

Dantherm[®]
CLIMATE SOLUTIONS



2022

ENERGY-EFFICIENT SOLUTIONS

FOR ELECTRONICS COOLING

DANTHERMGROUP

About us

Originally founded in 1954, the Dantherm Group is a European leader in portable and installed climate control solutions for a wide range of industries and uses. Based on the work of more than 500 passionate climate control experts and more than three million installations, our competence centres around Europe design and build exceptional heaters, coolers, dehumidifiers, and other products that form the backbone of these climate solutions. In everything they do, they remain focused on creating healthy and comfortable climate surroundings in a sustainable, energy-efficient and cost-effective way.



Five competence centres in Denmark, Germany, Italy, Spain and UK.



Competence centre

for electronics cooling, residential ventilation and heating and cooling solutions for field camps: Skive, Denmark.



Electronics cooling

Originally founded in 1958 and home to Dantherm Group's biggest manufacturing facility, the competence centre in Skive, Denmark, is highly specialised in the development of high-end electronics cooling solutions developed specifically to meet customer cooling requirements while lowering investment costs and energy consumption.



CONTENT

Based on the extensive knowhow of our climate solution experts across the Group, we have developed an industry-leading range of products and solutions all characterised by reliability, sustainability, efficiency and ease of use.

Being able to source everything from just one supplier will help streamline your purchasing supply lines and reduce your costs for internal handling. To that end, you'll also find our local presence with an extensive network of professional dealers across Europe helpful. It means support in your time zone and language – from people who understand your local market requirements.

Enjoy the read!

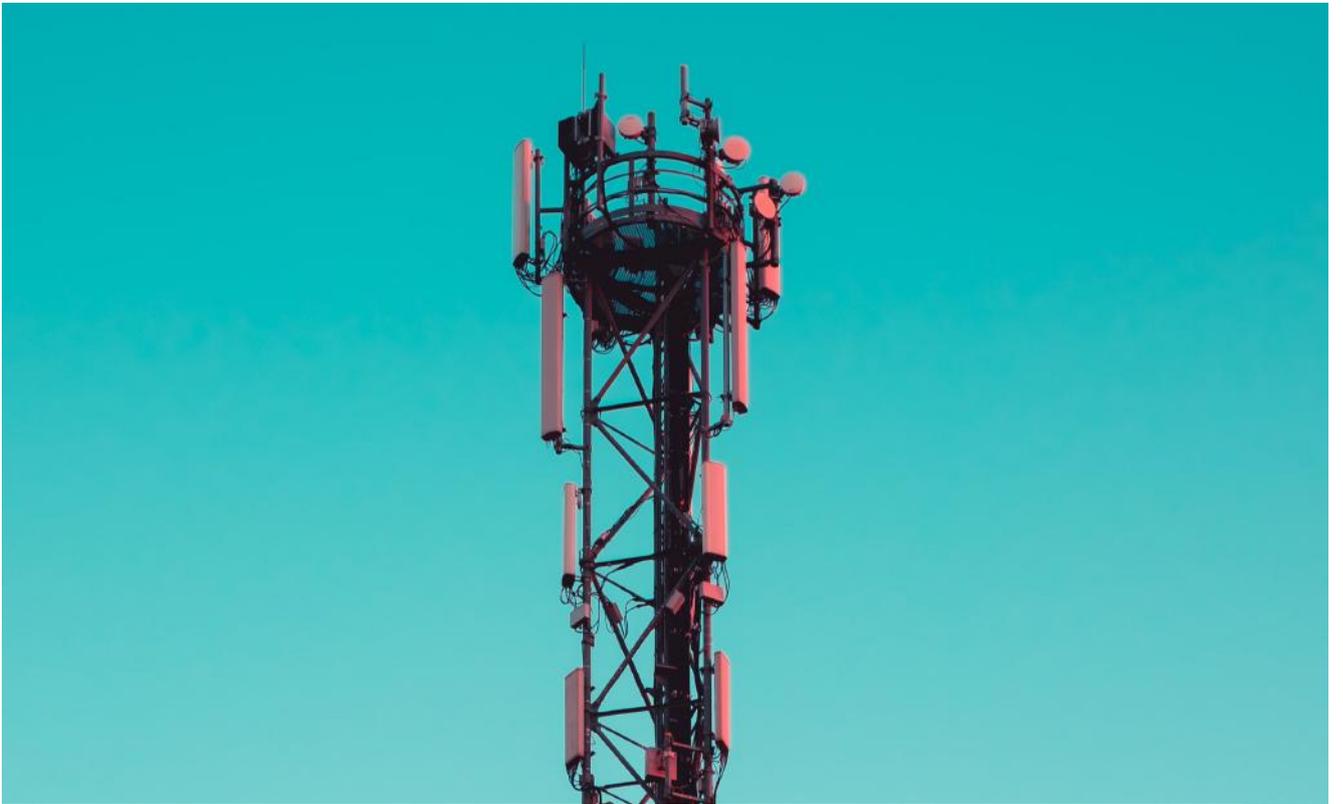
Our solutions rest on these four pillars:

Reliability has always been at the heart of everything we do. So we still use long-lasting, solid components that have been through extensive testing.

Sustainability is an integral part of how we work. We aim to create solutions that are at least as good for the environment as any comparable solution.

Efficiency is about delivering impressive performance while generating savings in the form of reduced energy costs.

Usability is key to any solution. Our experts do many usability tests to make sure ours are easy to install and hassle-free to operate.



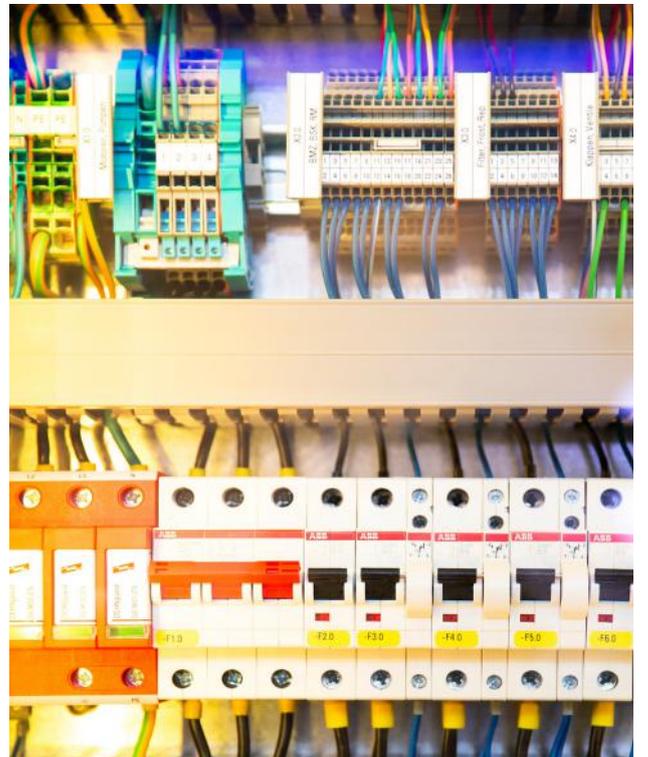
ELECTRONICS COOLING SOLUTIONS

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CONTROLLERS

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ACCESSORIES

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ELECONTRICS COOLING SOLUTIONS

With more than 20 years of developing and producing cooling solutions for the Telecom industry, Dantherm knows the business and the challenges met by network operators and suppliers.

Our solutions are customised for the telecom industry and provide reliable, energy-efficient heat removal from shelters, cabinets, enclosures and rooms containing temperature-sensitive electronic and telecommunications equipment.



WHY CHOOSE OUR ELECTRONICS COOLING PRODUCTS?



DECADES OF PROVEN RELIABILITY

With 20+ years of developing and producing electronics cooling solutions, we know your painpoints and how to resolve them.



FREE-COOLING TECHNOLOGY

Free-cooling is cost-effective controlled ventilation that cools your shelter or enclosure by means of ambient air without a compressor.



FLEXIBLE INSTALLATION

Our solutions are designed to easily fit into most application sites without any hassle.



SOLUTIONS FOR ALL CLIMATES

Our solutions are adapted to your site location, and the type and nature of your operations.



REDUCED OPERATING COSTS

We help you stay competitive by reducing your operating costs for electronics cooling.



COOL WHAT NEEDS COOLING

We only cool what actually needs cooling. It helps you capital expenditure requirements.



PROTECTING THE ENVIRONMENT

Our R&D teams focus on making our products as environmentally friendly as possible.



TECHNICAL SUPPORT AND AFTER-SALES CARE

International network of service agents and accredited technicians stand ready to assist.

ELECONTRICS COOLING SOLUTIONS

FREE-COOLING TECHNOLOGY

QUICK GUIDE



FB 900



DFC 350-450



COOLRACK



TKS 60

TECHNOLOGY TYPE



FREE-COOLING



DISPLACEMENT
-FREE-COOLING



HIGH CAPACITY
FREE-COOLING

CONTROLLER



CC 33000

APPLICATIONS



TELECOM AND
DATA CENTERS



RAILWAY SYSTEMS



MINES



FIBEROPTICS



ENERGY STORAGE



POWER TRANSMISSION
& DISTRIBUTION



UPS'S

	FB 900	DFC 350-450	COOLRACK	TKS 60
FREE-COOLING	●		●	
DISPLACEMENT -FREE-COOLING		●	●	
HIGH CAPACITY FREE-COOLING			●	●
CC 33000	●	●	●	●
TELECOM AND DATA CENTERS	●	●	●	●
RAILWAY SYSTEMS	●	●	●	●
MINES	●	●	●	●
FIBEROPTICS	●	●	●	●
ENERGY STORAGE	●			●
POWER TRANSMISSION & DISTRIBUTION	●			●
UPS'S	●		●	●

ELECONTRICS COOLING SOLUTIONS

AIR-CONDITIONING

QUICK GUIDE	 DC 450	 DC 3500
TECHNOLOGY TYPE		
 DC AIR-CODITIONING	●	
 DC SPLIT AIR-CODITIONING		●
CONTROLLER		
 CC0		●
APPLICATIONS		
 TELECOM AND DATA CENTERS	●	●
 RAILWAY SYSTEMS	●	●
 MINES	●	●
 BATTERY COOLING	●	●
 EMERGENCY EQUIPMENT	●	●
 UPS'S	●	●

FREE-COOLING FLEXIBOX 900



FB 900

The Flexibox 900 offers cost-effective and controlled free-cooling ventilation. The solution cools by means of ambient air without using a compressor, generating significant savings in all climates.

The unit comes standard with the Dantherm-developed CC 3000 cooling controller, which allows for settings configuration and live operation monitoring on any standard browser.

The Flexibox 900 can be used as a stand-alone unit or in combination with e.g. existing air-conditioning. This ensures maximum use of passive cooling, prolongs the air-conditioner service life and generates significant OPEX savings.

These units are very suitable for retrofitting into existing systems. The return on investment for the retrofit is achieved especially quickly in base stations, where comfort air-conditioning units run 24/7.



- Extremely energy-efficient – savings in all types of climates
- Total heat management – control of multiple external units
- Stable operation – stepless fan speed control
- Clean internal environment – overpressure system
- Extended air path protection – Dantherm AirMaze
- Flexible installation – with variants for indoor and outdoor use
- Low maintenance costs – long-life compact filter
- Maximum security – remote monitoring and configuration
- Integrated CC 3000 control system

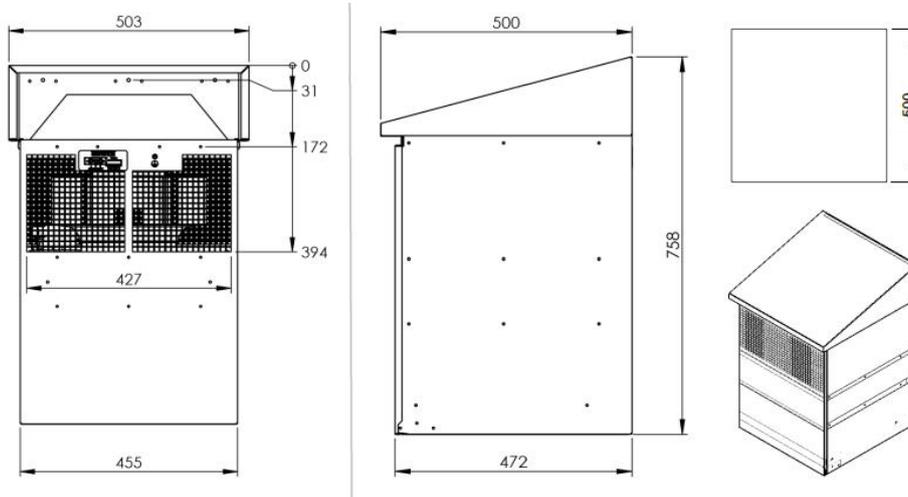
Specifications	Units	FB 900-48V	FB 900-230V
Operational temperature range	°C	-40/-25* to +55	-40/-25* to +45
Maximum cooling capacity at 25°C ambient, Δt = 10°C, 100%	W	8140	8610
Air flow – maximum	m ³ /h	2450	2590
Filter class		Coarse 60% (G4)	Coarse 60% (G4)
Input voltage range	VDC	48VDC (42-57VDC)	230V AC (200 to 277)
Power consumption 50/80/100%	W	78/239/366	71/284/400
Sound level, 50/80% @ 3m	dB(A)	47/56	49/59
Communication interface	Type	Ethernet SNMP	Ethernet SNMP
Controller		CC 3000	CC 3000
Product size outdoor (h x w x d)	mm	758 x 503 x 500	758 x 503 x 500
Product size indoor (h x w x d)		666 x 455 x 472	666 x 455 x 472
Net weight	kg	25	25

* Lowest operational temperature depends on installation

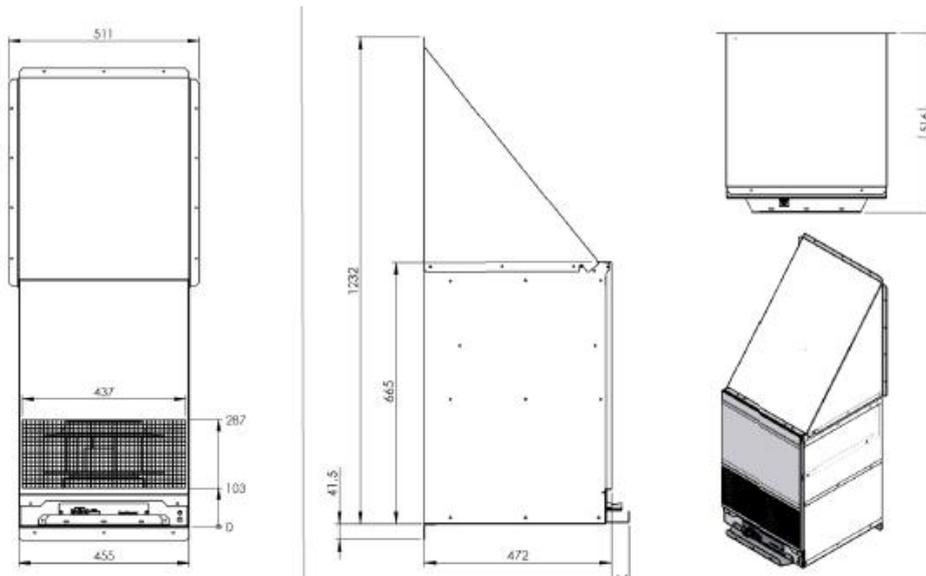
FREE-COOLING FLEXIBOX 900



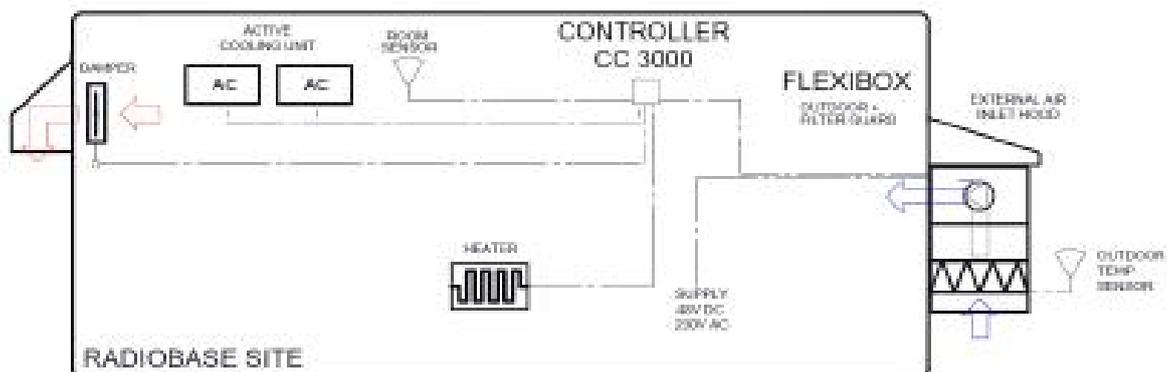
Flexibox 900 outdoor dimensions



Flexibox 900 indoor dimensions



Flexibox flow and connection chart



FREE-COOLING FLEXIBOX 900 WITH BAG FILTER



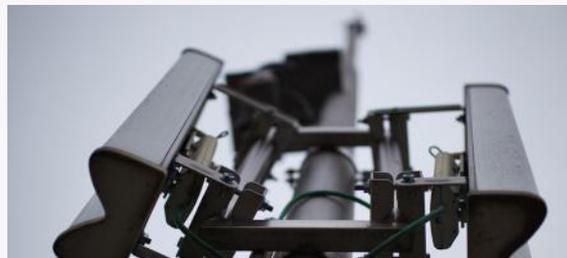
**FB 900
WITH BAG FILTER**

The Flexibox 900 with bag filter offers cost-effective and controlled free-cooling ventilation. The solution cools by means of ambient air without using a compressor, generating significant savings in all climates. The unit comes standard with the Dantherm-developed CC 3000 cooling controller, which allows for settings configuration and live operation monitoring on any standard browser.

The Flexibox 900 can be used stand-alone or combined with e.g. existing air-conditioning. This ensures maximum use of passive cooling, prolongs the air-conditioner service life and generates significant OPEX savings.

Fitted with a large bag filter this unit offers extended life time of the filter, thereby prolonging the intervals between filter changes.

These units are very suitable for retrofitting into existing systems. The return on investment for the retrofit is achieved especially quickly in base stations, where comfort air-conditioning units run 24/7.



- Extremely energy-efficient – savings in all types of climates
- Total heat management – control of multiple external units
- Stable operation – stepless fan speed control
- Clean internal environment – overpressure system
- Extended air path protection – Dantherm AirMaze
- Flexible installation – with variants for indoor and outdoor use
- Low maintenance costs
- Fitted with long-life bag filter for harsh environments
- Maximum security – remote monitoring and configuration
- Integrated CC 3000 control system

Specifications	Units	FB 900-230V
Operational temperature range	°C	-40*/-25 to +45
Maximum cooling capacity at 25°C ambient, $\Delta t = 10^\circ\text{C}$, 100%	W	8610
Air flow – maximum	m ³ /h	2590
Filter class		ISO ePM10 60% (F6)
Input voltage range	VDC	230V AC (200 to 277)
Power consumption 50/80/100%	W	71/284/400
Sound level, 50/80% @ 3m	dB(A)	49/59
Communication interface	Type	Ethernet SNMP
Controller		CC 3000
Product size indoor (h x w x d)	mm	1078 x 455 x 472
Net weight	kg	28

* Lowest operational temperature depends on installation

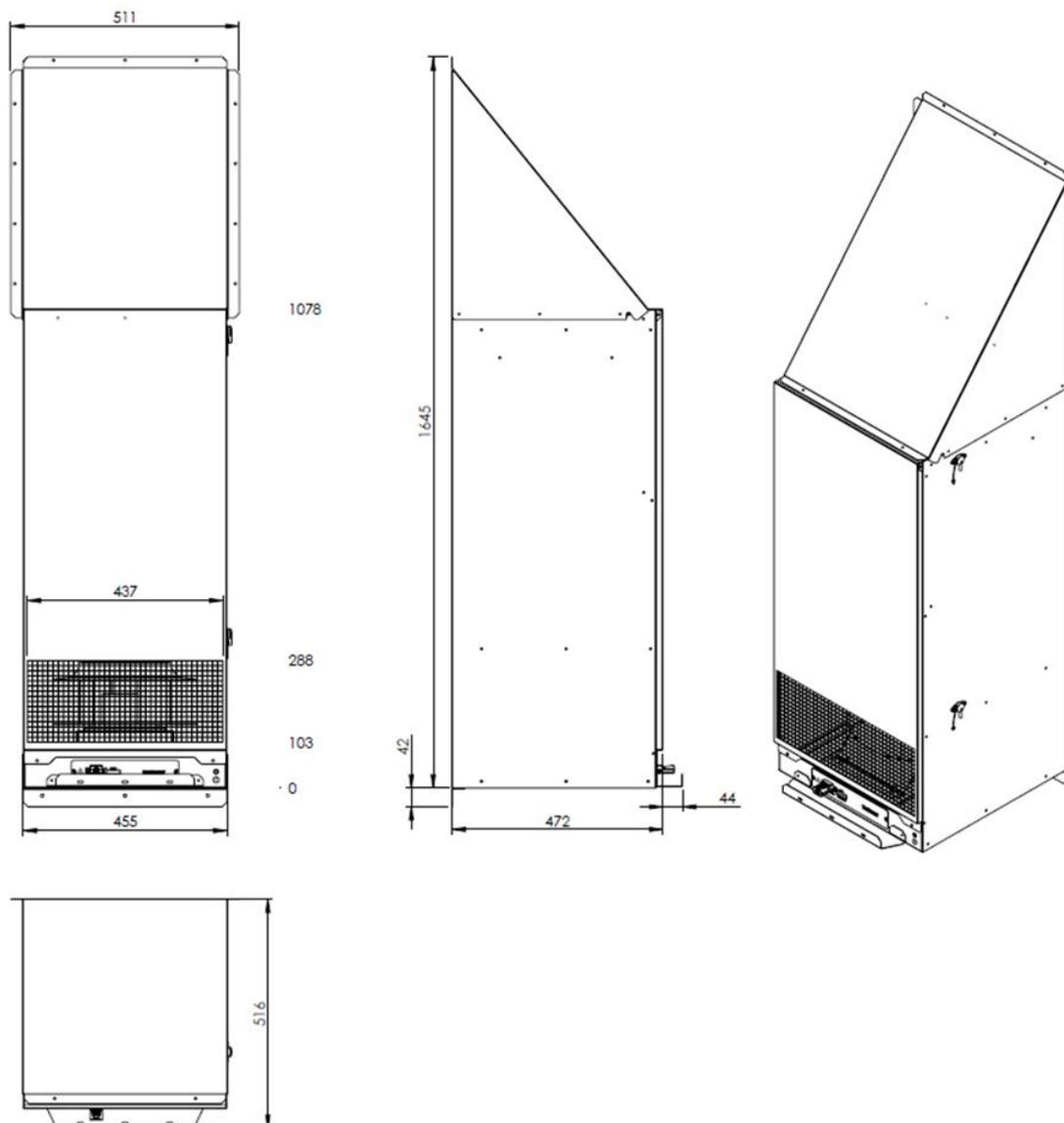
FREE-COOLING FLEXIBOX 900 WITH BAG FILTER



Flexibox 900 indoor dimensions

Indoor

Dimensions



DISPLACEMENT FREE-COOLING DFC 350-450



DFC 350



- Stay in control – total heat management with control of several external units
- Ensure energy-efficient cooling strategy – automatic change between cooling modes
- Protect your equipment – F5 displacement bag filter keeps your rooms clean
- Avoid unscheduled service visits – plan service with built-in filter monitor
- Silent and energy-efficient – very low air flow and fan speed
- Integrated CC 3000 control system

The Dantherm DFC 350 and 450 are slim passive cooling units utilising the displacement-free air cooling technology. The units are designed to remove excess heat from small rooms with electronic equipment where the air is stagnant.

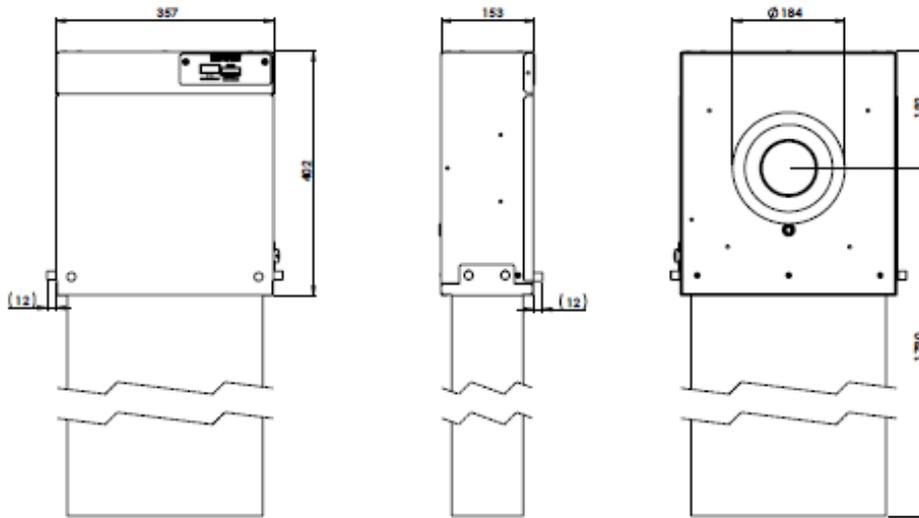
Specifications	Units	DFC 350 48V DC	DFC 350 230V AC
Operational temperature range	°C	-40*/-25 to +55	-40*/-25 to +55
Maximum cooling capacity at 25°C ambient, Δt = 5°K	W	3000	3000
Air flow – maximum	m³/h	514	514
Filter class		ePM10 55% (F5)	ePM10 55% (F5)
Input voltage range	VDC	48VDC (42-57VDC)	230V AC (200 to 277)
Power consumption 50/80/100%	W	11/23/40	8/20/35
Sound level, 100% @ 3m	dB(A)	43	44
Controller	Type	CC 3000	CC 3000
Communication interface	Type	Ethernet SNMP, Modbus	Ethernet SNMP, Modbus
Protection	IP class	for indoor use	for indoor use
Product size (h x w x d)	mm	1982 x 385 x 166	1982 x 385 x 166
Net weight	kg	10	10

* Lowest operational temperature depends on installation

DISPLACEMENT FREE-COOLING DFC 350-450



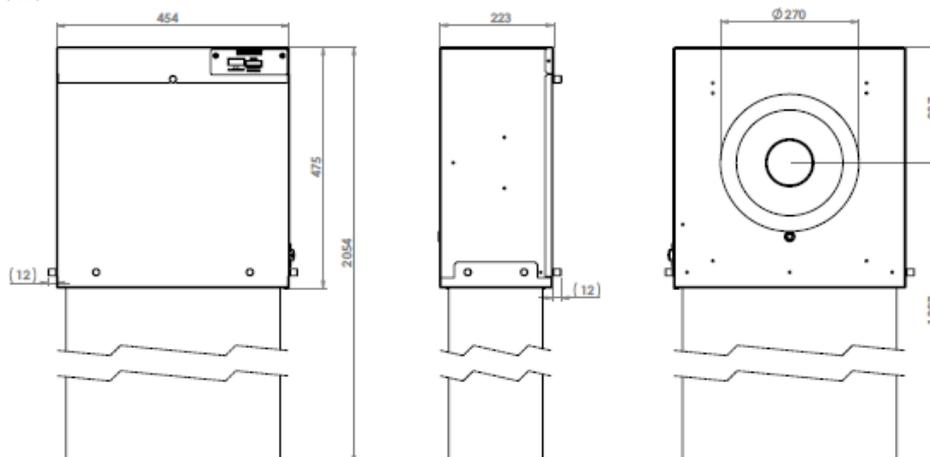
DFC 350 dimensions



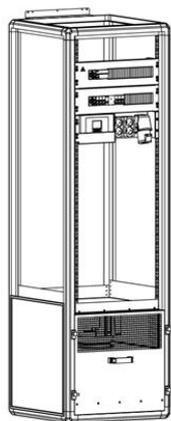
Specifications	Units	DFC 450 48V DC	DFC 450 230V AC
Operational temperature range	°C	-40*/-25 to +55	-40*/-25 to +55
Maximum cooling capacity at 25°C ambient, Δt = 5°K	W	5000	5000
Air flow – maximum	m ³ /h	1100	1100
Filter class		ePM10 55% (F5)	ePM10 55% (F5)
Input voltage range	VDC	48VDC (42-57VDC)	230V AC (200 to 277)
Power consumption 50/80/100%	W	12/25/40	16/41/61
Sound level, 100% – 3m distance	dB(A)	43	44
Controller	Type	CC 3000	CC 3000
Product size dimensions (h x w x d)	mm	2054 x 487 x 235	2054 x 487 x 235
Net weight	kg	13	13

* Lowest operational temperature depends on installation

DFC 450 dimensions



COOLING AND RACK UNIT COOLRACK



Coolrack is a combined cooling and rack unit. Coolrack is in principle a free-cooling unit that takes air in through the floor and filters it before letting it enter the room. Coolrack works together with a damper, by gravity or as a motorised unit.

Dantherm's unique CC 3000 control system comes standard with Coolrack. The system handles the climate control inside the shelter or technical room. External heaters, air-conditioners, dampers and fans can be connected to and controlled by the Coolrack unit.

Coolrack has 17 rack units (19") all free and reserved for customer equipment.



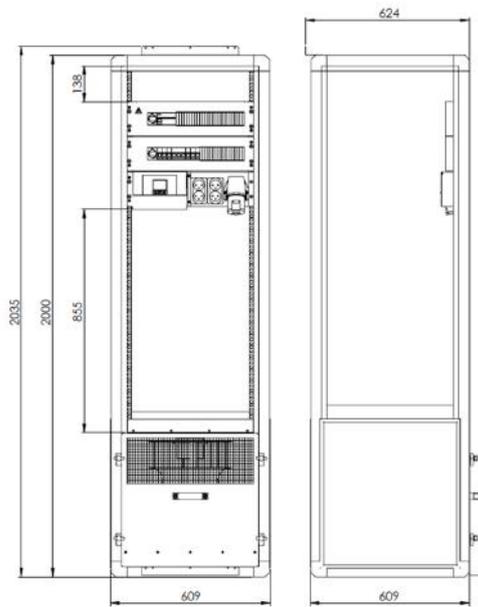
- Contains the complete electrical panel including circuitbreaker 3 x 400V 16A and RCCB (Residual Current Circuit Breaker)
- 1 pcs. 3x400V 16A for rectifier
- 1 pcs. 16A CEE outlet (3x400V)
- 4 pcs. Schuko outlet 230V 10A
- 1 pcs. heating cable 230V 10A
- Battery shelf
- 17 rack units (19") free for customer equipment
- Free-cooling units with integrated F5 filter
- Climate controller CC 3000 for securing the climate inside the technical room

Specifications	Units	COOLRACK
Air flow (at 53VDC)	m ³ /h	1,440
Cooling capacity at $\Delta T = 7^{\circ}C$	kW	3.4
Rated Voltage	VDC	48
Rated amps	A	2.8
Max power consumption	W	140
Max rpm	rpm	2,500
Filter class		ePM10 55% (F5)
Filter area	m ²	9,4
Pressure drop through clean filter	Pa	30
19" Rack units for customer equipment		17
Dimension (w x d x h)	mm	603 x 603 x 2000
Weight including frame and excluding batteries	kg	83
AC Voltage outlet		
3 x 400V, 16A CEE	pcs	1
1 x 230V, 10A CEE 7/3 (Schuko)	pcs	4

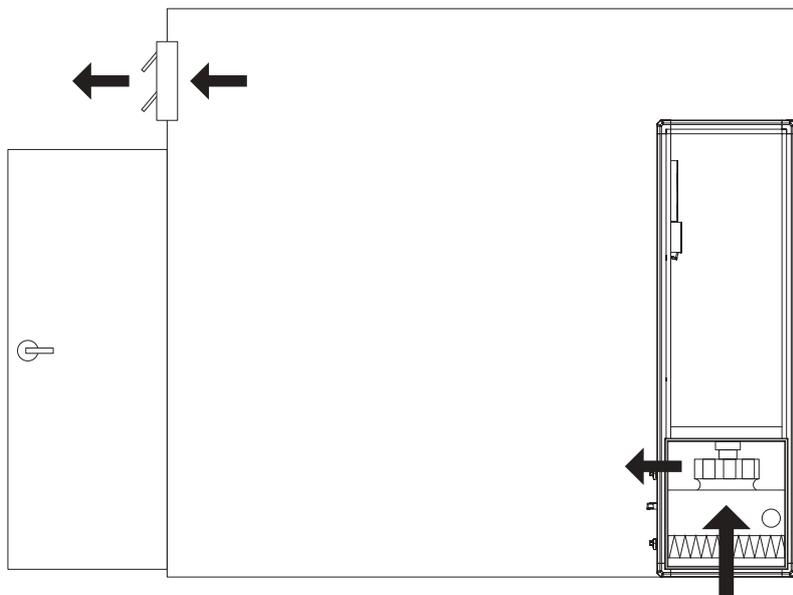
COOLING AND RACK UNIT COOLRACK



Dimensions



Function



HIGH-CAPACITY FREE-COOLING TKS 60



TKS 60

TKS 60 is high-capacity free air cooling designed to control the internal environment of communication shelters using a minimum of energy.

By means of ventilation in an overpressure system, the TKS 60 efficiently removes excess heat from the temperature-sensitive equipment – maintaining the internal temperature within defined limits.



- Total heat management – designed for energy-efficiency with maximum use of controlled ventilation
- Energy-efficient cooling strategy – automatic change between cooling modes
- Protect your equipment – standard M5 fine bag filter and optional AirMaze (patent pending)
- Avoid unscheduled service visits – plan service with built-in filter monitor
- Wide geographical usage – ambient temperature operating range from -25 to 55°C
- User-friendly display for climate control and ethernet and SNMP for remote control
- Integrated CC 3000 control system

Specifications	Units	TKS 60 230V AC	TKS 60 48V DC
Nominal air flow	m ³ /h	4200	3200
Nominal cooling capacity in W/K ($\Delta t = 1^{\circ}\text{C}$)	W/K	1400	1050
Nominal fan power consumption (at 100% fan speed)	W	782	374
Filter class		ePM10 55% (F5)	ePM10 55% (F5)
Fan nominal voltage	V	230V AC	48 DC (42-57V DC)
Sounds pressure @ 1m	dB(A)	67	64
Controller	Type	CC 3000	CC 3000
Communication interface	Type	Ethernet SNMP, Modbus	Ethernet SNMP, Modbus
Product size (h x w x d)	mm	1100 x 600 x 600	1100 x 600 x 600
Net weight	kg	53	51

DC AIR CONDITIONING

DC 450



DC 450

Dantherm's DC 450 units are slim-line true DC air-conditioners for energy-efficient cooling in Telecom networks.

DC 450 is capacity-regulated, thus only providing the exact amount of cooling needed. This means that they are much more efficient in use than traditional air conditioners, inverter based DC air-conditioners and even traditional DC air-conditioners.



- Clean internal environment – closed loop cooling
- Low inrush current – true DC air-conditioner
- No power loss in conversion – no inverter
- Energy-efficient – DC-supplied
- Easy installation – mono-block, plug-and-play units
- Design with flange for convenient through wall mounting
- Easy maintenance – small and compact design
- Expected service life – 10 years

Specifications	Units	DC 450
Operational temperature range	°C	-10 to ~+50
Cooling capacity at 35°C internal and 35°C ambient	w	450
Internal air flow	m ³ /h	210
External air flow	m ³ /h	310
Power consumption at 35°C internal and 35°C ambient	W	190
Efficiency ration at 35°C internal and 35°C ambient	COP/EER	2.4
Noise level, outside 2m distance at 35°C internal and 35°C ambient	db(A)	65
Protection from dust, water, and wind driven rain according to EN 60529	IP Class 2	54
Refrigerant/amount	kg	R134a 0.2
Input voltage range	VDC	45-57
Product size (h x w x d)	mm	491 x 442 x 157.5
Net weight	kg	18.5

DC SPLIT AIR-CONDITIONING DC 3500



The DC 3500 is a high-efficiency, purely DC-powered split air-conditioner for Telecom networks. The solution eliminates the need for an inverter and has capabilities far beyond those of conventional comfort cooling systems.

The unit runs purely on DC power and a low voltage disconnect feature prolongs battery life in case of low voltage from batteries. The DC 3500 is therefore highly suitable for sites with battery backup power and hybrid sites powered by renewable energy sources.



- Clean internal environment – closed loop cooling
- Low inrush current – true 48VDC air-conditioner
- No power loss in conversion – no inverter
- Minimum hot spots – high air flow ensures constant air recirculation
- Steady performance – compressor/fan RPM independent from supply voltage fluctuations
- Energy-efficient – DC-supplied and capacity-controlled
- Cooling on demand – maintains capacity-controlled room temperature when activated by master
- Expected service life – 10 years
- Easy connection to internet and customer interface – Standard ModBus protocol over RS485

Specifications	Units	DC 3500
Operational temperature range	°C	-3 to +55
Cooling capacity at 35°C internal and 35°C ambient	W	3624
Input voltage range	VDC	44 to 57
Power consumption (35°C int./ 35°C ext.)	W	1138
Internal air flow	m ³ /h	860
Maximum current 100%	A	30
Seasonal Energy Efficient Ratio	SEER	4.5
Maximum sound level @ 1m from outdoor unit	dB(A)	57
Refrigerant		R134a/1100 gram
Global Warming Potential (GWP)		1430
Controller	Type	C0
Communication interface		RS485 MODBUS
Product size indoor (h x w x d)	mm	286 x 858 x 214
Product size outdoor (h x w x d)	mm	628 x 785 x 364
Net weight indoor/outdoor	kg	16/41



CONTROL SYSTEMS

Controllers make the real difference

A site-specific cooling solution is the way to begin reducing your energy bill intelligently, but the actual intelligence lies in the control of the units. That is why we have developed a line of controllers with intelligent control strategies, meaning that each controller solution is designed to control our product solutions according to the exact conditions at your site.

In other words, your equipment is protected according to customised settings, taking into consideration that your energy savings potential is fully utilised.

Unique control strategies for all scenarios

Dantherm's controllers are all intelligent solutions that create the best possible climate conditions and savings at your site. The line features microprocessor-based climate controllers intended for controlling fan motors, dampers, compressors, air-conditioning systems, heaters, redundancy cooling, emergency cooling and much more.

The CC 3000 is a state-of-the-art communication gateway and server solution that provides security of operation by means of remote surveillance and change of settings online.



CONTROLLER CC 3000



CC 3000

The Dantherm CC 3000 Cooling Controller for Telecom is designed for control and monitoring of free-cooling systems.

The controller has connections for up to two free-cooling units, e.g. Flexibox Free-cooling 900 series, TKS 60 and DFC products with or without motorised dampers.

In addition to controlling two free-cooling units, the CC 3000 can control a heater unit and two air conditioners.

CC 3000 includes graphic user interface (GUI) and WEB interface, WEB GUI and SNMP for access via any standard browser. The Dantherm CC 3000 optimises cooling performance with the lowest possible energy consumption.



- Automatic restart after power failure
- Energy-saving mode that auto-reduces fan speed by measuring both room and outdoor temperature to secure the lowest fan speed and energy consumption
- Advanced night mode, where fan speed and noise level can be reduced during night time. It is also possible to change from air-conditioning to free-cooling operation
- Multi-lingual display
- Monitoring and alarm relaying (SNMP, Modbus, via dry contact (10 available)
- Self-test mode for easy installation
- Data-logging every 10 minutes
- Password protection
- Four different modes of operation possible:
 - Free-cooling mode (default)
 - Standard mode
 - Energy-saving mode
 - Air-conditioning mode

Specifications	Units	CC 3000
Operational temperature range	°C	-30 to 85
Input voltage range	V	40 to 60
Product size	mm	200 x 215 x 90

INTELLIGENT CONTROL STRATEGIES REDUCE YOUR COSTS



The Dantherm CC 3000 control and monitoring unit for free-cooling applications is the key to truly intelligent handling of your entire climate control setup no matter where you are. With its browser-based remote control capabilities, the CC 3000 is capable of controlling two free-cooling units, a heater unit and two air conditioners. The free-cooling units may be with or without motorised dampers.

Reduced energy consumption

Based on years of development, the intelligent software enables the controller to optimise cooling performance in a way that reduces energy consumption to an absolute minimum. Creating a cooling solution dedicated to your site is the first step towards reduced energy consumption. Combining that with the CC 3000 intelligent control solution from Dantherm, which is tailored to fit the conditions of your project, protects your equipment while fully utilising your energy savings potential.

The CC 3000 controls fan motors, dampers, compressors, air-conditioning systems, heaters, redundancy cooling, emergency cooling and much, much more.

Remote and real-time control

You can access and configure all features of the controller remotely through a standard web browser. These include real-time system monitoring, configuration of digital inputs/outputs, firmware upgrades, backup/restore sessions and customised data collection.

Other clever features of the CC 3000 include dual-zone cooling, night mode, dual slope fan control, duration counters, integrated SD card for setup and logging, clock, calendar and much much more.

Complete climate control

- Customise controllers designed for total site energy efficiency
- Energy-optimised control strategies
- Remote access anywhere
- Maximum site uptime

Multiple application options

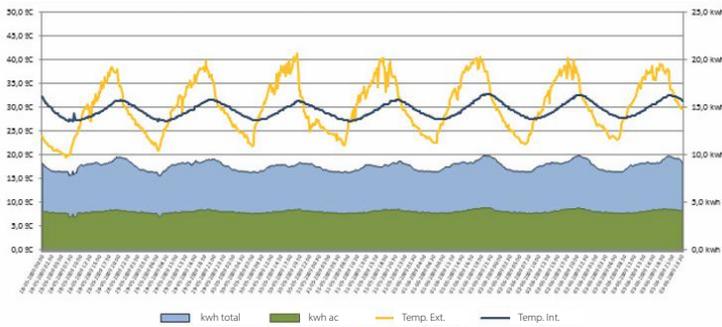
- All types of climates
- Challenging environments
- On-grid and off-grid
- New and legacy sites
- Remote sites

REAL-LIFE EXAMPLES

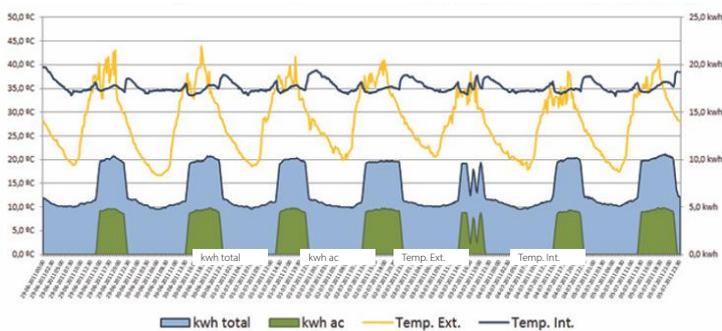
Proving the business case, Spain

Total site energy savings: 32%

Power consumption and operational logic, original cooling set-up



Power consumption and operational logic, Dantherm cooling set-up



32%
Total site energy savings



Free cooling advantages and savings

Smarter cooling strategies with dual zones

Air-conditioner only
Temperature in shelter (Zone 1) 26°C

OPEX	EUR	1.536
CAPEX	EUR	2.000
TCO 10yrs	EUR	19.362

Air-conditioner + Flexibox 900, 48 V DC
Temperature in shelter (Zone 1) 26°C

OPEX	EUR	1.478	8%
CAPEX	EUR	1.257	
TCO 10yrs	EUR	16.036	ROI 4.87

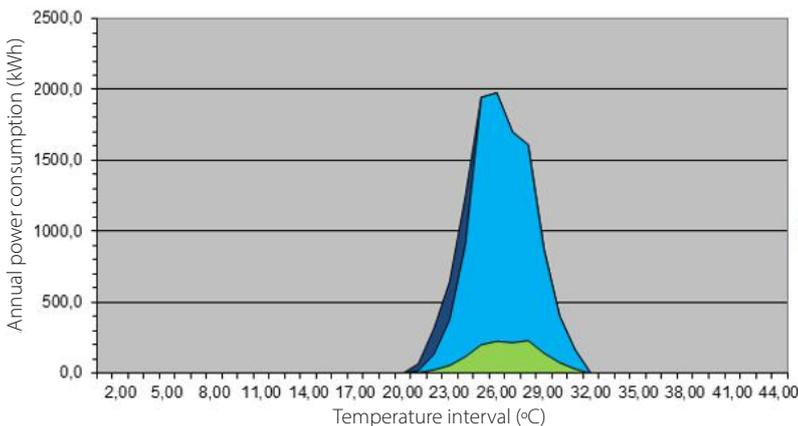
SAVINGS 10yrs EUR 3.326

Flexibox 900, 48 V DC + Battery Cooler
Temperature in shelter (Zone 1) 37°C
Temperature in Battery Cooler (Zone 2) 26°C

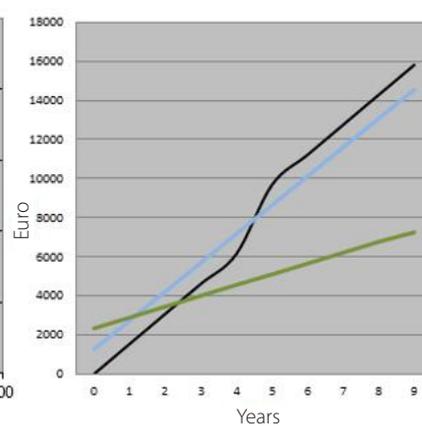
OPEX	EUR	547	68%
CAPEX	EUR	2.357	
TCO 10yrs	EUR	7.824	ROI 1.98

SAVINGS 10yrs EUR 11.538

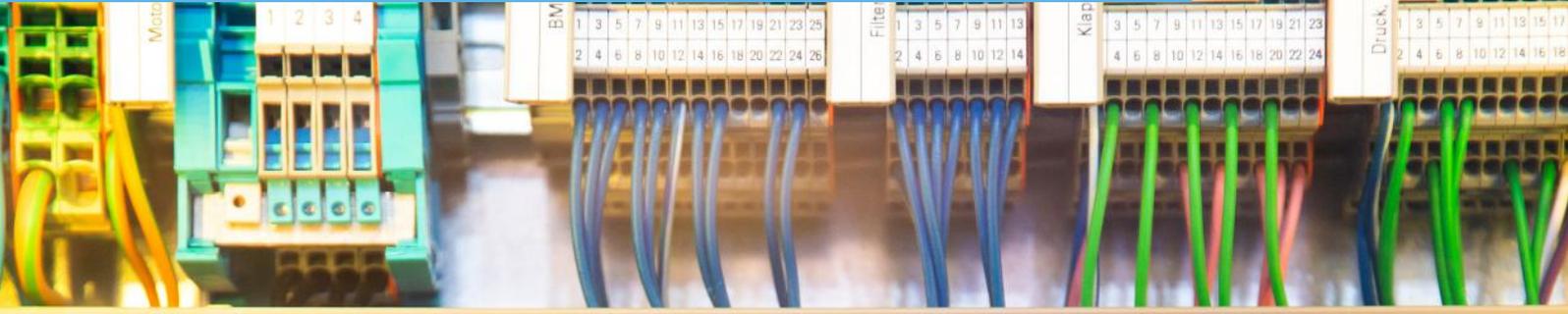
Power consumption comparison



TCO comparison



ACCESSORIES



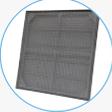
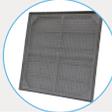
ACCESSORIES

CONTROLLER ACCESSORIES

Illustration	Accessory	Description	FB 810	FB 900	DFC 350-450	TKS 60	DC 450	DC 3500	Code
	Humidity controller	Operation temperatures: -20°C to +50°C @ < 90%RH. The Humidity sensor has a cable length of 480mm and can be connected directly to CC 3000 controller, and the %RH is then shown in the CC 3000 display.	●	●	●	●			094166
	Heater relay	Relay for operating the electrical heater. Relay built in Box and including PG grommets. Max fuse: 10 Amps. 230V/50Hz. Dimensions: H x W x D: 130 x 130 x 99mm.	●	●	●	●		●	095842
	Air-con relay	Plastic box with relay and terminals. Relays for start and stop two external air-conditioners. Up to 16A. 1 phase system. 3 phase system.	●	●	●	●			089990
	Hot spot sensor with 8000mm cord		●	●	●	●		●	096873
	Dantherm RS485 display unit		●					●	075210
	SD card 2 GB for logging data		●	●	●	●		●	077213
	CC 3000 upgrade kit DC	The kit contains CC 3000, SD card with firmware and config files, room and outdoor temperature sensor, satellite PCB, communication cable between CC 3000 and satellite PCB.			●	●			094838

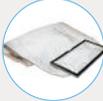
ACCESSORIES

DAMPERS

Illustration	Accessory	Description	FB 810	FB 900	DFC 350	DFC 450	TKS 60	DC 450	DC 3500	Code
	TC damper	Damper for re-circulation. Measurements: H x W x D: 487 x 455 x 150mm. To be installed between the wall and the unit.		●		●				091346
	Gravity damper (ABS plastic)	Opening: [407 x 407mm] Measurements: [456 x 456 x 27mm]	●	●			●			086964
	Gravity damper (Aluminium)	Opening: [400 x 400mm] Measurements: [442 x 442 x 50mm]	●	●			●			299943
	Gravity damper (Aluminium)	Inside measurements: 800 x 180mm Dimensions: H x W x D: 219 x 837 x 73mm	●	●	●	●	●			299945
	Gravity damper (ABS plastic)	Including bird net and mosquito net. Inside measurements: 310 x 310mm. Dimensions: H x W x D: 360 x 360 x 27mm.			●	●				098178
	Damper, motorised	Inside measurement: 300 x 311mm. Dimensions: H x W x D: 361 x 432 x 125mm.			●	●				074600
	Damper, motorised	Inside measurement: 400 x 411mm. Dimensions: H x W x D: 461 x 532 x 125mm.		●	●	●	●			074603
	Damper, motorised	Inside measurements: 800 x 211mm. Dimensions: H x W x D: 272 x 921 x 125mm.		●	●	●	●			074609
	Gravity damper (Aluminium)	Inside measurement: 600 x 400mm Dimension: H x W x D: 442 x 642 x 100mm		●						299944

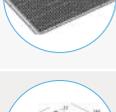
ACCESSORIES

FILTERS

Illustration	Accessory	Description									Code
	Bag filter, ePM10 55% Bag (M5)	352 x 149 x 1600mm.									299821
	Bag filter, ePM2.5 50% Bag (F6)	352 x 149 x 1600mm.				●					067335
	Bag filter, ePM2.5 65% Bag (F7)	352 x 149 x 1600mm.				●					052319
	Bag filter, ePM10 55% Bag (M5)	450 x 215 x 1600mm.					●				299749
	Bag filter, ePM2.5 50% Bag (F6)	450 x 215 x 1600mm.					●				840058
	Bag filter, ePM2.5 65% Bag (F7)	450 x 215 x 1600mm.					●				054773
	Bag filter ePM10 50%, (M5)							●			087363
	Panel filter coarse 50% (G3)	450 x 450 x 130mm.					●				109264
	Panel filter coarse 60% (G4)	450 x 450 x 130mm.					●				075071
	Panel filter EPM10 55% (M5)	450 x 450 x 130mm.					●				299926
	Panel filter EPM2.5 65% (F7)	450 x 450 x 130mm.					●				840081
	Panel filter Coarse 60% [G4] for Combo cooler units	460 x 795 x 44mm.					●				217655

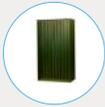
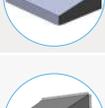
ACCESSORIES

INSTALLATION EQUIPMENT

Illustration	Accessory	Description	FB 810	FB 900 indoor	FB 900 outdoor	DFC 350	DFC 450	TKS 60	DC 450	DC 3500	Code
	Adapter for ducting	Measurements: [450 x 450 x 70mm].	●	●							299648
	Duct mounting bracket	Measurements: [275 x 50 x 40mm].	●	●							299673
	Wall bracket for Flexibox	Measurements: [202 x 452 x 40mm].	●	●							299650
	Wall ducting	Adapter for installation of Ø400mm spiro duct.	●	●	●	●	●	●			299698
	Frame for air inlet from floor	Floor frame 450 x 450 x 50mm.	●	●							096733
	Grille for air inlet from floor	Grille air intake from floor, 450 x 450 x 0.8mm.	●	●							299647
	Wall bracket	Wall bracket and two bars for outdoor unit. Including screws. Dimension (H x L x W): 254 x 446 x 52mm.								●	092957
	Rubber feet	Light model rubber feet for outdoor unit made of durable recycled rubber. Reduces vibration from the unit and provides stability. Aluminium channel securely anchored in top for easy fixation of the unit. Quick and simple installation. Boxed kit with fixings. Including two bars and screws. Dimension (H x L x W): 95 x 450 x 160mm. Weight: 4.8kg.								●	097025
	Rubber feet	Heavy model rubber feet for outdoor unit made of durable recycled rubber which reduces vibration and provides stability. Aluminium channel securely anchored in top for easy fixation of the unit. Quick and simple installation. Boxed kit with fixings. Including two bars and screws. Dimension (H x L x W): 95 x 1000 x 160mm. Weight: 10.3kg.								●	097026

ACCESSORIES

WEATHER PROTECTION

Illustration	Accessory	Description	FB 810	FB 900 indoor	FB 900 outdoor	DFC 350	DFC 450	TKS 60	DC 450	DC 3500	Dampers	Code
	Rain cover	Cover for DC 450 (a must for outdoor use of DC 450).							●			219276
	AirMaze panel unpainted	Unpainted, measurements: [1149 x 735 x 120mm].	●	●	●			●				075575
	AirMaze panel painted	Painted, (not standard colour) with bug screen, measurements: [1160 x 703 x 137mm].	●	●	●			●				086924
	AirMaze panel	AirMaze for DFC 350/450. Measurements: H x W x D: 744 x 472 x 137mm. The AirMaze gives weather protection for all DFC inlets and for damper outlets.				●	●					091265
	External rain hood	Opening: 513 x 607mm. Dimensions: H x W x D: 578 x 672 x 442mm. The rainhood gives weather protection for all DFC inlets and for damper outlets.	●	●	●	●	●	●				299653
	AirMaze panel unpainted	Dual AirMaze. Unpainted, measurements: [1149 x 735 x 200mm].	●	●								109267
	AirMaze cube for outdoor Flexibox	Unpainted, measurements: [500 x 450 x 450mm].	●		●							081993
	External rain hood	Opening: 440 x 440mm. Dimensions: H x W x D: 472 x 500 x 300mm. The rainhood gives weather protection for damper outlet art. No: 074600 and 098178.	●			●	●					090768
	External rain hood	Opening: 800 x 200mm. Dimensions: H x W x D: 280 x 961 x 450mm. The rainhood gives weather protection for damper Art. No 299945, 074609 and 074611.									●	299942
	Damper rain/snow protection	Dimensions: H x W x D: 500 x 600 x 151 mm. (Exhaust air only).									●	087317
	External rain hood	Opening 450 x 525mm. Dimension: 615 x 456 x 525mm. The rain hood can be used sound reduction.			●							095410
	External rain hood with sound insulation	Opening: 552 x 490mm. 30mm insulation foam. Dimensions: H x W x D: 889 x 673 x 455mm. The rain hood gives weather protection for damper Art. No 299945, 074609 and 074611.		●							●	095845

ACCESSORIES

INSTALLATION EQUIPMENT

Illustration	Accessory	Description	FB 810	FB 900 indoor	FB 900 outdoor	DF 350	DFC 450	TKS 60	DC 450	DC 3500	Dampers	Code
	Absorber	Shock and vibration absorber includes a set of four absorbers for outdoor units. The absorbers can be mounted on wall brackets or ground mats.								●		074666
	Adapter	Adapter bars for mounting the outdoor unit on existing wall brackets. Including two bars and fixation. Length: 1000mm.								●		097027
	Condensate pump	Condensate pump for drainage for indoor unit. Voltage: 230V/50Hz. Max: 1.6 Amps Max. 200 litres per hour at lift height 4m. Tank capacity: 1.8 litre. For indoor use only. Kit includes: • Pump with tank and level sensor • 5m 3/8 tube for drainage outlet • Wall bracket is built in the tank								●		097028
	Copper tubes	3m copper tubes 3/8" & 1/2" with 10mm insulation and UV protection. Tubes are prepared for easy connection with flares and flare nuts.								●		097079
	Copper tubes	5m copper tubes 3/8" & 1/2" with 10mm insulation and UV protection. Tubes are prepared for easy connection with flares and flare nuts.								●		097029
	Copper tubes	10m copper tubes 3/8" & 1/2" with 10mm insulation and UV protection. Tubes are prepared for easy connection with flares and flare nuts.								●		097030
	Wall grille	Wall grille type V - 400 x 400mm. Exterior installation with insect net.	●	●	●			●			●	299947

ACCESSORIES

INSTALLATION EQUIPMENT

Illustration	Accessory	Description	FB 810	FB 900 indoor	FB 900 outdoor	DF 350	DFC 450	TKS 60	DC 450	DC 3500	Dampers	Code
	Wall grill	Wall grille type V - 300 x 300 mm Exterior installation with insect net				●	●			●	●	299956
	Supply grill	Supply grille 400x200 (C-grillee) Adjustable slats	●		●							071679

OTHER ACCESSORIES

Illustration	Accessory	Description	FB 810	FB 900 indoor	FB 900 outdoor	DF 350	DFC 450	TKS 60	DC 450	DC 3500	Code
	Heater	Electrical heater 1380W, 230V AC Dimension: H x W x D: 180 x 135 x 48mm. Wall bracket included. The heater is a self-regulating PTC element with following performance of heating: -25°C up to 1380W 0°C up to 1200W +20°C up to 1000W	●	●	●	●	●	●		●	299879
	Internal air hood (Aluzinc AZ150)	Dimension: H x W x D (w. mounting flanges): 580 x 560 x 580 mm.						●			091436

Dantherm A/S

Marienlystvej 65
DK-7800 Skive
Denmark
t. +45 96 14 37 00

Dantherm Ltd.

Unit 12, Galliford Road
Maldon CM9 4XD
United Kingdom
t. +44 (0)1621 856611

Dantherm GmbH

Oststraße 148
22844 Norderstedt
Germany
t. +49 40 526 8790

Dantherm S.p.A.

Via Gardesana 11
37010 Pastrengo (VR)
Italy
t. +39 045 6770533

Dantherm Sp. z o.o.

ul. Magazynowa 5a
62-023 Gądki
Poland
t. +48 61 65 44 000

Dantherm SP S.A.

C/Calabozos 6
(Polígono Industrial)
28108 Alcobendas, Madrid
Spain
t. +34 91 661 45 00

Dantherm SAS

23 rue Eugène Hénaff
69694 Vénissieux Cedex
France
t. +33 4 78 47 11 11

Dantherm AS

Løkkeåsveien 26
3138 Skallestad
Norway
t. +47 33 35 16 00

Dantherm AB

Fridhemsvägen 3
602 13 Norrköping
Sweden
t. +46 (0)11 19 30 40

Dantherm LLC

Transportnaya 22/2
142800, Stupino
Moscow
Russia
t. +7 (495) 642 444 8

MCS China

Unit 2B, No. 512
Yunchuan Road
Baoshang, Shanghai, 201906
China
t. +8621 61486668

AirCenter AG

Täferstrasse 14
CH-5405 Baden Dättwil
Switzerland
t. +41 43 500 00 50

Heylo GmbH

Im Finigen 9
28832 Achim
Germany
t. +49 4202 97550

SET Energietechnik GmbH

August-Blessing-Straße 5
71282 Hemmingen
Germany
t. +49 7150 94540

Dealer:

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