

# Air Handling Units



## DV Cooler

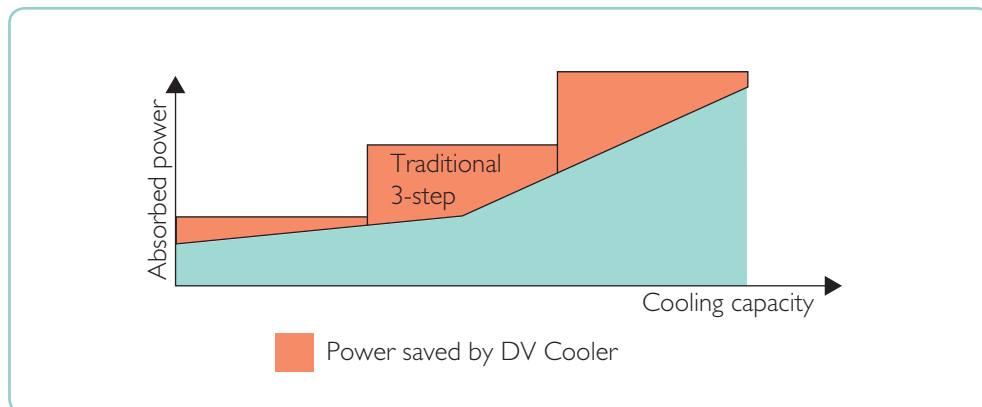
# Maximum comfort – energy efficient – reliable

## Unique cooling system for air handling units

- **8 sizes** – 0.4 to 5.50 m<sup>3</sup>/s (DV10 - DV60)
- **Stepless control** of the cooling capacity, 0-100%
- **Cooling capacity** (up to 76.4 kW) continuously adapts to cooling demand. Power consumption is strictly reduced to a minimum level
- **Reliability** – advanced control system ensures optimal performance

Cooler:	DV 10	DV 15	DV 20	DV 25	DV 30	DV 40	DV 50	DV 60
Airflow m <sup>3</sup> /s	0.8	1.11	1.65	2.33	2.65	3.33	4.2	5.5
Max cooling kW	11.1	15.7	23.3	33.8	36.7	47.3	58.1	76.4
EER at max cooling	3.0	2.9	3.4	3.0	3.2	3.6	3.3	3.4
EER at 50% cooling	4.5	4.1	5.2	4.7	4.9	5.1	5.1	5.2

*EER = Energy Efficiency Ratio, (cooling capacity/absorbed power) at nominal full airflow and 18 °C air temperature after evaporator.*



## DV Cooler 10-40 with inverter controlled compressor

## DV Cooler 50-60 with 2 compressors (1 with fixed speed and 1 inverter controlled)

The air handling unit section, DV Cooler, is a separate section containing a complete, stand-alone cooling compressor system. Internally a cooling control system takes care of all safety functions and the adaptation of the cooling capacity to the demands from the main air handling unit controller.

### Excellent comfort – constant temperature

The system is able to start cooling at a very low capacity – close to 0% without any sudden change in the supply temperature. At an increasing demand for cooling, the cooling capacity rises stepless, and the supply temperature is decreasing slowly and constantly for maximum comfort.

### Energy efficient inverter controlled compressor

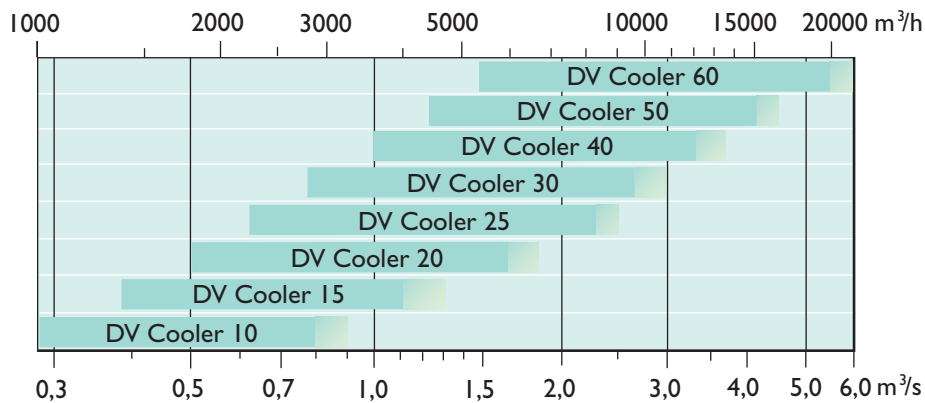
With the stepless solution the cooling capacity is adapted to the demand. The internal control system calculates the necessary speed for the compressor, and the energy consumption is as low as possible.

### Reliable

To avoid the compressor overheating and stopping, the system reduces the capacity slightly and continues to cool at this reduced level. The impact on the whole cooling system is reduced because peak loads are avoided and thus durability is improved for many years of reliable running. Only moderate maintenance is necessary.

# Capacity and environment

Air flow and cooling capacity for the 8 sizes



- Outdoor air temperature is reduced by 10 °C
- Temperature reduction will be less than 10 °C  
Selection of larger unit size is advisable if working in this area

*The following conditions apply for this given example:  
Outdoor air: 28 °C 50% RH, extract air: 25 °C 50% RH*

## A safe system with low impact on the environment

The system uses the chlorine free HFC refrigerant R-407C without any ozone depleting potential. To reduce the risk of leakage and contamination the cooling system is built with only a few essential components. Due to the accurate regulation of the cooling capacity, the power consumption is minimized.

### Easy maintenance and long term reliability

The components in the cooling circuit are from just one manufacturer; Danfoss. This secures easy maintenance, improved reliability and improved energy efficiency. The function and the components can be checked and manu-

ally overruled from the internal cooling control system (for maintenance use only) and the unit is delivered with a manual for Installation, Maintenance and Operation with detailed spare part lists. Easy access through big inspection doors makes service easier.

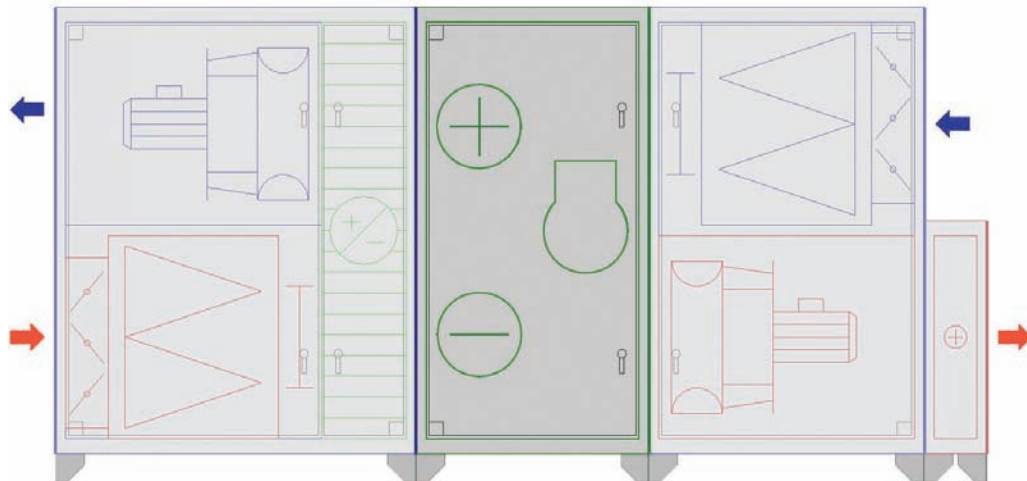
### The system is protecting itself

The controller includes an extended system to reduce the risk of pressure developing to a high level. This means reduced stress and impact on all components, contributing to longer lifetime and increased reliability.



# Easy installation and start-up

## Installation and start-up of DV Cooler



Example with DV Cooler section in air handling unit

### Easy installation

DV Cooler is a separate air handling unit section built to fit directly into Systemair DV air handling units. Install the DV Cooler section between the section with the rotary heat exchanger and the section with the supply fan. The sections are held together with DiscLock brackets that are delivered with the unit. Connect the water trap to the pipe on the side of the unit. That's all.

No additional ducts to, or from the air handling unit, no extra compressor or condenser with fans elsewhere in or on the building. A solution with the least obstacles for the users of the building.

Connect power – 3x400 volt, Neutral and Earth to the DV Cooler and connect the controller in the DV Cooler with the main air handling unit controller to transmit the 0-10 volt DC control signal. Also required is a digital start signal from the main air handling unit controller to the DV Cooler.

### Easy start-up

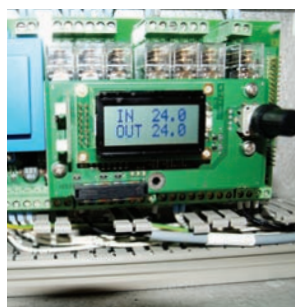
The unit has been started and factory tested and is preconfigured with the most common values for an easy start-up on the site. The pre-configuration should fulfill the basic demands for comfort cooling with only minor adjustments required on site. No other solution needs so few tasks to be carried out for a complete installation.

### Connection of alarm signal

Digital alarm signal from the controller in the DV Cooler is ready for connection to the main air handling unit controller or to a BMS system.

### The DV Cooler fits all AHU controllers

The internal cooling control system in the DV Cooler can be connected to all makes of major main air handling unit controllers. Only the 0-10 volt DC signal for the demanded capacity and the digital start signal are necessary. That's all.



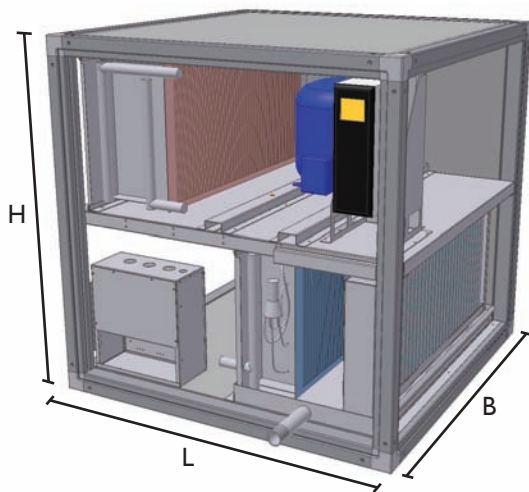
# Dimensions and documentation

## The cabinet

The standard Systemair DV cabinet with panels of 2 steel plates with 50 mm of heavy mineral wool provides good thermal and sound insulation of the DV Cooler.

All parts of the housing are corrosion protected with Alu-Zinc 185. A steel plate protected with Alu-Zinc 185 is in corrosion class C4 according to EN ISO 12944.2.

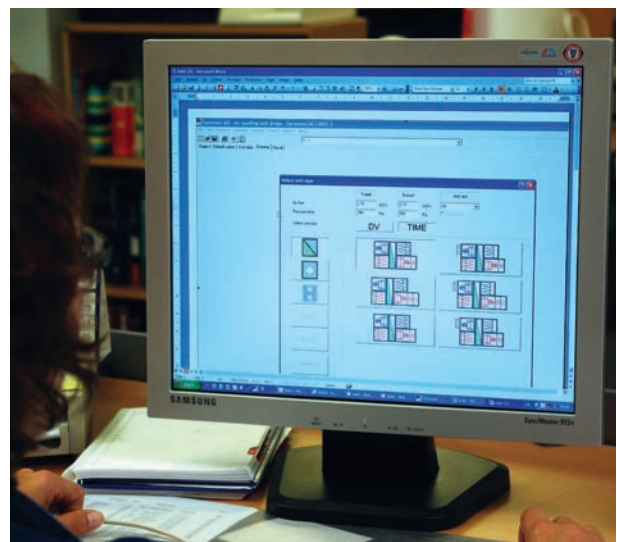
The air handling unit only increases in length by a maximum of 1270 mm when the DV Cooler is installed – see the accurate data in the table below.



	B	H	L
DV Cooler 10	970	970	970
DV Cooler 15	1120	1120	1120
DV Cooler 20	1270	1270	1120
DV Cooler 25	1420	1420	1270
DV Cooler 30	1570	1570	1270
DV Cooler 40	1720	1720	1270
DV Cooler 50	2020	2020	1420
DV Cooler 60	2170	2240	1420

## SystemairCAD is a unique software for design and selection

It is very easy to design a project with a DV Cooler. With the calculation programme – SystemairCAD you can design the DV Cooler and a complete DV air handling unit system. Insert the values for your project and SystemairCAD provides you with full technical information and documentation regarding capacity and dimensions, if required drawings in Auto-CAD can be produced.





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