

⌂ AIR CONDITIONING & HEATING

Multi-DENCO®

# PRECISION CLIMATE CONTROL

>> 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.

# Efficient solutions for sensitive environments

We are involved and experienced in a wide variety of industries and 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.

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.flaktgroup.com](http://www.flaktgroup.com)

## FläktGroup

- 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

” *Our experience  
shapes your future success*



## Multi-DENCO® IS MULTI-PURPOSE

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

# Inside Multi-DENCO®

## All components considered

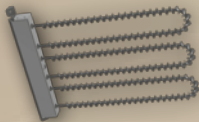
### 1 Advanced Control System

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



### 2 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



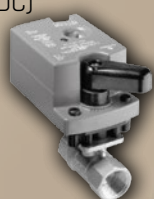
### 3 Fans

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



### Valve and Actuators

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







#### 4 *Electronic Expansion Valve*

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



#### 5 *Advanced Control System*

- Bespoke software for controller and touchscreen display
- Can be integrated with various Building Management Systems (BMS)



#### 6 *Humidifier*

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



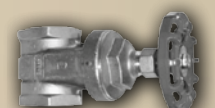
#### 7 *Compressors*

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



#### *Isolation Valves*

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





---

## Multi-DENCO®

# Many versions with top performance

---

There are four cooling versions of the *Multi-DENCO®* design available:  
A-Version, C-Version, X-Version and F-Version.

**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.

The A-Version and C-Version 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.

**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.

**F-Version.** The combination of a mechanical and a FreeCool system creates opportunities for precision cooling with minimal energy requirements, whilst guaranteed resilience with the direct expansion circuit that is able to provide 100% of the cooling requirements.



## CombiCool

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



## Inverter compressors

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



---

# The flexible Allrounder

---

*Multi-DENCO* is a flexible and adaptable product. Up to 130kW 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.** 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.







# Technical Data

## Multi-DENCO® | A-Version

### Cooling<sup>1</sup>

Model Sizes		DMA010	DMA018	DMA030	DMA045	DMA065	DMA092	DMA130
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

### Compressors<sup>1</sup>

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
--------------------	----	---	---	---	----	----	----	----

### Sound

Sound pressure level <sup>2</sup>	dB (A)	60	70	66	74	72	75	75
-----------------------------------	--------	----	----	----	----	----	----	----

### 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.

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

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

# Technical Data

## Multi-DENCO® | C-Version

### Cooling<sup>1</sup>

Model Sizes		DMC010	DMC018	DMC030	DMC045	DMC065	DMC092	DMC130
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 <sup>2</sup>		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
--------------------	----	---	---	---	----	----	----	----

### Sound

Sound pressure level <sup>2</sup>	dB (A)	60	71	66	74	72	77	78
-----------------------------------	--------	----	----	----	----	----	----	----

### 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

<sup>1</sup>We reserve the right to make technical modifications without prior notice. Data is taken from downflow configuration and is representational of upflow arrangement.

<sup>2</sup>Room conditions are 24°C / 50% R.H. Units operating at a 5 degree approach (7 / 12) with 100% water using a standard heat exchanger.

<sup>3</sup>Units are using a 3-way with bypass valve with a DDC actuator (other options are available). <sup>4</sup>Sounds pressure level at a distance of 2m, under free-field conditions, above a raised floor.

# Technical Data

## Multi-DENCO® | X-Version

### Cooling<sup>1</sup>

Model Sizes		DMX010	DMX018	DMX030	DMX045
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 heat 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

Electrical 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 <sup>2</sup>	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.

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

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



# Technical Data

## Multi-DENCO® | F-Version

### Cooling

Model Sizes		DMF030	DMF045	DMF065
-------------	--	--------	--------	--------

### Direct Expansion Cooling

Sensible Cooling (Max)	kW	36.1	52.5	73.6
Power Input	kW	9.3	13.2	18.6
Refrigerant		R410A		
Type		Inverter scroll		
Number of Compressors		1	2	2
Number of Circuits		1	1	1

### Freecooling

Sensible cooling (FreeCool Only)	kW	24.4	36.5	53.1
FreeCool Power Input	kW	0.9	1.6	2.7
FreeCool Flow Rate	l/s	1	1.75	2.5
Pump External Head (Max)	kPa	103	89	67

### Fans

Airflow	m3/s	2.17	0.33	4.69
Airflow	m3/h	7,800	1,170	16,900
External Pressure	Pa	50	50	50
Power Unput	kW	1.4	2.1	3.4
Nuber of fans		1	1	2

### Dimensions

height	mm	1,940	1,940	1,972
width	mm	1,180	1,670	1,992
depth	mm	780	780	780

We reserve the right to make technical modifications without prior notice. Data is taken from downflow configuration and is representational of upflow arrangement.  
 Direct Expansion: RAT 30°C / 30% RH / 45°C condensing temperature. Represents maximum capacity at conditions. Values based on maximum conditions.  
 Inverter compressor have increasing efficiency in partial load. FreeCool: RAT 30°C / 30% RH / T 9°C / 100% Water. Based on recommend pipe size and flow rate stated.  
 FreeCool conditions dependent upon ambient conditions and indoor requirements.  
 Values shown are only for example and can vary on application. Speak to your local sales office for a personalised calculation.



# Service and maintenance for peace of mind

## **Our commitment to you**

### 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
- Installation
- Maintenance and servicing
- Assembly services
- Spare parts
- Customer service
- Consulting
- Refurbishing
- Training





## Specification and Installation

Whether you choose to have FläktGroup, 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

FläktGroup 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.

## EXCELLENCE IN SOLUTIONS

WWW.FLAKTGROUP.COM

MULTI-DENCO®

FläktGroup is the European market leader for smart and energy efficient Indoor Air and Critical Air solutions to support every application area. We offer our customers innovative technologies, high quality and outstanding performance supported by more than a century of accumulated industry experience. The widest product range in the market, and strong market presence in 65 countries worldwide, guarantee that we are always by your side, ready to deliver Excellence in Solutions.

### PRODUCT FUNCTIONS BY FLÄKTGROUP

Air Treatment | Air Movement | Air Diffusion | Air Distribution  
Air Filtration | Air Management | Air Conditioning & Heating  
Controls | Service

» Learn more on [www.flaktgroup.com](http://www.flaktgroup.com)  
or contact one of our offices

