

PRODUCT BROCHURE

Precision Climate Control
Multi-DENCO®

***Efficient Solutions for
Important Environments***





PROMISE

Precision control is more than just an industry term, it is a promise. A promise we sustain using our extensive experience. *Multi-DENCO* is designed, with our expertise and experience, to deliver on that promise for many years to ensure your operations.

OUR EXPERIENCE SHAPES YOUR FUTURE SUCCESS

Efficient solutions for sensitive environments

We are involved and experienced in a wide variety of industries: from cooling towers and large volume handlers to office-based comfort cooling. We use this vast pool of knowledge to supplement our extensive history within the industry to continually design, innovate, redesign and improve our products so we can enable your operations to thrive.

Our products are based and driven on efficiency. They are design efficient, service efficient, control efficient and most importantly energy efficient. With reports suggesting that energy consumption within data centres accounts for approximately 2 % of global energy use, which is equivalent to the aviation sector, never before has energy efficiency been so fundamental to the future of the industry.

We do not only supply you with efficient components, but can supply efficient systems as well. With a wide range of industry knowledge, we provide ideal solutions to work in harmony with new or existing subsystems, maximising the potential saving returns. Our products are designed and built with the highest quality standards to provide an ecological and economical durability to your application. We can provide maintenance and service capabilities, further extending durability.

We have an established support network and a global presence. With international locations of factories, sales offices, service and support, we can be wherever you need us. To find your nearest contact, please visit:

www.dencohappel.com/contact/worldwide-locations

DencoHappel

- Decades of experience
- Comprehensive product portfolio
- Efficiency focused design
- System based solutions
- High quality designs and manufacture
- In-house maintenance and service capabilities
- Established support network
- Global presence
- Trusted and experienced suppliers



Multi-DENCO® is multi-purpose:

- Data centres
- Server rooms
- IT Cooling
- Labs
- Archives
- Libraries
- Clean rooms
- Lift motor rooms
- and many more ...

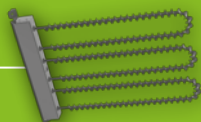
All components considered

HEAT EXCHANGER



- Copper/aluminum high-performance heat exchanger with corrugated fins
- CombiCool and FreeCool versions available

HEATING



- Electric heating elements with stainless steel fins
- Low surface temperature to avoid glowing and sparking
- Alternative options available for thyristor control or hot water heating

FANS

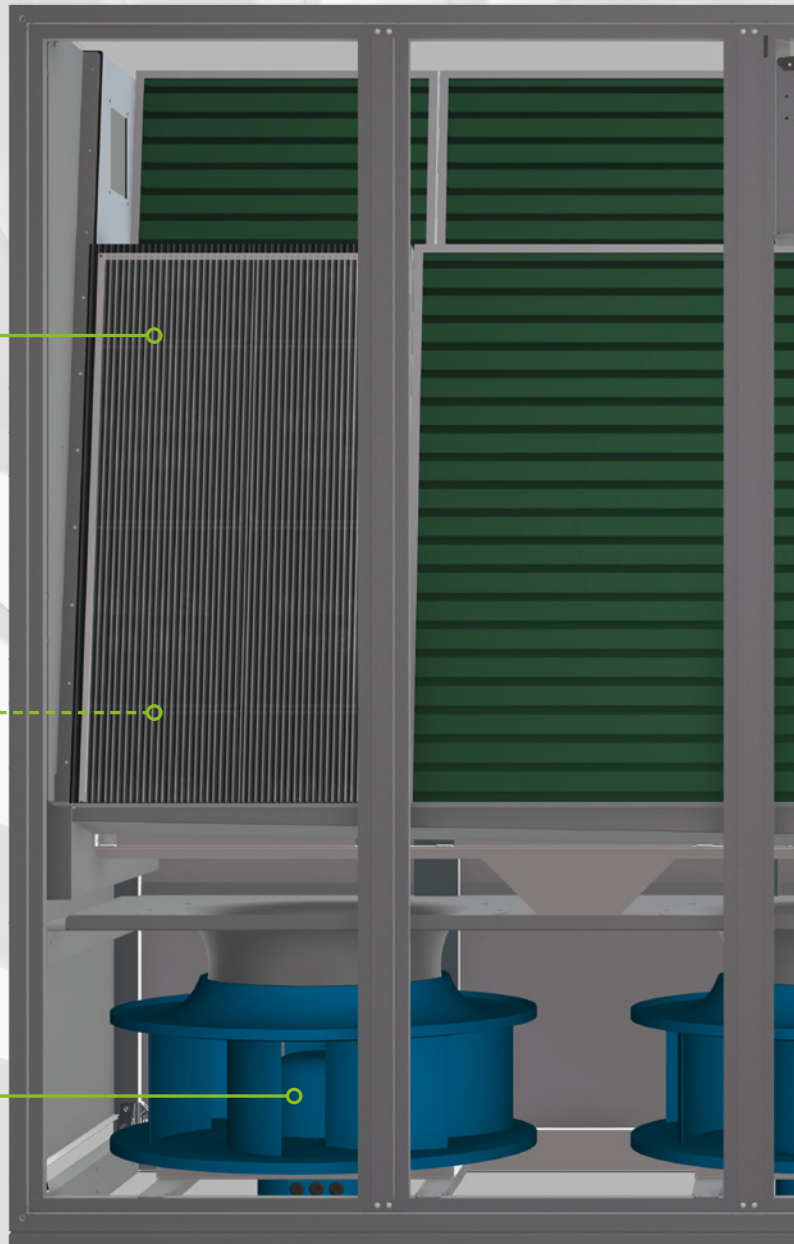


- Plug fan with backward curved, three-dimensional, profiled blades made from high-performance composite material
- High efficiency EC motor

VALVE AND ACTUATORS



- Large variety of 2-port and 3-port valves
- Drive Open Drive Close (DODC) or 0-IOV can be used
- Easy to service





ELECTRONIC EXPANSION VALVE

- Precise control of refrigerant flow giving improved control and better efficiency



ADVANCED CONTROL SYSTEM

- Bespoke software for controller and touchscreen display
- Can be integrated with various Building Management Systems (BMS)
- Can be upgraded with Uninterrupted Power Supply (UPS)



HUMIDIFIER

- Proportional-control electrode steam humidifier
- Microprocessor control with alarm and diagnosis unit



COMPRESSORS

- Variable control inverter compressors to match cooling to requirements
- R410A for efficient operation
- Single or tandem compressors (5 kw – 130 kW)
- Permanent magnet brushless DC motor



ISOLATION VALVES

- Hand adjustable shut off valves available
- Enables simple and reliable method for isolation



Many versions with top performance

THE FLEXIBLE ALL-ROUNDER

Multi-DENCO is a flexible and adaptable product. Up to 130 kW in seven casing sizes, there are three cooling versions, two airflow directions and several option strategies. It can work with room cooling or aisle containment and can humidify, dehumidify and even heat your room. With such a large variety of options, features and designs, it can be moulded to your needs.



Inverter compressors

- Energy efficient
- Enables closer, proportional control
- Lower start-up currents
- Fewer damaging ON/OFF routines
- Oil self-regulation

There are three cooling versions of the *Multi-DENCO* design available:

A-Version

Using R410A with inverter compressors in the indoor unit, it can deliver the best EER values with the security of a reliable refrigeration circuit.

C-Version

Chilled water cooling utilising either four row or six row coils for high performance along with a variety of valve and actuator combinations to suit any system requirements.

X-Version

To reduce sound or refrigerant within the controlled space, the X-Version is similar to the A-Version except the compressors are located in the outdoor unit.

All the above versions can be made as CombiCool units: an additional chilled water circuit added to the unit for primary cooling with the ability to suit FreeCooling applications and with the other circuit providing redundancy and backup.



Inverter compressors

For direct expansion versions, inverter compressors allow the unit to match your load. This enables closer, proportional control. The inverter looks at several variables and then adjusts its speed to match the demand exactly.

EC plug fans

The use of the largest EC plug fans possible for the space inside a *Multi-DENCO* unit allows for slower speeds resulting in quieter, more efficient fan operation.

Advance controls

The latest control technology is integrated into a *Multi-DENCO* unit along with a 4.3" touch screen display. This combines with networking capabilities and system recording to give high quality feedback and control.

Inbuilt redundancy

All *Multi-DENCO* units can be customised into a CombiCool configuration: Three rows of the coil being for one circuit, the other three being for a separate circuit. This allows for 100 % cooling redundancy within the unit with the controls system being easily able to switch between each circuit.



CombiCool

- Inbuilt redundancy
- Freecooling possibilities
- Automatic change-over
- Cooling diversity
- Established technology

Technical Data

Model Sizes		DMA010	DMA018	DMA030	DMA045	DMA065	DMA092	DMA130
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Cooling¹

Total cooling duty	kW	10.0	18.0	30.0	45.0	65.0	92.0	130.0
Sensible cooling duty	kW	9.6	16.9	28.7	42.8	60.7	84.4	119.3
Sensible heat ratio (SHR)		0.96	0.94	0.95	0.95	0.93	0.92	0.92

Fans

Air flow	m³/s	0.83	1.43	2.40	3.53	5.09	6.47	9.19
Air flow	m³/h	2,993	5,148	8,640	12,722	18,338	23,280	33,100
External pressure	Pa	50	50	50	50	50	50	50
Power input	kW	0.6	1.6	1.5	2.5	4.1	6.8	10.8
Number of fans		1	1	1	1	2	2	3

Compressors¹

Refrigerant		R-410A						
Type		Inverter Scroll						
Number of compressors		1	1	1	2	2	2	2
Number of circuits		1	1	1	1	1	1	1
Power input	kW	2.2	4.2	6.7	10.2	15.2	21.6	31.1
Energy efficiency ratio (EER)		4.5	4.3	4.5	4.4	4.3	4.3	4.2

Humidifier

Humidifier duty	kg/h	3	3	8	8	8	15	15
Power input	kW	2.3	2.3	6.0	6.0	6.0	11.3	11.3

Heating

Electrical heating	kW	4	6	9	12	12	18	18
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Sound

Sound pressure level ²	dB (A)	60	70	66	74	72	75	75
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Weight and Dimensions

Height	mm	1,940	1,940	1,940	1,940	1,972	1,972	1,972
Width	mm	600	800	1,180	1,670	1,992	2,500	3,380
Depth	mm	600	600	780	780	780	880	880
Weight	kg	180	210	290	410	550	700	1,000

We reserve the right to make technical modifications without prior notice.

Data is taken from downflow configuration and is representational of upflow arrangement.

¹ Return air conditions: 24 °C / 50 % R.H., Condensing temperature 45 °C

² Sound pressure level at a distance of 2 m, under free-field conditions, above a raised floor

Technical Data

Model Sizes		DMC010	DMC018	DMC030	DMC045	DMC065	DMC092	DMC130
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Cooling¹

Total cooling duty	kW	10.7	18.4	31.1	46.0	67.8	107.6	150.6
Sensible cooling duty	kW	10.1	16.8	29.6	43.5	63.7	100.9	140.0
Sensible heat ratio (SHR)		0.94	0.94	0.94	0.94	0.94	0.94	0.93

Fans

Air flow	m³/s	0.83	1.42	2.40	3.53	5.09	7.43	10.68
Air flow	m³/h	2,993	5,148	8,640	12,722	18,338	26,750	38,450
External pressure	Pa	50	50	50	50	50	50	50
Power input	kW	0.6	1.6	1.5	2.5	4.1	6.8	10.6
Number of fans		1	1	1	1	2	2	3

Water

Unit pressure loss ²		44	45	46	33	35	58	53
Volume flow		1.8	3.2	5.4	7.9	11.5	18.7	25.9

Humidifier

Humidifier duty	kg/h	3	3	8	8	8	15	15
Power input	kW	2.3	2.3	6.0	6.0	6.0	11.3	11.3

Heating

Electrical heating	kW	4	6	9	12	12	18	18
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Sound

Sound pressure level ³	dB (A)	60	71	66	74	72	77	78
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Weight and Dimensions

Height	mm	1,940	1,940	1,940	1,940	1,972	1,972	1,972
Width	mm	600	800	1,180	1,670	1,992	2,500	3,380
Depth	mm	600	600	780	780	780	880	880
Weight	kg	140	170	240	320	510	610	810

We reserve the right to make technical modifications without prior notice.

Data is taken from downflow configuration and is representational of upflow arrangement.

¹Room conditions are 24°C / 50% R.H. Units operating at a 5 degree approach (7 / 12) with 100% water using a standard heat exchanger.

²Units are using a 3-way with bypass valve with a DODC actuator (other options are available)

³Sounds pressure level at a distance of 2m, under free-field conditions, above a raised floor.

Technical Data

Model Sizes		DMX010	DMX018	DMX030	DMX045
Cooling¹					
Total cooling duty	kW	10.1	19.0	28.9	45.2
Sensible cooling duty	kW	9.6	18.0	27.7	43.3
Sensible cooling ratio (SHR)		0.97	0.95	0.97	0.96
Fans					
Air flow	m³/s	0.75	1.33	2.17	3.25
Air flow	m³/h	2,700	4,800	7,800	11,710
External pressure	Pa	50	50	50	50
Power input	kW	0.5	1.3	1.2	2.0
Number of fans		1	1	1	1
Humidifier					
Humidifier duty	kg/h	3	3	8	8
Power input	kW	2.3	2.3	6.0	6.0
Heating					
Electric heating	kW	4	6	9	12
Outdoor Unit					
Number of outdoor units	kW	1	1	1	2
Power consumption	kW	2.6	5.1	7.2	10.9
Sound					
Sound pressure level ²	dB (A)	58	68	63	71
Weight and Dimensions					
Height	mm	1,940	1,940	1,940	1,940
Width	mm	600	800	1,180	1,670
Depth	mm	600	600	780	780
Weight	kg	110	180	270	340

We reserve the right to make technical modifications without prior notice.

Data is taken from downflow configuration and is representational of upflow arrangement.

¹Room conditions are 24°C / 50% R.H., condensing temperature 45°C

²Sound pressure level at a distance of 2m, under free-field conditions, above a raised floor.

SERVICE AND MAINTENANCE FOR PEACE OF MIND

Our committment to you

Specification and Installation

Whether you choose to have DencoHappel, or another supplier's equipment installed, we will be by your side to ensure installation and commissioning is completed efficiently and effectively.

Evaluation and Recommendation

DencoHappel service experts will visit site and evaluate your existing equipment. We can offer recommendations how to achieve the best from your existing equipment, enhancing efficiency and longevity.

First Fix Strategy

If you have a problem or an issue we will work with you to fix the problem on site the first time our engineers visit. We will be by your side to ensure your equipment is functioning and achieving the best output in the most efficient manner achievable.

Development and Replacement

We will build a relationship with you and learn your needs. We will then be able to use our knowledge of existing and developing systems to be able to advise when the best choice is a replacement system. Our engineering and manufacturing teams keep our engineers informed of technological advancements, so when it is time to upgrade and replace your equipment, we will be the perfect partner to help you through the benefits and gains from new, more efficient equipment.

Contract levels to suit all requirements

We provide an excellent choice of planned maintenance options along with essential emergency cover to give you peace of mind.



Benefits

- Single Heating, Ventilation and Air Conditioning service provider
- Broad and in depth system knowledge
- Fix or replace with the same team
- Focused on the customer's ongoing operations



DencoHappel is a globally operating company with great expertise in air treatment, air conditioning and filtration technology.

Our nearest consulting and service teams will be glad to discuss ideas and develop creative and effective solutions with you.

