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[*] AIR CONDITIONING & HEATING

Row-Denco

Row-DENCO[®]

> DENCO CLOSE CONTROL UNITS





DATA CENTRE COOLING

Through a history in close control, we have developed a broad and deep understanding of how to achieve data centres goals and ambitions.

Do not let your climate **limit you**

FläktGroup are involved and experienced in a wide variety of industries; from cooling towers and large volume air 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 to enable your operations to thrive.

Data centre design is no longer conventional or singular. With an industry focused on greater efficiency and productivity, techniques and innovations such as pre-fabrication, modular design, aisle containment and many others now have a larger prevalence. These new innovations sometimes present challenges for the cooling and control of the air. Our close control range, called DENC0 Products, is created in harmony with these innovations to achieve your desires. The designs can address your requirements, whether that would be data centre redesign, need for scalability, highest performance or maximised use of 'freecooling'.

The best data centres managers not only have to account for the present demands of their site, but they also plan and prepare for any number of future demands. They need equipment that can account for today, tomorrow and the next 10 to 20 years. DENC0 products are devised with this in mind by utilising EC technology, inverter compressors or other variable technologies so that they only work as hard as your servers. All these aspects help to improve the metrics that you view your data centre performance against and also help your PUE value progress towards to 1.

With international locations of factories, sales offices, contacts and support, we can be wherever you, your data or your site is located.



A trusted, experienced supplier:

- Decades of experience in close control industry
- Large variety within product portfolio
- Components with the latest technology
- Efficiency focused design
- Simple system integration and combination
- In-house maintenance and service capabilities

Row-DENCO®

MEETING YOUR FUTURE DEMANDS, TODAY



Key features:

- Rear to front airflow with multiple configurations available: no raised floor or suspended ceiling required for airflow leaving plenty of space for your services.
- Direct expansion (R410A) and chilled water variants available.
- White panels to improve room illumination, black panels are available as an option.
- Hot Swap fan technology: replaceable even during operation.

The data centre industry is no longer static; designers and managers must consider both the existing requirements for performance and output. They must predict the future for the data centre. They need scalability, adaptability, dependability, consistency and simplicity to allow for their data centre to grow and evolve efficiently.

Scalable

Row-DENCO is small, effective and due to its airflow design, it can be grouped with sets of servers. This allows you to order and install just in time for your data centre's growth and with multiple airflow configurations, it can grow in any direction.

Adaptable

Row-DENCO is a highly adaptable method for expansion of an existing data centre. The design requires no floor or ceiling void and has a small footprint (between 0.30 and 0.36 m²). It includes easy and simple connection points that allow for fast installation from either above or below.



- Slim design
- Electronic expansion valve
- Graphics based display
- SHR = 1
- Small footprint
- High EER
- Inverter compressors
- EC Fans

Dependable

Row-DENCO is easy for finding space for an N+1 configuration. The units can be networked together, allowing for a duty-standby configuration setup. The fans, as standard, operate an internal 'running redundancy', therefore if a fan needs replacing, the others can increase their speed to cover the cooling requirement whilst you can perform a hot swap.

Consistent

Row-DENCO is available as both direct expansion and chilled water units, but share the same design principles and features: mechanical connections available at the top and bottom, humidifier available for both, casing sizes and airflow configurations are the same for both types.

Simple

Row-DENCO units make the delivery, installation, commissioning and maintenance as straight-forward as possible. Whether by using integrated wheels to give easy positioning on your site or good accessibility to all internal components for maintenance. *Row-DENCO*, by design, helps lower risks to the room's performance with each airflow localised to particular servers.





ACCESSORIES AVAILABLE:

- Humidifer
- Dual power supply
- Interface cards
- Water leakage detection
- Smoke detection
- Floor clamping kits
- Flexible water connections
- Shut off valves
- Power transducer
- Compressor sound attenuation

Technical Data

Row-DENCO®

Direct Expansion

Cooling & Power		051	071	121
Total cooling duty ¹	kW	10.63	16.59	28.62
Sensible cooling duty	kW	9.61	15.67	27.37
EER	kW	3.43	3.1	3.2
Power consumption ³	kW	3.10	5.31	8.95
Airflow	m ³ /h	1500	2700	4200
No. of circuits		1	1	1
Weight and Dimensions				
Height	mm	2100	2100	2100
Width	mm	300	300	300
Depth	mm	1000	1000	1000
Weight ⁴	kg	175	190	193

Direct Expansion

Limitations		
Max inlet temperature	°C	40
Min inlet temperature	°C	23
Max inlet relative humidity ⁵	%	53
Min inlet relative humidity ⁶	%	20
Max outdoor temperature (Standard)	°C	45
Min outdoor temperature (Standard)	°C	-20
Max outdoor temperature (Winter kit)	°C	45
Min outdoor temperature (Winter kit)	°C	-35

Chilled water

Cooling & Power		020	025	035	036
Total cooling duty ²	kW	16.14	20.52	24.60	20.95
Sensible cooling duty	kW	16.14	20.52	24.60	20.95
Water pressure drop	kPa	14	21	29	55
Power consumption ³	kW	0.51	0.68	0.86	0.86
Airflow	m ³ /h	2520	3360	4200	4200
No. of circuits		1	1	1	2
Weight and Dimensions					
Height	mm	2100	2100	2100	2100
Width	mm	300	300	300	300
Depth	mm	1000	1000	1000	1000
Weight ⁴	kg	190	193	195	205

Chilled Water

Limitations		
Max inlet temperature	°C	55
Min inlet temperature	°C	16
Max inlet relative humidity ⁵	%	82
Min inlet relative humidity ⁷	%	7
Max water inlet temperature	°C	16
Min water inlet temperature	°C	6
Max temperature difference	°C	10
Min temperature difference	°C	3

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

¹ Return air conditions: 35°C/27% RH and 35°C ambient

² Return air conditions: 35°C/27% RH and 10/15°C water temperature

³ Power consumption for compressor (if applicable), fans outdoor (if applicable) and fans indoor

⁴ Weight is an approximation and representative of the 1000 mm deep configuration only

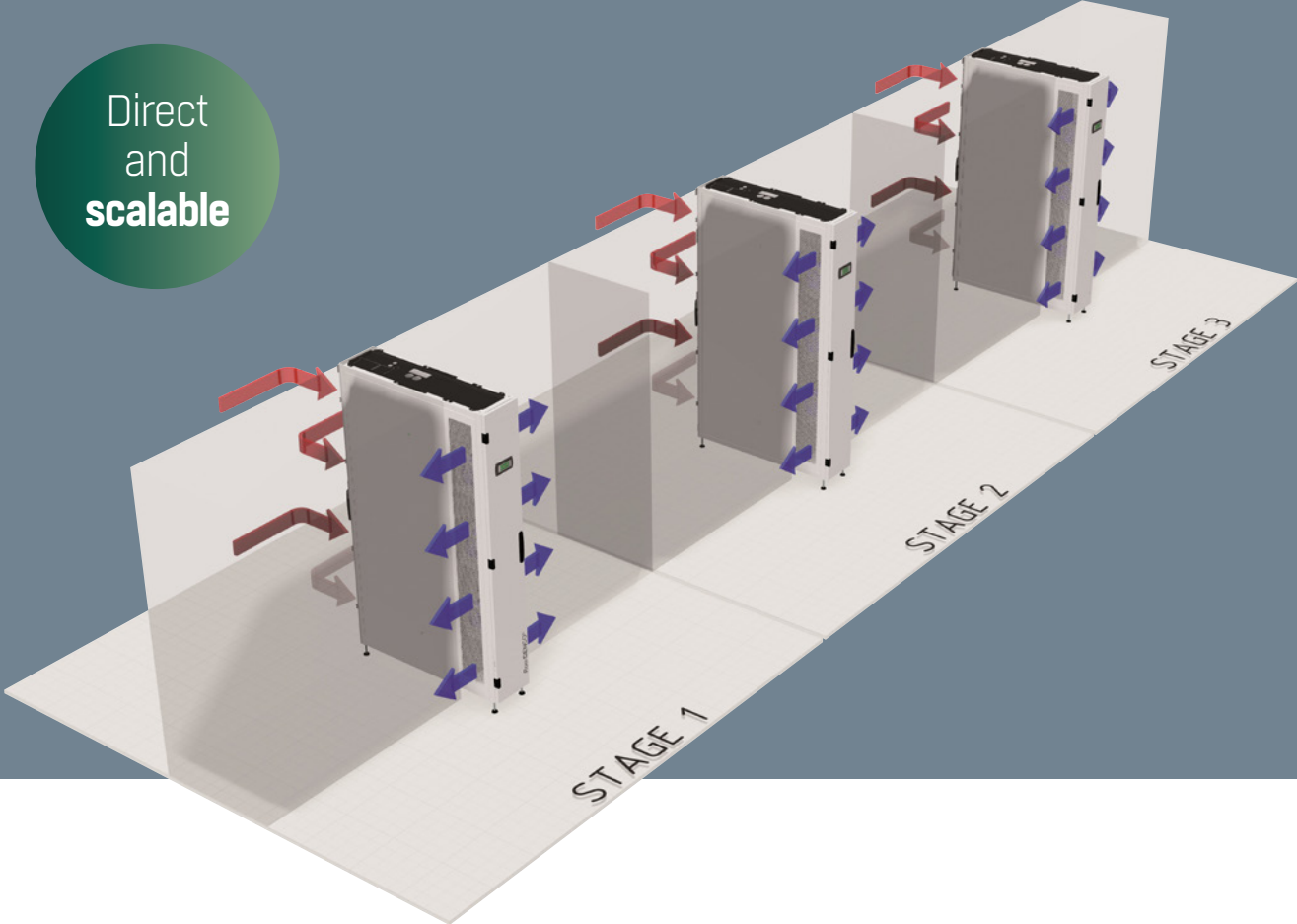
⁵ At 23°C air inlet temperature

⁶ At 40°C air inlet temperature

⁷ At 55°C air inlet temperature

What you need, only when you need it

Direct
and
scalable

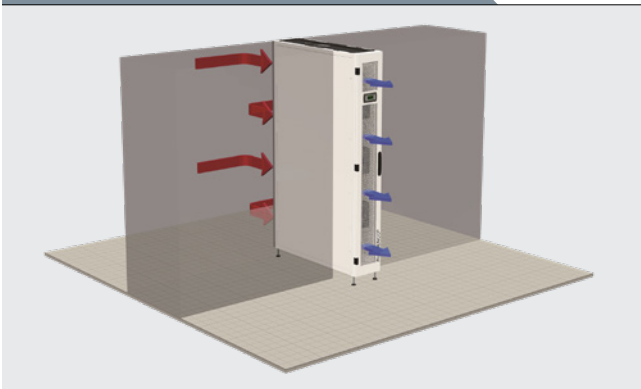


Designed to be considerate for the future

By placing a *Row-DENCO* unit amongst or alongside your servers, it allows for a shorter air path which helps increase the number of air exchanges per hour and allows for a higher temperature gradient. Scalability is a key benefit of *Row-DENCO*. Data centre designs may evolve and expand, *Row-DENCO* allows for incremental increases in cooling requirements.

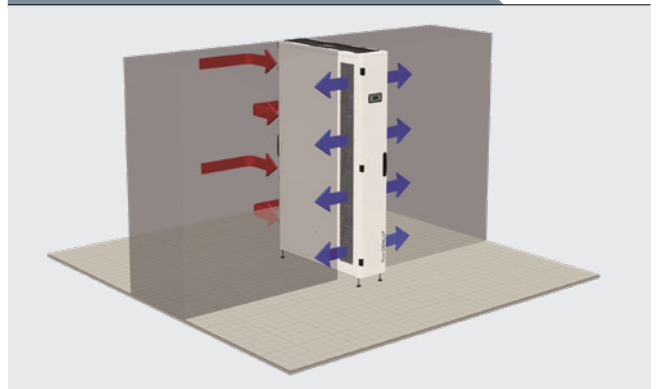
TO SUIT YOUR NEEDS

Front Discharge



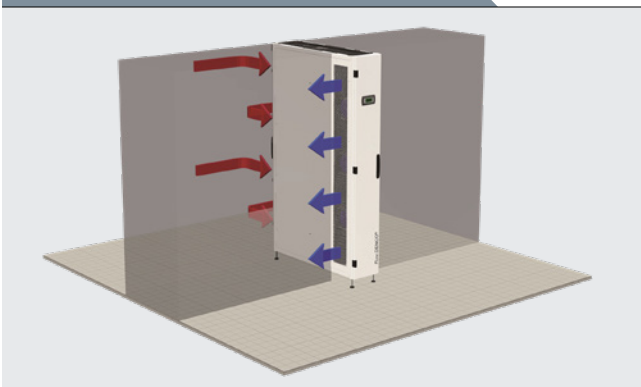
Front discharge is possible using either a 1,000 mm casing or 1,200 mm casing (shown above). Warm air is drawn from the hot aisle and then cold air is delivered directly out of the front of the unit, allowing for the air to diffuse back to the servers.

Left and Right Discharge



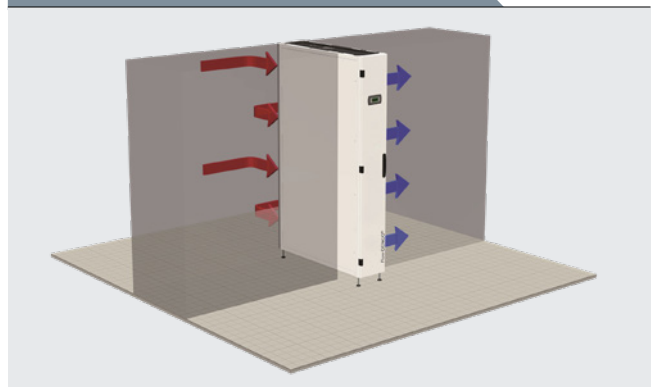
Left and right discharge uses a 1,200 mm deep case. As the Row-DENCO unit extrudes into the cold aisle, the air is delivered across the face of the servers through grilles on the side panels. The front door has no grille, therefore the air is forced horizontally.

Left Discharge



Left discharge uses a 1,200mm deep case. It is similar to the left and right discharge design except with one grille is blocked. Typically these designs would be used for the end of a server rack.

Right Discharge



Right discharge uses a 1,200 mm deep case. It is similar to the left and right discharge design except with one grille is blocked. Typically these designs would be used for the end of a server rack.

OUTDOOR UNITS



Condensing unit

A condensing unit would perfectly compliment your direct expansion indoor unit. It comes with inverter driven hermetic scroll compressors that use R410A to provide excellent energy saving. Part load operations represent 75 % of operation time, therefore being able to operate relative to this demand provides excellent energy efficiency when compared to traditional ON/OFF technology. Other equipment includes filter drier, oil separator, sump heater, EC fans (optional) and anti-vibration mounts (optional) to ensure a quiet, smooth and efficient operation. Winter start kits are available to enable operation as low as -35°C.

Condensing Units Data

Power		051	071	121
Fan power consumption ¹	kW	0.31	0.60	1.20
Compressor power consumption ¹	kW	2.63	4.56	7.19
Airflow	m ³ /h	6400	8640	15768
Weight and Dimensions				
Height	mm	1240	1200	1700
Width	mm	900	1450	1450
Depth	mm	420	550	550
Weight ²	kg	108	190	255

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

¹ Max power consumption

² Net weight approximation; may vary depending on options selected



Chiller

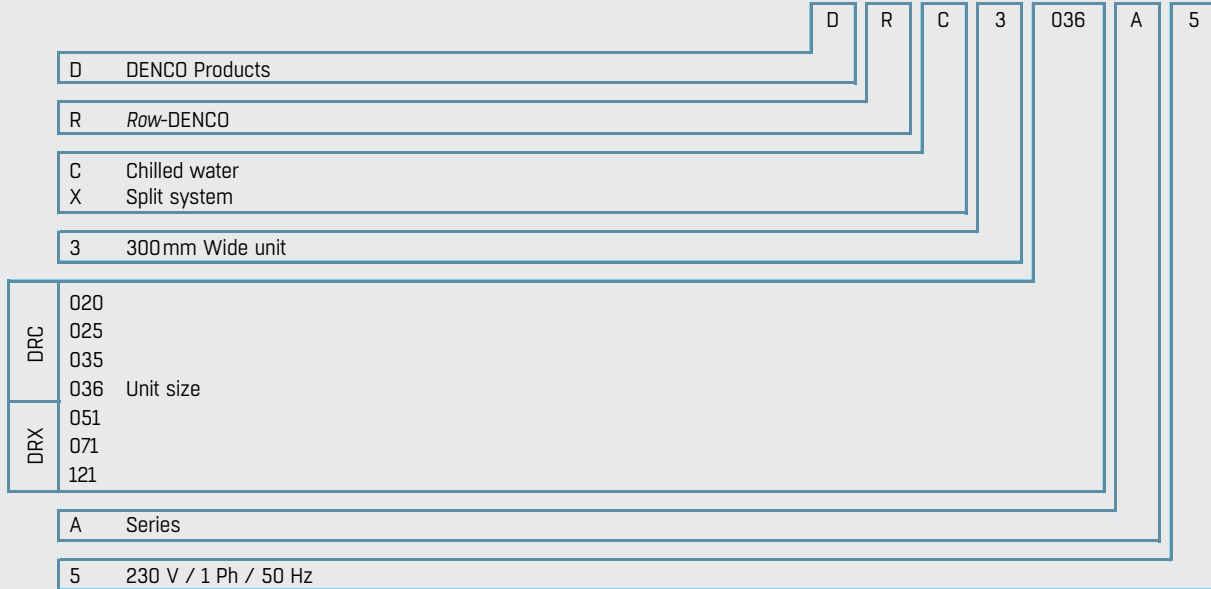
We have a vast portfolio of products that can support your system. Whatever you require; indoor or outdoor installation, air or water based cooling, with a cooling capacity range from 4.9kW to 2,749kW, we can offer a wide range of models with or without heat pumps and complimented with an extensive variety of accessories.

Our chillers are distinguished by their great potential for energy saving. They are also characterised by highly efficient performance and very low noise emissions. With chillers and heat pumps with reversible cycles, you can provide energy not only for cooling, but also for heating. With all these options available, we can provide you with the ultimate choice for your chiller needs.

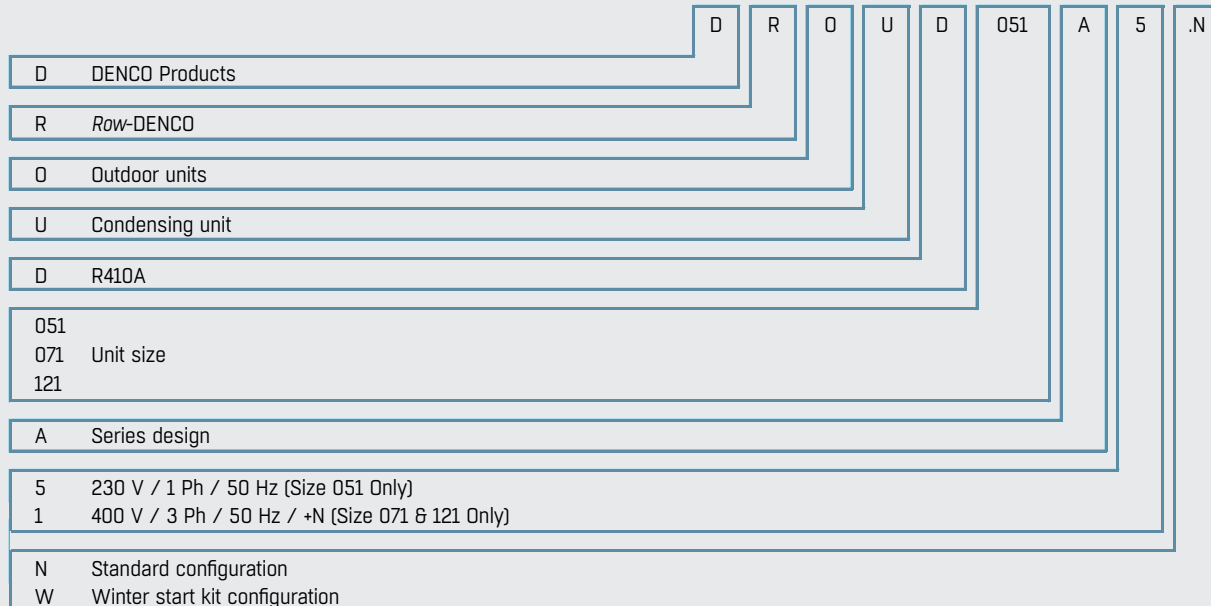
Type code

Indoor and Outdoor Units

Indoor Unit – Type code



Outdoor Unit – Type code



EXCELLENCE IN SOLUTIONS

WWW.FLAKTGROUP.COM

Row-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

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