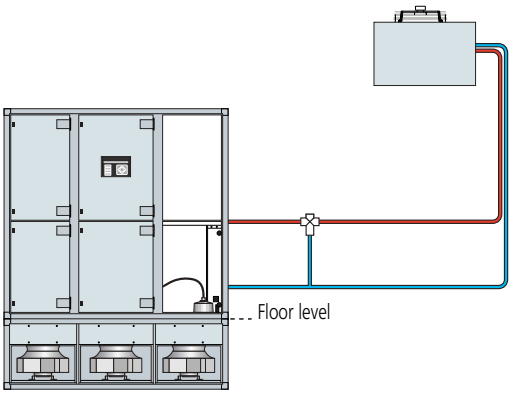


Chilled Water

The chilled water system circulates water to absorb heat from the conditioned space at the indoor unit which is then rejected at the external chiller.

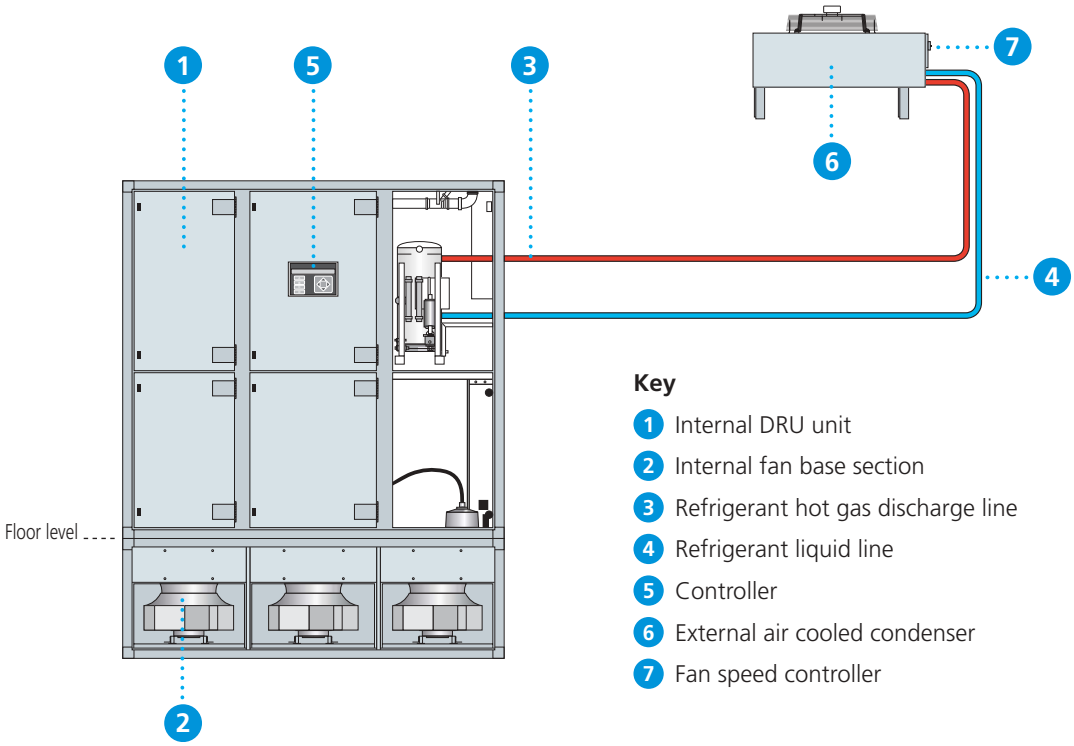
Twin cooling coil with multiple supply fans provide fully modulating 0 to 100% cooling complete with two or three port control valves.

Optional humidification control is provided by an electrode boiler humidifier and optional heaters provide reheat where required by the dehumidification mode.



SYSTEM CONFIGURATIONS

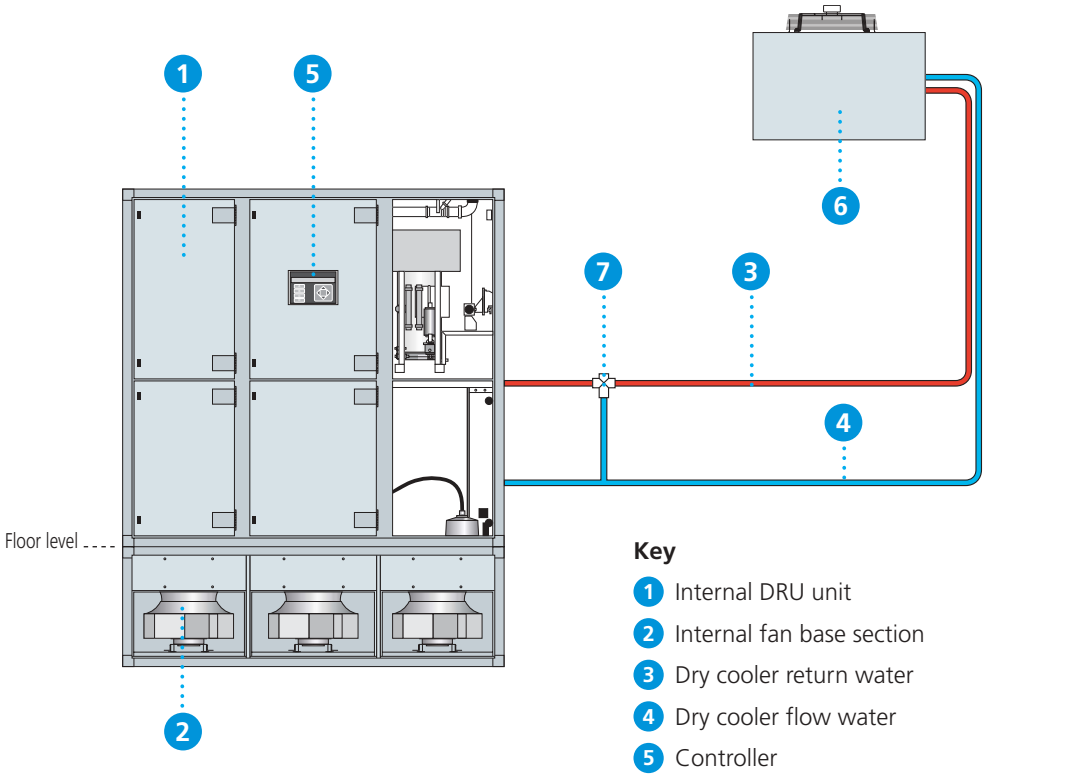
Air Cooled



Key

1. Internal DRU unit
2. Internal fan base section
3. Refrigerant hot gas discharge line
4. Refrigerant liquid line
5. Controller
6. External air cooled condenser
7. Fan speed controller

Water Cooled



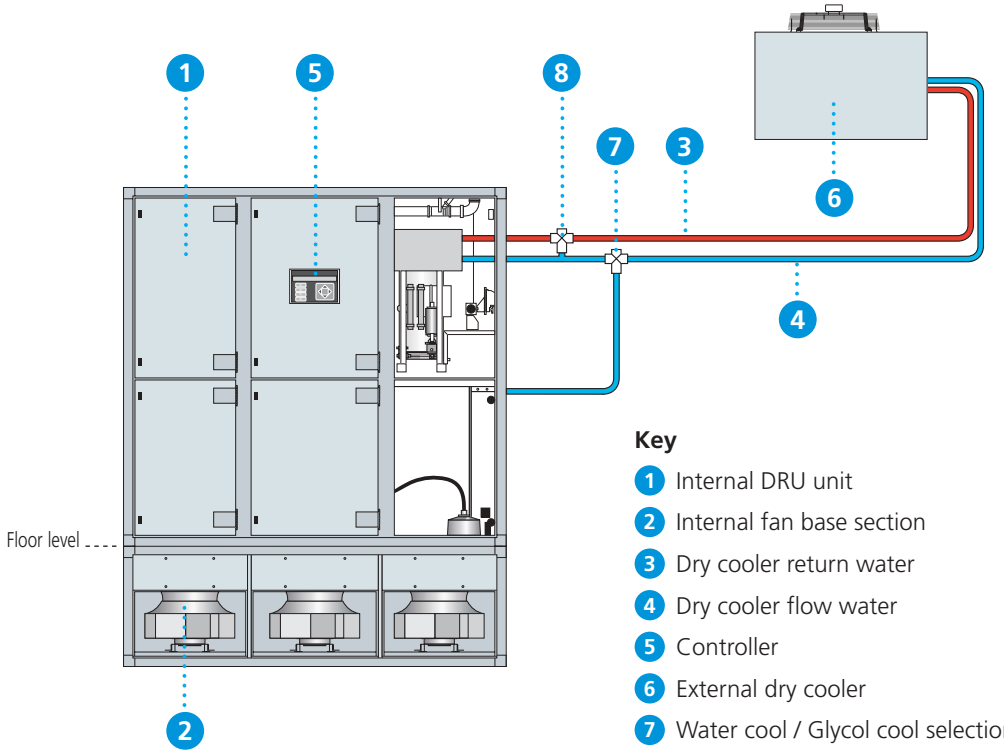
Key

1. Internal DRU unit
2. Internal fan base section
3. Dry cooler return water
4. Dry cooler flow water
5. Controller
6. External dry cooler
7. Water cooled condenser control valve*

*The valves depicted are purely shown schematically and are physically located within the unit.

SYSTEM CONFIGURATIONS

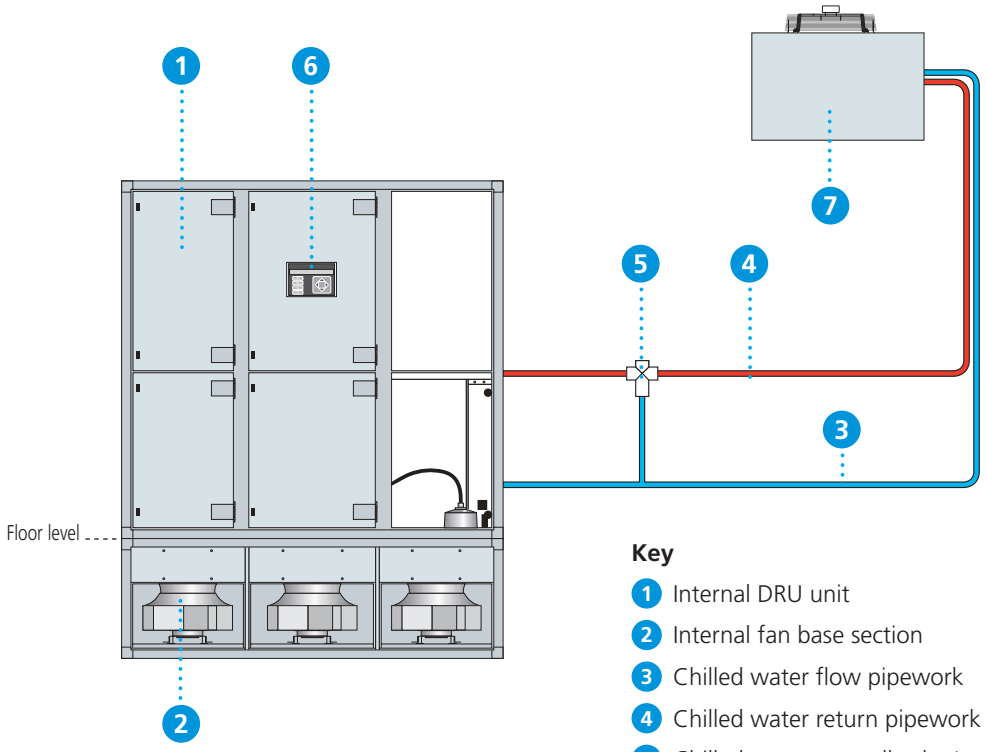
Water Cooled Glycol Economy Cooling



Key

1. Internal DRU unit
2. Internal fan base section
3. Dry cooler return water
4. Dry cooler flow water
5. Controller
6. External dry cooler
7. Water cool / Glycol cool selection valve*
8. Water cooled condenser control valve*

Chilled Water



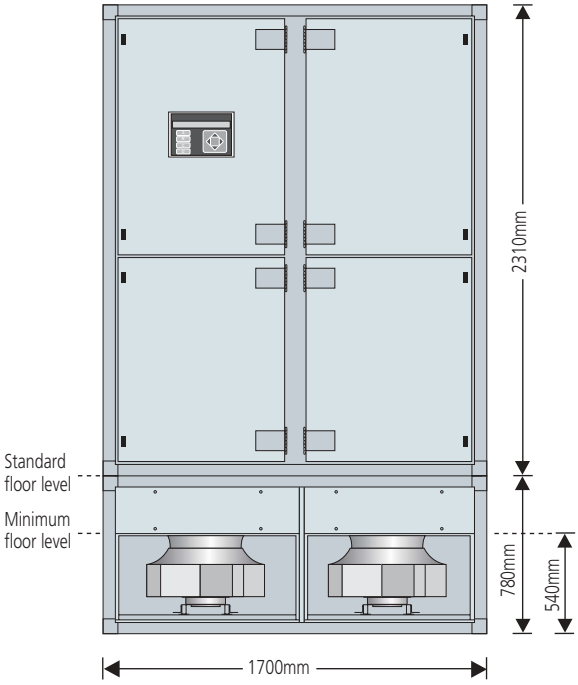
Key

1. Internal DRU unit
2. Internal fan base section
3. Chilled water flow pipework
4. Chilled water return pipework
5. Chilled water controll valve*
6. Controller
7. Chiller

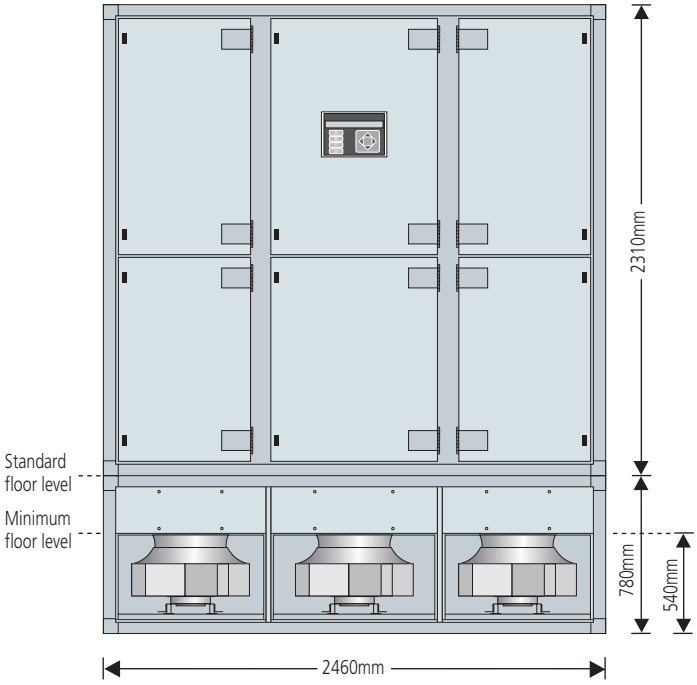
*The valves depicted are purely shown schematically and are physically located within the unit.

UNIT DIMENSIONS

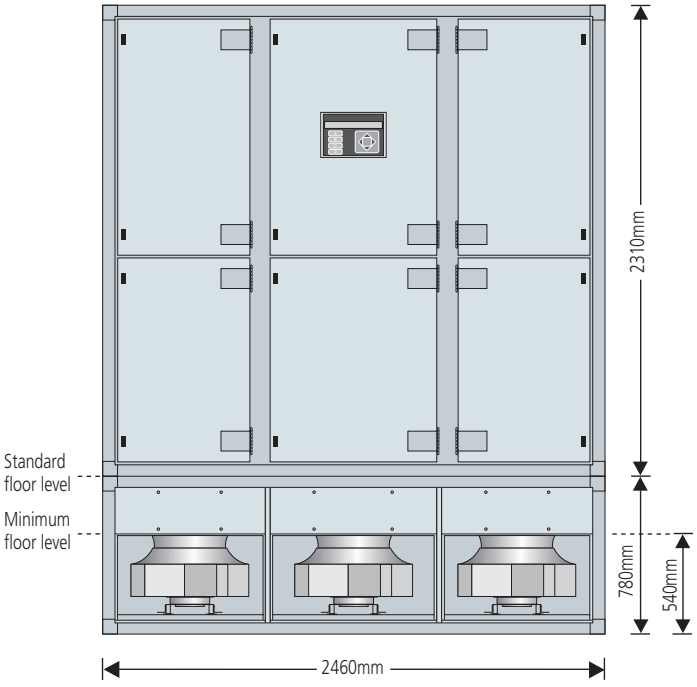
DRU8



DRU10



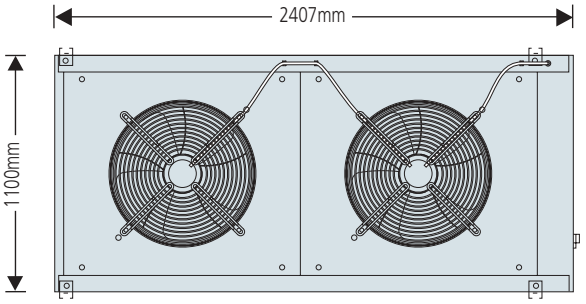
DRU12



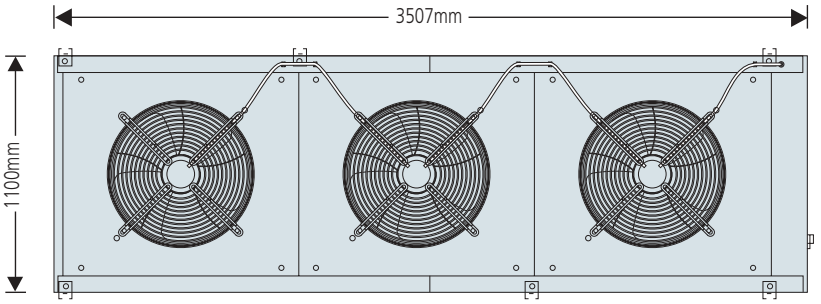
Note: All DRU units are 1090mm deep.

INCO DX AIR COOLED CONDENSER

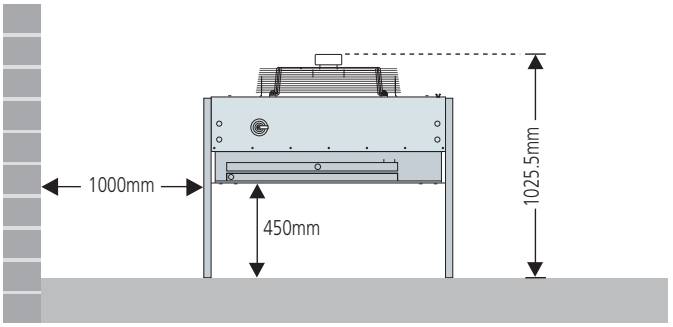
Twin Fan Unit



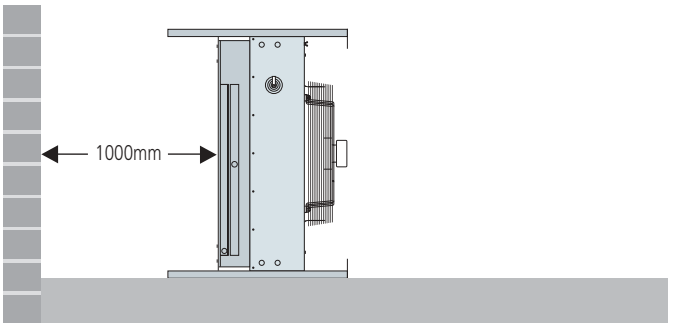
Triple Fan Unit



Horizontal Mount
(Vertical Air Flow)
Elevation



Vertical Mount
(Horizontal Air Flow)
Elevation



GROUP PRODUCTS & SERVICES

Server Cabinets & Rear Door Heat Exchangers (RDHx)
Powerful cooling capacity, up to 30kW heat removed at source and rejected to water, not the room. Condense free operation using dew point controlled water from the CDU. 6 'hot swap' fans – variable speed. 80% front door venting. 1,000kg weight loading and full range of accessories. Easily installed via leak free quick release ¾" couplings and hose sets.

600mm wide – 20kW cooling.
800mm wide – 30kW cooling.

CDU (Cooling Distribution Unit)
Provides cooling water for up to 6 rear door heat exchangers. Cooling capacities of 100, 120 or 150kW with full run/standby capability (N+1). Internal manifold with leak free quick release couplings for easy installation and connection to the rear door heat exchangers via ¾" hose sets. Chilled water connections (42mm / 1½") via top or bottom. Dew point temperature control of cooling water, internal CW filtration. Auto fill and bleed of coolant. Full alarm monitoring and connectivity.

CDU Module
The 20kW CDU Module is a 6u rack mountable, self contained cooling module capable of providing closely controlled cooling water above dew point to one or two rear door heat exchangers. Leak free, quick release couplings enable rapid install and connection to the rear door heat exchanger via ¾" hose sets. Features include dew point temperature control for condense free operation, Auto fill and bleed of coolant, full alarm monitoring and connectivity.

Modular CDU System
A dedicated cabinet to house up to 6 CDU Modules to enable initial install to be completed allowing the perfect upgrade path. The cabinet houses power distribution and chilled water connectivity to the 6 CDU Modules via manifold and couplings. Individual CDU Modules can then be simply plugged in as the data centre expands or heat loads increase. Alarms, room temperature and humidity data are managed through the central power distribution system giving one connection point for power and alarms.

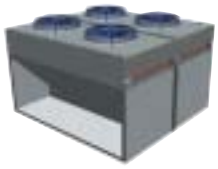
DRU (CRAC) Unit
DRU Data Room air conditioning units are designed for high density load areas where a large cooling duty is required, from a compact footprint, but without compromising the critical application of data centre cooling.

80/100/120kW cooling capacities.

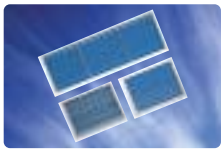
Available in chilled water, DX, DX with water cooled condenser and glycol free cooling configurations. A full range of options and ancillaries are available including inbuilt humidifier for room humidity control.

IPAC (CRAC) Unit
IPAC floor standing air conditioning units are available in chilled water or DX, cooling only configuration.

15 - 80kW cooling capacities available in various configurations including up flow or down flow air path, chilled water or DX cooling. A full range of options and ancillaries are available including inbuilt humidifier for room humidity control.



Chillers
Energy efficient chillers up to a capacity of 600kW with the full run/standby (N+1) capability can be offered. These can also be fitted with free cooling capability and qualify for ECA (Enhanced Capital Allowance) under the Carbon Trust Scheme.



Grilles & Diffusers
Our extensive range of grilles and diffusers are available in a wide range of shapes and sizes and include floor grilles for server/data centres.

Service & Maintenance
All types of HVAC heating, ventilating and air conditioning equipment are supported by our national network of mobile engineers or residential engineers for optimum operating efficiency.

M&E Services
Project design, installation and commissioning.

Refurbishment. CFC and HCFC recovery and substitution.

Humidification
Specialist manufacturers of humidifiers and steam generation products.

Air Handling
Eaton-Williams design and manufacture air handling plant for commercial and industrial applications. Applications include hospitals, supermarket chains, leisure stadiums, pharmaceutical buildings and office complexes with uniquely designed solutions to suit each project.

PRODUCT RANGES

- Computer Room & Data Centre Cooling
- Air-cooled & Water-cooled Liquid Chillers
- Packaged Roof-Top Units
- Full Range of Air Handling Units
- Fan Coil Units
- Packaged Telecommunications Units
- Fresh Air Units
- Condensing Units
- Air Cooled Condensers
- Low Temperature Cassettes
- Cellar & Storage Low Temperature Cooling Units
- Packaged In-Wall Units
- Stand-alone Humidifiers
- OEM Process Cooling Control Units
- Custom Designed Packages
- Constant & Variable Air Volume Units

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