



DANTHERM GROUP

PRODUCT RANGE

DEHUMIDIFIERS

For data centres, power supply rooms and electronic enclosures

ABOUT THE DANTHERM GROUP

Control your climate

The Dantherm Group is a leading provider of climate control products and solutions. The group companies have more than 60 years of experience in designing and manufacturing high quality and energy efficient equipment for heating, cooling, drying and ventilation for a wide range of mobile and fixed applications.

Every year Dantherm Group uses significant resources on product development to stay in the forefront and are constantly adapting the products to changing market demands and legislation.

AERIAL[®]

 **calorex**[®]

Dantherm[®]

 **MASTER**[®]
CLIMATE SOLUTIONS

The Dantherm Group has strong brands with well-established market positions in the mobile, pool, commercial/industrial and residential markets.

Dantherm Group customers benefit from our comprehensive knowledge base and the experience and expertise that we have gained from more than three million climate control products and solutions sold worldwide.

Global reach

The Dantherm Group is headquartered in Skive, Denmark and has companies in Norway, Sweden, United Kingdom, Germany, France, Switzerland, Italy, Spain, Poland, Russia, China and United Arab Emirates and a global distribution network.

In 2016 the Dantherm Group was acquired by the Swedish equity fund Procuritas Capital Investors V LP – a strong owner with the ambition to continue the development and growth of the company.

PRODUCT CATALOGUE

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HOW TO CONTROL HUMIDITY IN DATA CENTRES

Data centres process and store critical information through equipment that is sensitive to humidity and temperature.

Precise, reliable environmental control equipment is therefore a crucial part of data centre design. Coupled with this, the need to minimize energy consumption and environmental impact as part of data centre design is key.

To achieve energy conservation, designers are constantly looking at how to improve environmental control equipment.

As part of this consideration, modern CRAC units (Computer Room Air Conditioning) are designed with SHR's of up to 100%.

This means the entire duty of the CRAC is designed for sensible cooling, with virtually no contribution towards latent energy removal (moisture). It makes sense to take this approach as the run time of equipment is reduced, which in turn reduces power consumption.

However, humidity control must not be forgotten, and for this reason designers have turned to dehumidifiers for dewpoint and humidity control.

To provide a solution that minimizes power consumption and capital cost, refrigerant dehumidifiers are often chosen as the preferred technology.

With a sensible heat ratio of 60% and typical specific moisture extraction of over 1.5kg/kWh, a refrigerant dehumidifier:

- Will remove moisture much more efficiently than a CRAC unit
- Has less than half the power consumption of other dehumidification technologies
- Is straightforward to install
- Has low capital cost
- Has minimal heat carry over to the data centre suite

Conclusion

Where data centres are built in climatic regions that experience high air temperatures and moisture contents, an environmental control system that incorporates humidity and temperature control must be considered.

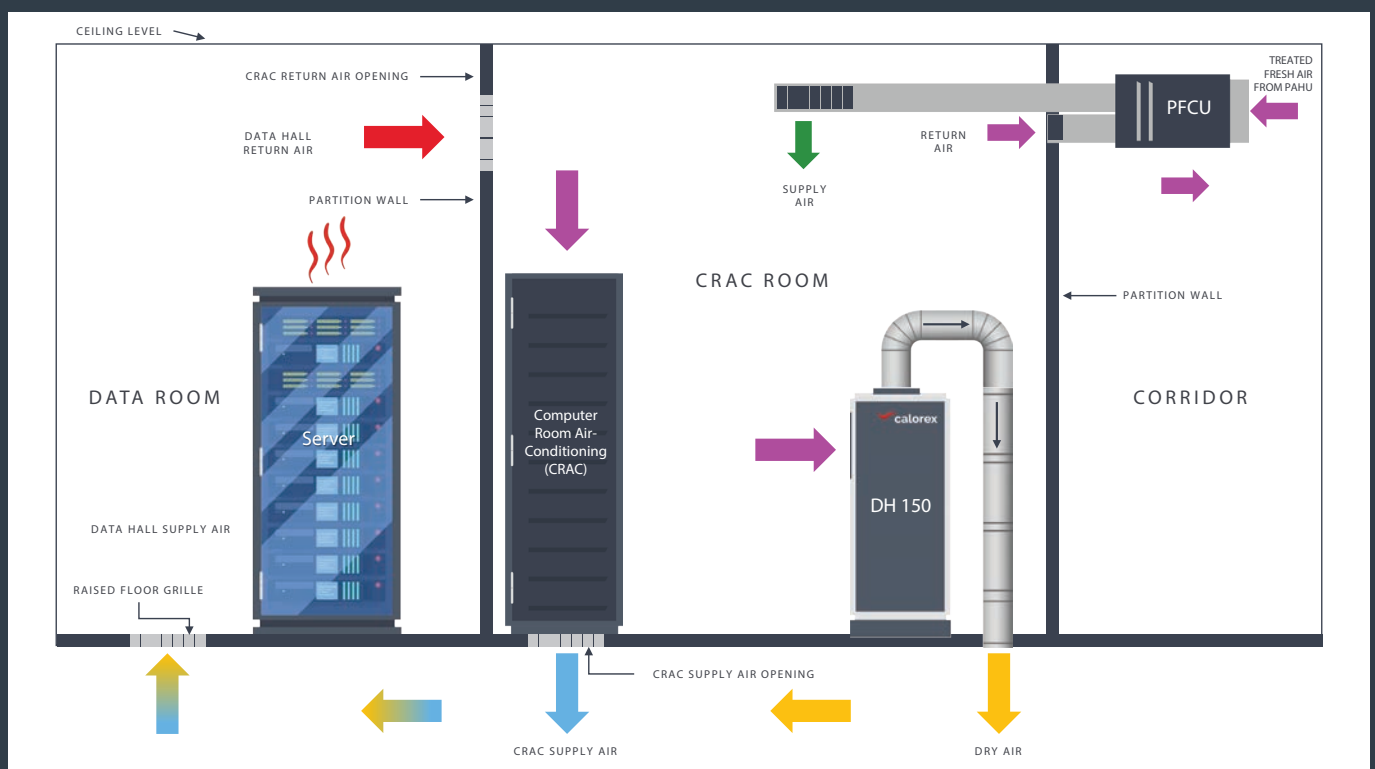
To conserve energy and reduce environmental impact, power consumption of the temperature and humidity control should be considered.

By taking this approach it is prudent to use separate equipment, therefore providing a system design capable of meeting the cost and environmental needs of today's modern data centre.

Take control of humidity and condensation with our leading range of dehumidifiers.

DATA HALL & CRAC ROOM EQUIPMENT LAYOUT

The schematic below shows the DH 150 dehumidifier controlling the humidity in the CRAC room.



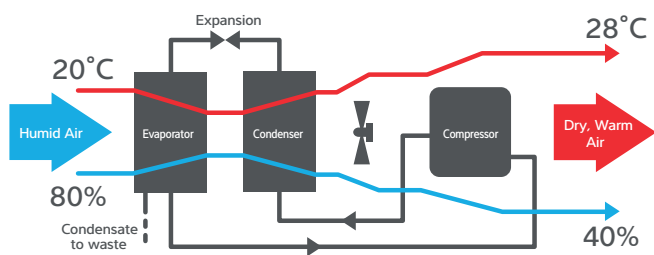
TECHNOLOGIES

REFRIGERANT VS DESICCANT

Unlike most suppliers, the Dantherm Group product ranges include both refrigerant AND desiccant drying equipment. With products that span both technologies, we can offer impartial advice that provides a solution specifically suited for your application.

Refrigerant dehumidifier

The process of dehumidification involves moisture-laden air (return air) being drawn into a dehumidifier where the air passes across a refrigerated coil. The air is rapidly cooled below its dew point, condensing the water vapour and recovering its latent heat energy for re-use. The cooled air is then passed across the condenser where it is reheated and (supply air) returned to the served area at the required lower humidity.



Advantages:

- Low energy consumption
- Minimal maintenance required
- High specific moisture extraction (kg/kWh)
- Easy installation
- Small diameter condensate drain

Disadvantages:

- Low performance in cold conditions below 3°C
- Smaller dehumidifiers less suitable for ducting

Where used:

Generally, in recirculation applications where the humidity requirement is above 40% RH.

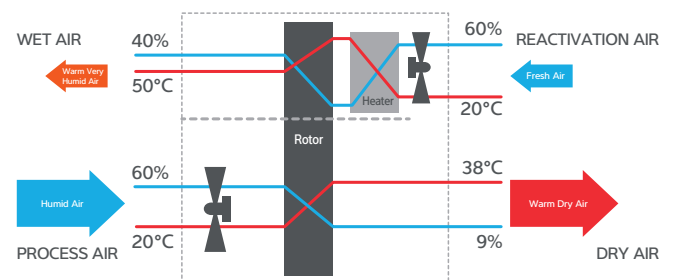
- Preservation during storage
- Data centres
- Substations and switch gear rooms
- Clothes drying
- Food drying
- Swimming pools

Where not used:

- Single pass (total loss) ventilations systems
- Below 40% RH
- Below 3°C
- Explosive environments

Desiccant dehumidifier

The air to be dehumidified (process air), passes through a slowly rotating silica gel rotor. The desiccant material attracts the moisture to its surface, removing it from the air stream (dry air). A second, smaller air stream (reactivation air) usually heated to around 120°C, is required to remove the moisture from the rotor. This (wet) air must then be exhausted to atmosphere using a duct. Slowly rotating the rotor through both airstreams creates a continuous dehumidification process.



Advantages:

- High moisture removal rate in a single air pass
- Can achieve very low absolute humidity levels
- Can work in low temperatures
- Can work in very low humidity

Disadvantages:

- High energy consumption
- Low specific moisture extraction (kg/kWh)
- Ducting from/to outside for reactivation air and wet air
- High rotor replacement costs

Where used:

Generally, where a very low relative humidity or absolute humidity is required, and/or where the operating temp is below 3°C.

- Pharmaceutical
- Food
- Confectionery
- Specialist manufacturing that requires very low RH
- Low temp storage and freezer rooms

Where not used:

- Recirculation applications that require RH above 40%
- Applications that are sensitive to high supply air temperature
- Swimming pools
- Sites with limited power supply (unless mains gas or steam reactivation is available)
- Areas that have no access to outside walls



ADSORPTION DEHUMIDIFIERS

DOMESTIC AND COMMERCIAL



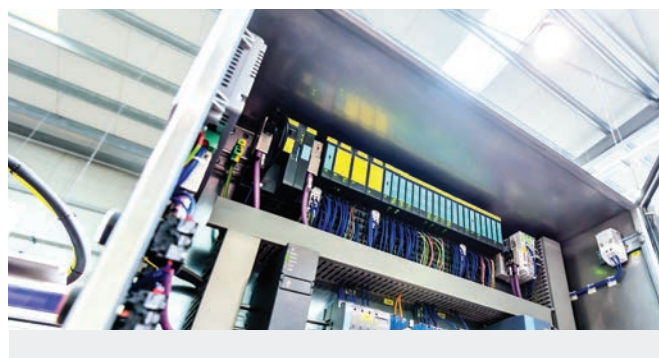
ASE 200



ASE 300

Optional accessories

- Replacement filter
- PE hose 50mm
- Thermaflex hose 80mm/100mm



TO DRY

Features

- Can be perfectly combined with AERIAL sound boxes AB and VP
- Case made of stainless steel and powder coated sheet steel
- Floor standing and stabilised by four rubber bumpers
- High-performance ECODRY G3-rotor for maximum water absorption and extremely high mechanical firmness of the surface
- Stackable, quiet, maintenance friendly
- Dynamic, safe and self-regulating PTC heating element
- Energy efficient radial fan
- Air filter on the process air inlet
- On/Off-switch
- Built-in hygostat for variable humidity control
- Combo counter standard

Applications

- Building industry, restoration work
- Water damage restoration
- Cellars
- Sewage treatment, waterworks



Specifications	Units	ASE 200	ASE 300
Capacity (20°C/60% RH)	l/24h	18.75	25.7
Air volume – dry air/regeneration air	m ³ /h	210/110	300/110
Ext. pressure – dry air/regeneration air	Pa	150/50	150/50
Operating temperature range	°C	-10 - +35	-10 - +35
Operating humidity range	%	10-95	10-95
Nominal power consumption	W	694	1040
Power supply	V/Hz	230/1ph/50	230/1ph/50
Sound level	dB(A)	48	57
Duct sizes:			
Air inlet	Ø mm	125	125
Dry air outlet	Ø mm	1x80 or 2x50	1x100 or 2x50
Regeneration air outlet	Ø mm	80	80
Product size (h x w x d)	mm	285 x 290 x 395	370 x 335 x 430
Weight	kg	14	18



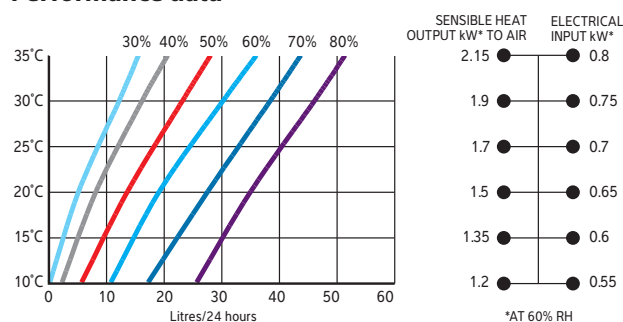
DEHUMIDIFIERS

WALL MOUNTED



DH 30

Performance data



Options

- Through the wall version
- Electric air heater
- LPHW air heater
- Remote humidistat
- Floor stand kit



Features

- Self contained with fully automatic operation
- Integral humidistat
- Polyester coated evaporator and condenser
- Plastisol coated galvanised steel cabinet
- Hot gas defrost for low temperature operation
- Quiet centrifugal fans
- Remote humidistat and on/off function

Applications

- Drying rooms
- Modular buildings
- Electrical sub-stations
- Data centres
- Warehousing and storage
- Museums, libraries and galleries
- Garages



Specifications	Units	DH 30AX	DH 30AXP
Operating temperature range	°C	0-35	0-35
Dehumidification @ 30°C/60% RH	l/24h	30	30
Heat recovered to air @ 30°C/60% RH	kW	1.9	1.9
Air flow	m ³ /h	700	700
External static pressure	Pa	0	0
Sound pressure level @ 3m	dB(A)	52	52
Refrigerant		R407c	R407c
Power supply	V/Hz	230/1ph/50	230/1ph/50
Dehumidifier power input	kW	0.75	0.75
FLA	A	4.4	12.7
Maximum supply fuse	A	10	20
LRA (compressor start)	A	15.8	15.8
Heater type		Optional LPHW	Standard Electric
Heat output	kW	3.0	2.0
Flow rate	l/min	5.0	-
Product size (w x d x h)	mm	782 x 270 x 648	782 x 270 x 648
Weight	kg	40	40
Condensate drain size (flexible plastic hose)	mm ID	16	16



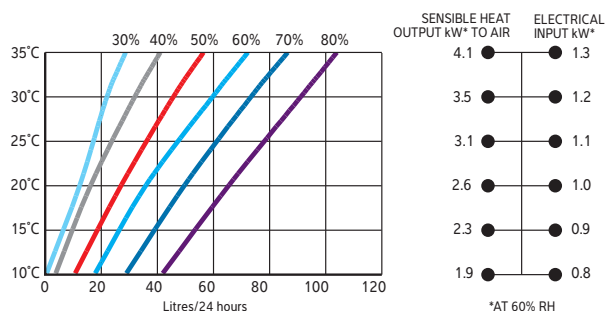
DEHUMIDIFIERS

WALL MOUNTED



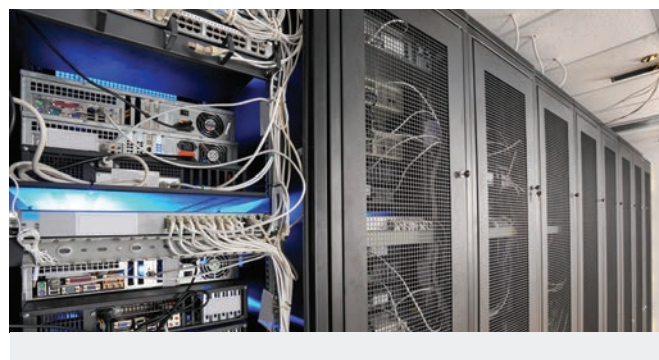
DH 60

Performance data



Options

- Through the wall version
- Electric air heater
- LPHW air heater
- Remote humidistat
- Floor stand kit



Features

- Self contained with fully automatic operation
- Integral humidistat
- Polyester coated evaporator and condenser
- Plastisol coated galvanised steel cabinet
- Hot gas defrost for low temperature operation
- Quiet centrifugal fans
- Remote humidistat and on/off function

Applications

- Drying rooms
- Archives and museums
- Data centres
- Changing rooms
- Waterworks
- Garages and car storage



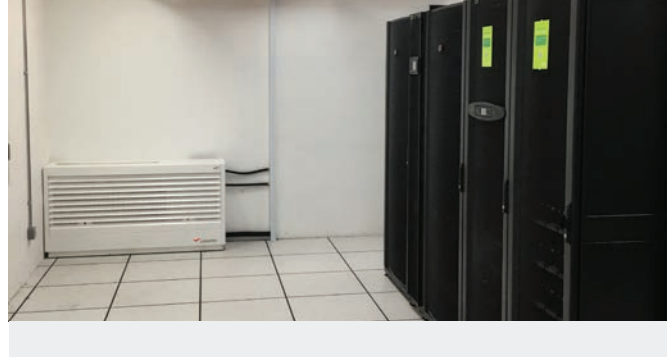
Specifications	Units	DH 60AX	DH 60AXP
Operating temperature range	°C	0-35	0-35
Dehumidification @ 30°C/60% RH	l/24h	60	60
Heat recovered to air @ 30°C/60% RH	kW	3.5	3.5
Air flow	m ³ /h	1280	1280
External static pressure	Pa	0	0
Sound pressure level @ 3m	dB(A)	54	54
Refrigerant		R407c	R407c
Power supply	V/Hz	230/1ph/50	230/1ph/50
Dehumidifier power input	kW	1.2	1.2
FLA	A	7.5	24.2
Maximum supply fuse	A	13	32
LRA (compressor start)	A	30	30
Heater type		Optional LPHW	Standard Electric
Heat output	kW	5.0	4.0
Flow rate	l/min	5.0	-
Product size (w x d x h)	mm	1247 x 270 x 648	1247 x 270 x 648
Weight	kg	60	60
Condensate drain size (flexible plastic hose)	mm ID	16	16





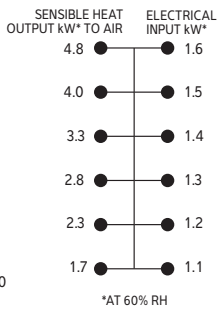
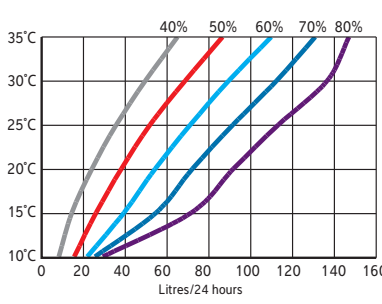
HIGH CAPACITY DEHUMIDIFIERS

FLOOR STANDING

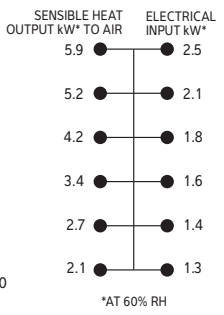
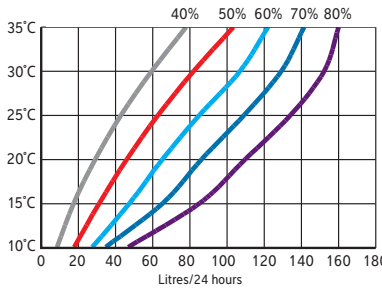


DH 110

Performance data DH 75



Performance data DH 110



Features

- Self contained with fully automatic operation
- Integral humidistat
- Polyester coated evaporator and condenser
- Stove enamelled aluminium cabinet
- Hot gas defrost for low temperature operation
- Quiet centrifugal fans, two speeds
- Remote humidistat and on/off function

Options

- Through the wall version
- LPHW air heater
- Remote humidistat

Applications

- Data centres
- Warehousing and storage
- Museums, archives, art galleries, offices
- Sports halls and gyms



Specifications	Units	DH 75AX	DH 110AX	DH 110BX
Operating temperature range	°C	5-35	5-35	5-35
Dehumidification @ 30°C/60% RH	l/24h	86	108	108
Heat recovered to air @ 30°C/60% RH	kW	4.0	5.2	5.2
Air flow	m ³ /h	1180	1180	1180
External static pressure	Pa	0	0	0
Sound pressure level @ 3m	dB(A)	53	53	53
Refrigerant		R407c	R407c	R407c
Power supply	V/Hz	230/1ph/50	230/1ph/50	400/3ph/50
Nominal power consumption	kW	1.5	2.1	2.0
FLA	A	9.5	12.0	5.5
Maximum supply fuse	A	13	20	10
LRA (compressor start)	A	55	66	30
Heater type		Optional LPHW	Optional LPHW	Optional LPHW
Heat output @ 80°C flow	kW	8.9	8.9	8.9
Flow rate	l/min	9.6	9.6	9.6
Product size (w x d x h)	mm	1520 x 385 x 796	1520 x 385 x 796	1520 x 385 x 796
Weight	kg	143	144	144
Condensate drain size (brass compression)	mm	15	15	15



HIGH CAPACITY DEHUMIDIFIERS

FLOOR STANDING

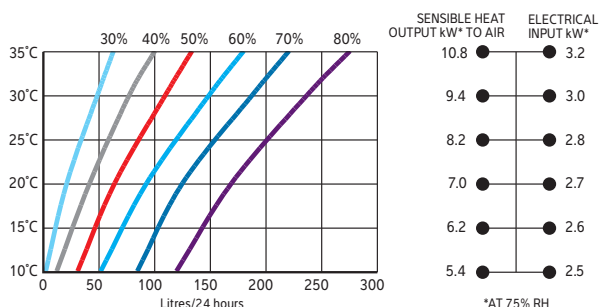


DH 150



TO DRY

Performance data



Features

- Self contained with fully automatic operation
- Integral humidistat
- Constant flow fan – automatically adjusts to ducting
- Polyester coated evaporator and condenser
- Plastisol coated galvanised steel cabinet
- Hot gas defrost for low temperature operation

For options see page 13

Applications

- Warehousing and equipment storage
- Metal and spare parts storage
- Electrical sub-stations
- Data centres
- Car storage facilities

Specifications	Units	DH 150AX	DH 150BX
Operating temperature range	°C	0-35	0-35
Dehumidification @ 30°C/60% RH	l/24h	150	150
Heat recovered to air @ 30°C/60% RH	kW	7.4	7.4
Air flow	m ³ /h	2500	2500
External static pressure	Pa	0-200	0-200
Sound pressure level @ 3m	dB(A)	58	58
Refrigerant		R407c	R407c
Power supply	V/Hz	230/1ph/50	400/3ph/50
Nominal power consumption	kW	2.5	2.5
FLA (electrical)	A	21	11
Maximum supply fuse	A	30	16
LRA (compressor start)	A	61	30
LRA (compressor soft-start)	A	28	13
Heater type	Optional	Top box electric	Top box electric
Heat output	kW	9	9
Power supply	V/Hz	230/1ph/50	400/3ph/50
FLA (heater)	A	36	12
Maximum fuse size	A	50	16
Product size (w x d x h)	mm	660 x 660 x 1313	660 x 660 x 1313
Weight	kg	130	130
Condensate drain size (flexible plastic hose)	inch	¾ BSPM	¾ BSPM



HIGH CAPACITY DEHUMIDIFIERS

FLOOR STANDING



DH 300BY

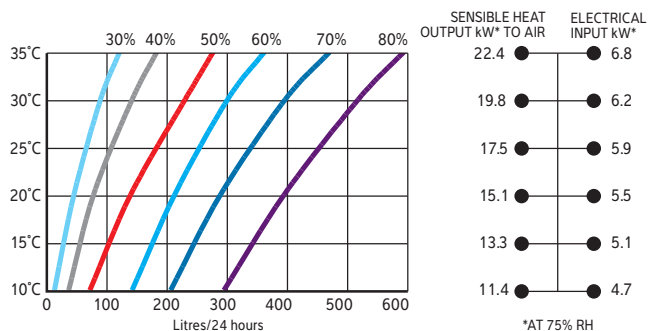


Features

- Self contained with fully automatic operation
- Integral humidistat
- Polyester coated evaporator and condenser
- Plastisol coated galvanised steel cabinet
- Reverse cycle defrost for very low temperature operation

For options see page 13

Performance data



Applications

- Warehousing and equipment storage
- Metal and spare parts storage
- Electrical sub-stations
- Data centres
- Car storage facilities

Specifications	Units	DH 300BY
Operating temperature range	°C	-15 - +35
Dehumidification @ 30°C/60% RH	l/24h	300
Heat recovered to air @ 30°C/60% RH	kW	14.7
Air flow	m ³ /h	5000
External static pressure	Pa	60
Sound pressure level @ 3m	dB(A)	66
Refrigerant		R407c
Power supply	V/Hz	400/3ph/50
Nominal power consumption	kW	6.7
FLA	A	19
Maximum supply fuse	A	24
LRA (compressor start)	A	101
LRA (compressor soft-start)	A	34
Product size (w x d x h)	mm	980 x 826 x 1475
Weight	kg	220
Condensate drain size (flexible plastic hose)	inch	1½ BSPM



HIGH CAPACITY DEHUMIDIFIERS FLOOR STANDING



DH 600



Features

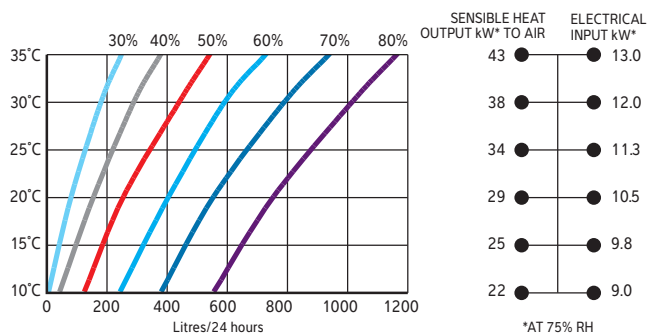
- Self contained with fully automatic operation
- Integral humidistat
- Polyester coated evaporator and condenser
- Plastisol coated galvanised steel cabinet
- Reverse cycle defrost for very low temperature operation

For applications see page 11

Options

- Top or rear fan outlet (DH 150/600 only)
- High pressure fan
- Return air filter
- Condensate pump
- Compressor soft start
- Top discharge box
- Heat recovery to water
- External condenser unit
- Remote humidistat

Performance data



Specifications	Units	DH 600BY
Operating temperature range	°C	-15 - +35
Dehumidification @ 30°C/60% RH	l/24h	600
Heat recovered to air @ 30°C/60% RH	kW	29.7
Air flow	m ³ /h	9000
External static pressure	Pa	80
Sound pressure level @ 3m	dB(A)	63
Refrigerant		R407c
Power supply	V/Hz	400/3ph/50
Nominal power consumption	kW	10
FLA	A	26
Maximum supply fuse	A	35
LRA (compressor start)	A	135
LRA (compressor soft-start)	A	55
Product size (w x d x h)	mm	1730 x 1250 x 1600
Weight	kg	497
Condensate drain size (flexible plastic hose)	inch	1½ BSPM



HIGH CAPACITY DEHUMIDIFIERS

SMART CONTROL



Features

- Dynamic heat pump heat recovery
- Constant flow EC fan (models 600, 900, 1200)
- Speed controllable EC fan (model 1500)
- PLC control with 3.5" touchscreen user interface
- Remote monitoring/control

Options

- Fresh air module
- Upgraded LPHW heat exchanger for air
- Electric resistance air heaters (6/12/18kW)
- Air cooling with remote condenser
- Integral LPHW heat exchanger for air heating



VARIHEAT TOUCHSCREEN

Electrical heater option notes

- In lieu of LPHW heat exchangers
- 6kW or 12kW is available for 600 and 900 models
- 12kW or 18kW is available for 1200 and 1500 models

Applications

- Data centres
- Electronic equipment rooms
- Sensitive materials storage



Specifications	Units	AA 600	AA 900	AA 1200	AA 1500
Air flow	m ³ /h	2000	2500	3500	4300
External available static pressure	Pa	330	220	290	350
Fresh air flow (option)	m ³ /h	0-900	0-900	0-900	0-900
External available static	Pa	100	100	100	100
Dehumidification @ 30°C/60% RH	l/h	4.6	6.5	8.5	10.1
Dehumidification @ 30°C/70% RH	l/h	5.5	7.8	10.8	13.2
Heat to air					
Net via heat pump	kW	5.1	7.1	10.0	14.0
Via standard LPHW @ 80°C	kW	11.0	13.5	24.0	28.0
Max available (heat pump + standard LPHW)	kW	14.0	18.6	30.0	36.0
Via upgraded LPHW @ 55°C	kW	9.4	11.5	20.4	23.8
Max available (heat pump + upgraded LPHW)	kW	12.7	16.9	27.0	36.8
Nominal power consumed	kW	2.1	2.8	3.6	4.7

AA denotes heat recovery to air and optional LPHW heater for air only



INDUSTRIAL DRYING ADSORPTION



DT 6000



Features

- Insulated housing with panels and inspection doors
- Possible to transport by forklift
- Internal purge zone reducing energy consumption and increasing the capacity
- Control system



DT 8000

Applications

- Process air systems
- Store rooms
- Pharmaceutical production
- Pumping stations
- Film production
- Electronics manufacturing
- Confectionery and food production
- Museums and art galleries
- Cold storage



Specifications	Units	DT 6000	DT 8000
Dehumidification @ 20°C/60% RH	kg/h	39	53
Dry air flow	m ³ /h	6000	8000
Available pressure	Pa	440	280
Wet air flow	m ³ /h	1700	2500
Available pressure	Pa	325	150
Power consumption	kW	54.2	79.5
Power supply	V/Hz	400/3ph/50	400/3ph/50
Sound level	dB(A)	73	73
Reactivation power	kW	48.0	72
Electrical (E), steam (S), gas (G) react. option		E/S/G	E/S/G
Filter class		4	4
Product size (l x w x h)	mm	2000 x 1350 x 1780	2000 x 1350 x 1780
Weight	kg	900	950

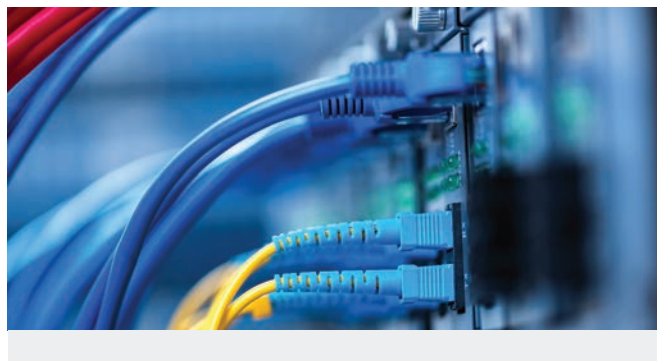




INDUSTRIAL DRYING ADSORPTION



DT 13000



Features

- Insulated housing with panels and inspection doors
- Possible to transport by forklift
- Internal purge zone reducing energy consumption and increasing the capacity
- Control system



DT 27000

Applications



- Process air systems
- Store rooms
- Pharmaceutical production
- Pumping stations
- Data centres
- Electronics manufacturing
- Confectionery and food production
- Museums and art galleries
- Cold storage

Specifications	Units	DT 13000	DT 19000	DT 27000
Dehumidification @ 20°C/60% RH	kg/h	86	126	182
Dry air flow	m ³ /h	13000	19000	27900
Available pressure	Pa	590	440	400
Wet air flow	m ³ /h	4200	6000	6980
Available pressure	Pa	200	450	250
Power consumption	kW	143.5	207.5	309.0
Power supply	V/Hz	400/3ph/50	400/3ph/50	400/3ph/50
Sound level	dB(A)	-	72	-
Reactivation power	kW	132	192	288
Electrical (E), steam (S), gas (G) react. option		E/S/G	E/S/G	E/S/G
Filter class		4	4	4
Product size (l x w x h)	mm	2250 x 1600 x 2300	2400 x 1900 x 2500	2900 x 1900 x 2500
Weight	kg	1350	1700	2400



RCU INSTALLATION

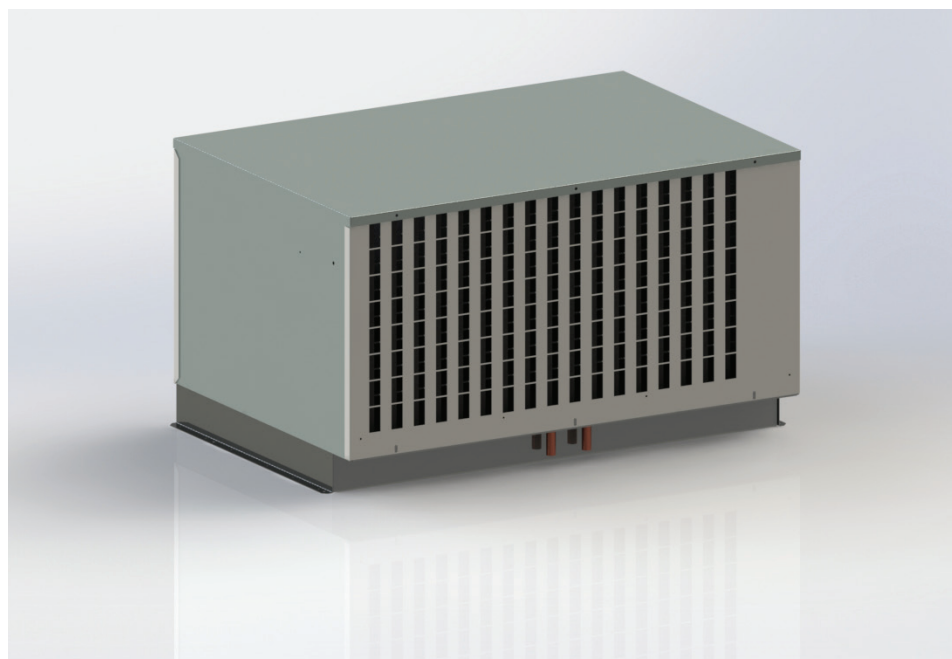
TECHNICAL DATA AND SELECTION

Specifications	Units	RCU 150	RCU 200	RCU 300
Nominal HP (fan)	HP	¼	2 x ¼	2 x ¼
Number of fans		1	2	2
Nominal air flow	m ³ /h	2150	3700	3700
Internal fuse	A	5	7	7
Full load amps	A	1.3	3	2.6
Condenser rows		5	3	5
Fins per inch		10	10	10
Bar stock valve size	inch	½	¾	¾
Heat of rejection at 55°C condensing, 35°C ambient	kW	10.7	12.8	17

Heat pump model	For max 35°C ambient condenser unit model
Variheat 600/900	RCU 150
Variheat 800	RCU 150
Variheat 1200	RCU 200
Variheat 1500	2 x RCU 150
Variheat 1800	RCU 300
Variheat 4000	2 x RCU 300
DH 150	RCU 150
DH 300	2 x RCU 200
DH 600	3 x RCU 300

Note: For maximum distance between RCU and dehumidifier consult Calorex.

RCU unit



TO DRY





WHY CHOOSE OUR PRODUCTS



CHOOSING THE BEST SOLUTION

Our wide range of units and operating temperatures ensure there is a system to fit every commercial or industrial need.



LARGE SCALE INDUSTRIAL DRYING

Refrigerant or desiccant drying solutions for manufacturing, process drying and cold storage.



REDUCE OPERATING COSTS

We focus on developing energy saving units



CREATING HEALTHY ENVIRONMENTS

Our wall mounted and floor standing dehumidifiers prevent mould and bacteria development and keep stored goods and artefacts dry.



SUSTAINABLE HEATING SOLUTIONS

Hot water heat pumps provide a sustainable heating solution which, compared to fossil fuel or direct electric systems, will dramatically cut operating costs and carbon emission.



WORK IN HEALTHY CONDITIONS

Our heaters, dehumidifiers and coolers keep temperature and humidity at a comfortable level.



PROTECTING THE ENVIRONMENT

Our development teams focus on reducing the carbon foot print by making our products as environmentally friendly as possible.



USER AND MAINTENANCE FRIENDLY

Our products are easy to install, use and maintain.

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CLIMATE SOLUTIONS