



# Uniflair LDEV

High performance direct expansion indirect free cooling units with fixed speed compressors  
70-100 kW



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# Schneider Electric: Your Partner in Sustainable Data Center Cooling

At Schneider Electric, we are committed to providing innovative and sustainable solutions that help organizations reduce their environmental impact and operational costs.

Our Uniflair Room Cooling units are designed with eco-efficiency in mind, utilizing advanced technologies to minimize energy consumption while maintaining peak performance.





## EFFICIENT

Optimized unit design to maximize the potential saving. Reduction in power consumption with latest generation of fixed speed compressors and EC fan technology and further improvement of the potential saving with indirect free cooling to even boost the efficiency.



## SUSTAINABLE

Uniflair Room Cooling direct expansion units are designed to accelerate the transition to a more sustainable cooling moving to efficient solutions and playing an important role in the turn down on the climate impact.



## COMPACT

Combination of compact design and the maximization of cooling capacity makes Uniflair Direct Expansion the right solution for modern IT environments: thanks to the minimal footprint and the full-frontal component access, units can be installed next to each other or next to other equipment..



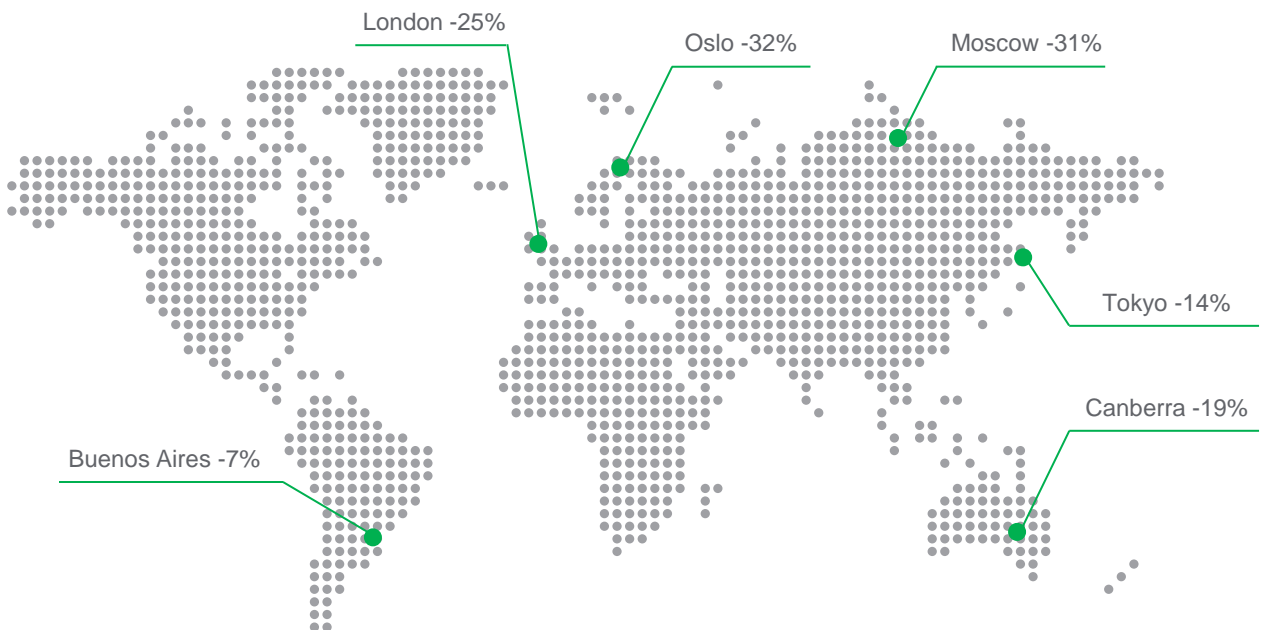
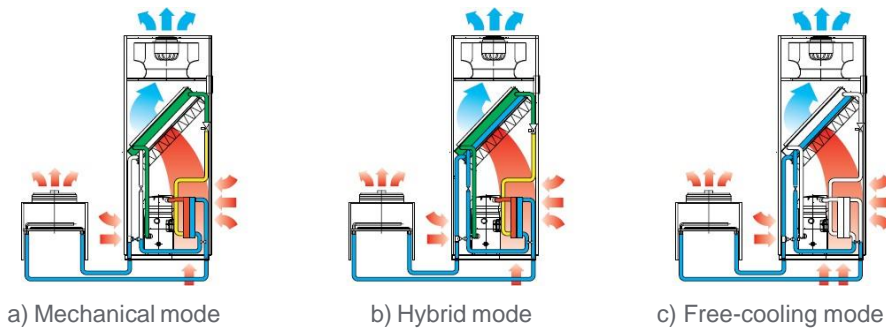
# Uniflair direct expansion indirect free cooling LDEV

The Indirect Free Cooling operation leverage on free cooling effect when the outdoor temperature is low enough to minimize energy consumption and it is not dependent on the quality of the outdoor air since it does not enter directly the data center.

The patented system is composed by three flow control valves (that replace a 3-way valve) to stabilize the pressure of heat transfer fluid between different operating modes (only mechanical, hybrid, total free-cooling) and minimize pressure drops.

Free Cooling is provided without the need to operate compressors and does not depend upon pulling outside air into the space (Indirect Free Cooling). This guarantees stable humidity and air quality in the space.

Uniflair Indirect Free Cooling Room Cooling units are designed to operate in three different modes (Fig. a, b and c)



*Indirect free cooling LDEV2722A vs air cooled LDAV2722A: annual energy saved at 100kW net sensible cooling capacity*

# System Architecture

## Main features

### Air filters

- Standard high efficiency EU4-pleated air filters housed in a dedicated plenum box
- Dirty filter differential pressure switch
- Low airflow differential pressure switch

### Cooling coil

- Heat exchanger coils designed for high sensible heat ratio (SHR) and reduced pressure drops
- Made from copper tubes mechanically expanded on aluminum fins
- Hydrophilic coil coating

### Fixed speed scroll compressor

- High energy efficiency in full load conditions
- Extended operating conditions
- Equipped with Intermediate Discharge Valves (IDVs)

### Electronically Commuted fans

- High-tech compound material impellers with optimized flow control
- High efficiency EC motors
- Low power consumption
- High part-load efficiency
- Fan speed regulation by Modbus signal
- Regulate airflow based on actual thermal load
- Easy serviceability with quick removal kit

### Structure and cabinet

- Self-supporting frame in galvanized steel with panels
- External panels coated with RAL9003 epoxy- polyester paint
- Internal panels with captive screws
- Internally lined with heat and sound-proofing insulation
- Refrigeration circuit inspection with unit active
- Side panels with coil inspection opening

### New microprocessor controller

- 7-inch, touch-screen LCD display interface
- Integrated management of the EEV and refrigerating circuit parameters
- Grouping logic integrated
- RS485 and TCP/IP card bus integrated targeting the main communication protocols
- Native communication with EcoStruxure system, NetBotz remote sensors
- USB and Service port integrated in the display interface

### Brazed plate

- Brazed plate water-cooled condenser made from stainless steel



# System Architecture

## Main configurable options

### Construction options

- Top air return with bottom or front discharge for downflow units (without additional floor stands)
- Double refrigerant circuit each equipped with a fixed-speed scroll compressor
- Refrigerant circuits include liquid refrigerant receiver, filter-dryer and liquid sight glass, electronic expansion valve, high-pressure pressostats with manual reset
- Single power supply: 400V/3ph/50Hz
- Double power supply (50Hz) with automatic integrated management on the active line to provide redundancy and ensure a constant power supply
- Electronic Expansion Valve (EEV) to provide accurate control of the refrigerant superheat ensuring high energy efficiency also at low external temperatures
- Standard, cleanable or low conductivity humidifier with immersed-electrodes for modulating steam production available as an option for units equipped with cooling and humidification configuration
- Condensate drain pump (cooling only and cooling + dehumidification configurations)
- Standard electrical heaters with extended fins, complete with double safety thermostat and manual resetting
- EU4 (standard) or EU5 air filters with or without motorized damper
- Power phase correction capacitors for compressors
- Active Flow Control to improve the balance of airflow between the cooling structure and IT equipment
- Energy meter and CO2 emission calculator
- Refrigerant: R410A
- Team group optimization of up to 30 units connected in a common network

### Additional accessories

The units can be supplied with the following external accessories:

- Suction from the top and front discharge plenums: they can be equipped with sound-proofed insulation or with high efficiency air filters
- Back and top suction direct free-cooling plenum
- Floor stands (200mm height)
- Floor stands with motorized damper (500mm height)
- Motorized damper on the air return side
- Adjustable baseframe (200 – 600 mm)
- Fire and smoke sensors
- Water leak detector
- Room air temperature / humidity sensor

### Regulations

Uniflair Room Cooling comply with the following directives:

- Machinery Directive 2006/42/EC (MD)
- Ecodesign and Energy Labelling 2009/125/EC
- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Pressure equipment Directive 2014/68/EU (PED)
- Regulation (EU) No 517/2014 on fluorinated greenhouse gases (F-GAS).

### Real-time control

Control software design to provide a highly accurate real-time control of room conditions and the complete unit management such as:

- electronic expansion valve complete management
- advanced interactivity with the installation environment
- dehumidification operating mode managed by means of EEV with devised algorithm which maintains constant air flow
- double set-point with digital input selection
- emergency operation

# Uniflair Room Cooling Direct Expansion LDEV 70-100kW

Downflow direct expansion indirect free cooling units with backward-curved fans equipped with EC motor and fixed speed scroll compressors



## Technical Data<sup>1</sup>

LDEV models		2422A	2722A
Fan type		EC backward-curved centrifugal motor fan	
Power supply	V/ph/Hz	400 V / 3ph / 50 Hz	
Fans	nr.	2	3
Air flow	m3/h	20000	26000
Gross total cooling capacity <sup>1</sup>	kW	79,2	94,7
EER		4,2	4,2

1: Data refer to nominal conditions: Room at 24°C – 50% RH, outlet/inlet water temperature 36/30°C, 0% glycol, ESP 20 Pa cooling capacities in Hybrid mode (DX+FC)

## Technical Data<sup>2</sup>

LDEV models		2422A	2722A
Fan type		EC backward-curved centrifugal motor fan	
Power supply	V/ph/Hz	400 V / 3ph / 50 Hz	
Fans	nr.	2	3
Air flow	m3/h	20000	26000
Gross total cooling capacity <sup>2</sup>	kW	109,1	134,1
EER		5,9	6,1

2: Data refer to nominal conditions: Room at 35°C – 30% RH, outlet/inlet water temperature 35/30°C, 20% glycol, ESP 20 Pa cooling capacities in Hybrid mode (DX+FC)

Dimensions		2422A	2722A
Height	mm	2150	2150
Length	mm	2082	2650
Depth	mm	900	900

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To learn more about Uniflair Room Cooling Solutions contact your Schneider Electric representative or visit [se.com/cooling](https://se.com/cooling)

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