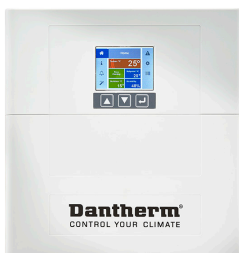




DFC 350 & 450



DFC 350 & 450 DISPLACEMENT FREE COOLING

Function

The Dantherm Displacement Free Cooling (DFC) unit is a slim, passive cooling solution designed to remove excess heat from rooms with sensitive equipment. The displacement cooling technology works by supplying cool, outside air into the bottom of the room circulating the warm air to the top of the room and out through a damper.

The DFC is the perfect choice to install in a small room with electronic equipment with stagnant air. The displacement technology makes the DFC even more energy efficient than a traditional free cooling unit.

Due to the need of a very low air flow the fan speed is accordingly low making the DFC operate at a very low noise level. Because of its small size, this solution takes up a minimum of space in the room. In cases without stagnant air, we recommend the Dantherm Flexibox series.

FEATURES AND BENEFITS

• Significant energy savings:	Even more energy-efficient than traditional free cooling.
• Total climate control:	Controls several external units.
• Clean internal environment:	Overpressure system ensures no ingress of outside contaminants.
• Long service life:	High-quality components.
• Prolongs service life of existing units:	Free Cooling operation reduces wear of other installed cooling units.
• Operational safety:	Emergency cooling.
• Wide geographical usage:	Ambient temperature operating range from -40 to 55°C.
• Extended air inlet protection:	Ready for Dantherm AirMaze ^{pat.pend.}

Installation and operation

• For small, indoor applications:	Rooms up to 12m ² with stagnant air.
• Minimum installation costs:	No need for cooling technician.

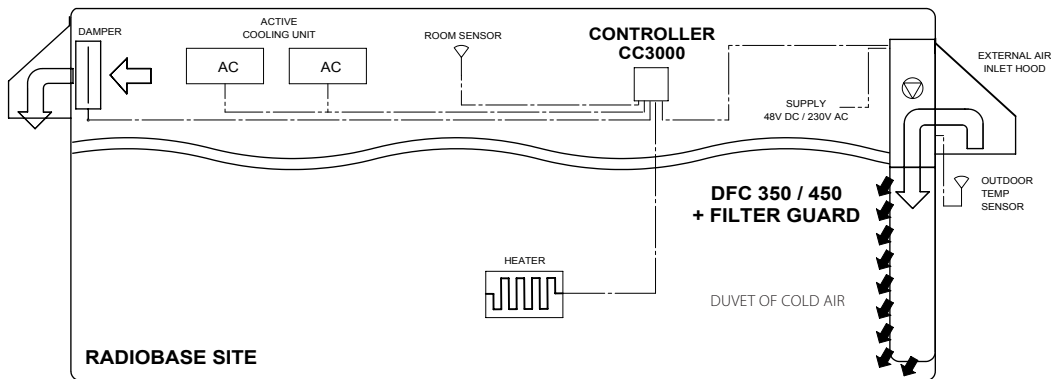
Controller

• Solution-specific controller:	Dantherm-developed, wall-mounted.
• Flexible configuration:	Live monitoring and configuration on any standard browser.
• Energy-saving strategy:	Max use of controlled ventilation.
• Intelligent climate control:	Automated change of cooling mode.
• Stable operation:	Stepless fan speed control.
• User-friendly configuration:	Built-in SD card reader and digital colour display.
• Intelligent monitoring:	Ethernet SNMP.
• Service minimization:	Digital filter status detector.
• Strategy evaluation/planning:	Complete data logging.

Application

- Telecom shelters and enclosures
- Power supply rooms
- Network and computer rooms
- Radio base stations
- Drive stations
- Automation control cabinets
- DC powered sites
- Small rooms with stagnant air

FLOW- CHART DFC 350 & 450



DFC, Displacement Free Cooling will lay a duvet of cool air at the floor and up to 1,6m height.

The warm air will be supplanted to the ceiling and out of the damper.

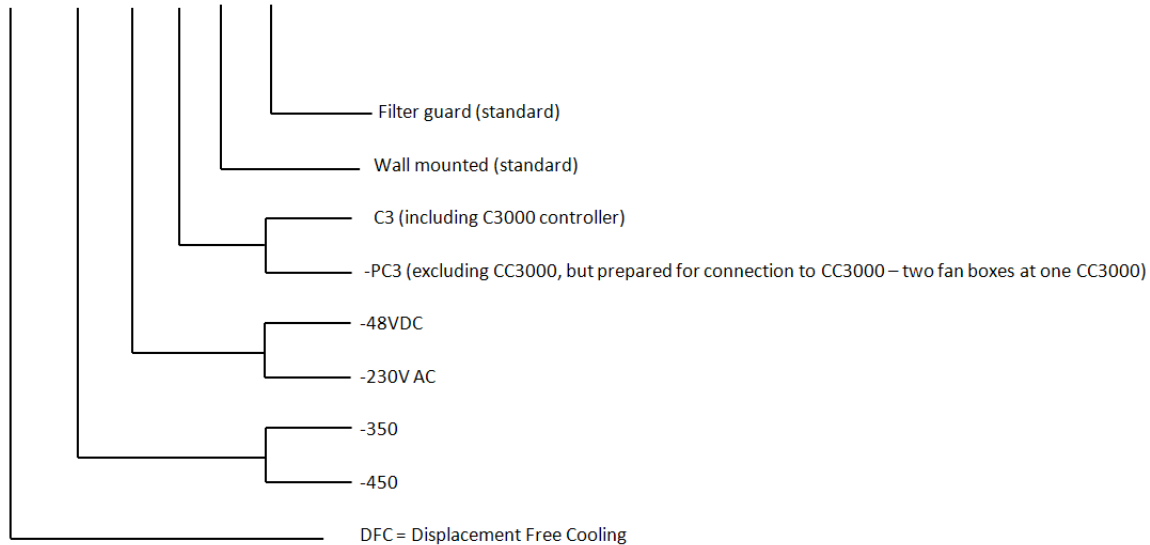
DFC 350 & 450 PERFORMANCE

DFC 350	Operating up to 3000W
DFC 450	Operating range up to 5000W

HOW TO CHOSE THE RIGHT VARIANTS

Variant syntax for DFC 350 and DFC 450

DFC -450 -48V -C3- W- FG



Example

DFC 450 – 48V DC – CC 3000 – Wall – Filter guard

Model 450 powered by 48VDC with CC3000 Controller, wall mounted with Filterguard

Note: Filters need to be ordered separately

TECHNICAL DATA

DFC 350 DISPLACEMENT FREE COOLING

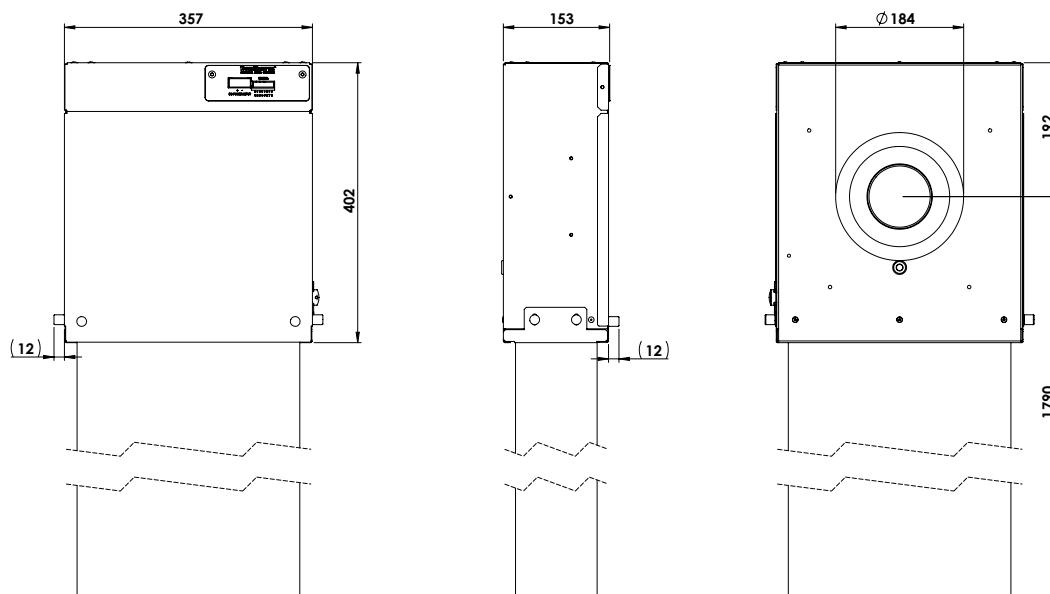
Product overview		Category	
Dantherm No.	299763		
Voltage version		48V DC, DC fan	230V DC, EC fan
Capacity & Performance			
Operational temperature range, min/max	°C	-25 - (+55)	-25 - (+55)
Cooling capacity up to 1,6m above floor, Δt=5°C, 50/80%	W	1200/2350	1200/2350
Max. cooling capacity up to 1,6m above floor, Δt=5°C, 100%	W	3000	3000
Airflow, max	m³/h	514	514
Electrical connection	Type	Phoenix PC 4/2-STF-7.62	Ensto NAC32S.W
Input voltage range	VDC	48VDC (42-57VDC)	230VAC (200 to 277)
Power consumption 50/80/100%	W	11 / 23 / 40	8 / 20 / 35
Max current	A	2,5	1,0
Sound level, 100% (3m distance)	dB(A)	43	44
*Sound power 100%	dB(A)	61	62
Expected service life	Years	10	10
Shipment, storage & mounting			
Dimensions (H × W × D)	mm	1982 x 385 x 166	1982 x 385 x 166
Net weight	kg	10	10
Single package weight incl. unit	kg	12	12
Single packing dimensions (H × W × D)	mm	280 x 410 x 430	280 x 410 x 430
Multi packing dimensions (H × W × D)	mm	1825 x 800 x 1200	1825 x 800 x 1200
Storage relative humidity, min/max	RH%	0 to 95	0 to 95
Storage temperature, min/max	°C	-40 - (+80)	-40 - (+80)
Mounting method	Type	Wall-mounted	Wall-mounted
Service area dimensions	mm	400 x 350 x 150	400 x 350 x 150
Filter	Item no.	299821	299821
Filter type bag	Class	ePM10 55% Bag (F5)	ePM10 55% Bag (F5)
Filter area	mm	1600 x 352 x 149	1600 x 352 x 149
Controller details			
Controller	Type	CC3000	CC3000
Communication interface	Type	Ethernet SNMP, Modbus	Ethernet SNMP, Modbus
Mounting method	Type	Wall-mounted	Wall-mounted
Certifications			
Protection	IP class	For indoor use	For indoor use
Complies with standards	Code	EN 60950	EN 60950
Colour	Unpainted	AlZn	AlZn

TECHNICAL DATA

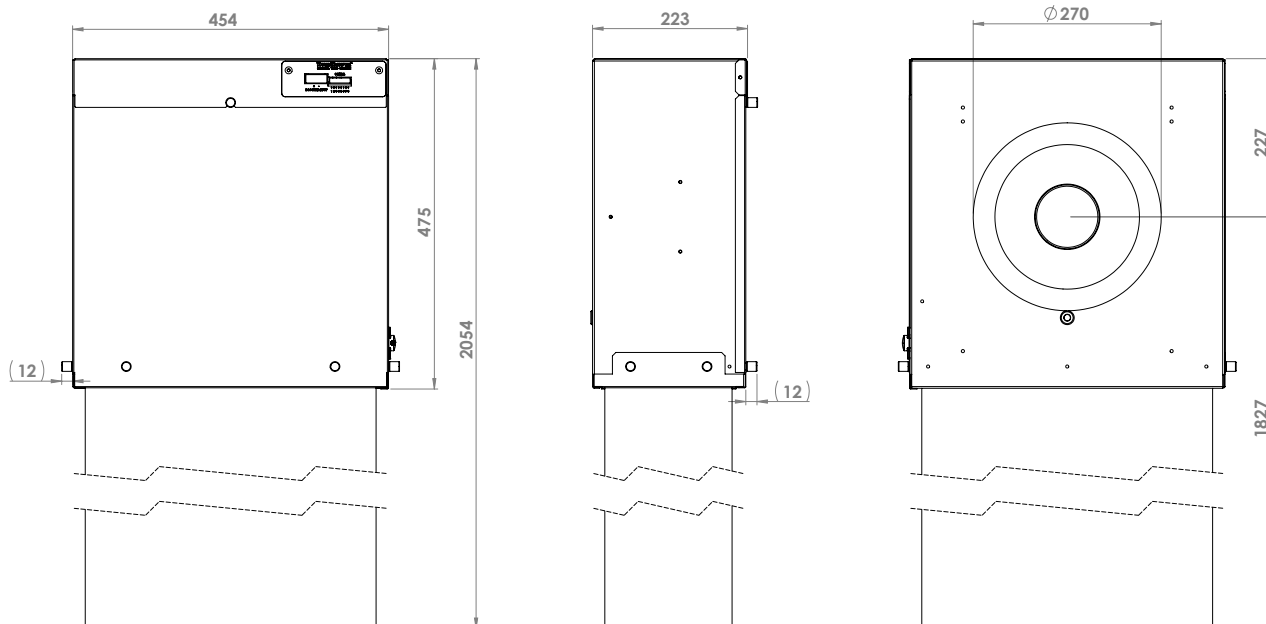
DFC 450 DISPLACEMENT FREE COOLING

Product overview		Category	
Dantherm No.	299745		
Voltage version		48V DC, DC fan	230V DC, EC fan
Capacity & Performance			
Operational temperature range, min/max	°C	-25-(+55)	-25-(+55)
Cooling capacity up to 1,6m above floor, Δt=5°C, 50/80%	W	1220 / 2580	1220 / 2580
Max. cooling capacity up to 1,6m above floor, Δt=5°C, 100%	W	5000	5000
Airflow, max	m³/h	1100	1100
Electrical connection	Type	Phoenix PC 4/2-STF-7.62	Ensto NAC32S.W
Input voltage range	VDC	48VDC (42-57VDC)	230VAC (200 to 277)
Power consumption 50/80/100%	W	12 / 25 / 40	16 / 41 / 61
Max current	A	3,0	1,5
Sound level, 100% (3m distance)	dB(A)	43	43
*Sound power 100%	dB(A)	62	62
Expected service life	Years	10	10
Shipment, storage & mounting			
Product Dimensions (H × W × D)	mm	2054 x 478 x 235	2054 x 478 x 235
Net weight	kg	13	13
Single package weight incl. unit	kg	15	15
Single packing dimensions (H × W × D)	mm	310 x 510 x 500	310 x 510 x 500
Multi packing dimensions (H × W × D) (10 units)	mm	1720 x 800 x 1200	1720 x 800 x 1200
Storage relative humidity, min/max	RH%	0 to 95	0 to 95
Storage temperature, min/max	°C	-40 - (+80)	-40 - (+80)
Mounting method	Type	Wall-mounted	Wall-mounted
Service area dimensions [HxWxD]	mm	475 x 454 x150	475 x 454 x150
Filter	Item no.	299749	299749
Filter type	Class	ePM10 55% Bag (F5)	ePM10 55% Bag (F5)
Filter area	mm	1600 x 452 x 215	1600 x 452 x 215
Controller details			
Controller	Type	CC3000	CC3000
Communication interface	Type	Ethernet SNMP, Modbus	Ethernet SNMP, Modbus
Mounting method	Type	Wall-mounted	Wall-mounted
Certifications			
Protection	IP class	For indoor use	For indoor use
Complies with standards	Code	EN 60950	EN 60950
Colour	Unpainted	AlZn	AlZn







DIMENSIONS DFC 350

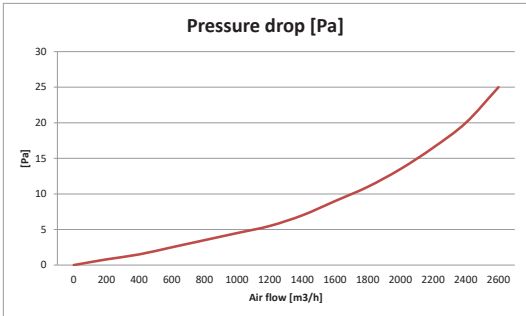

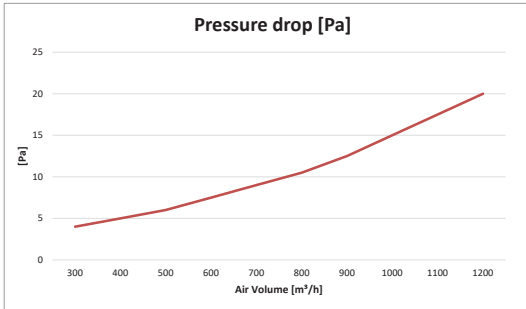

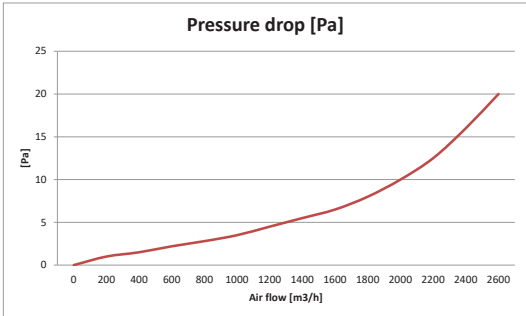




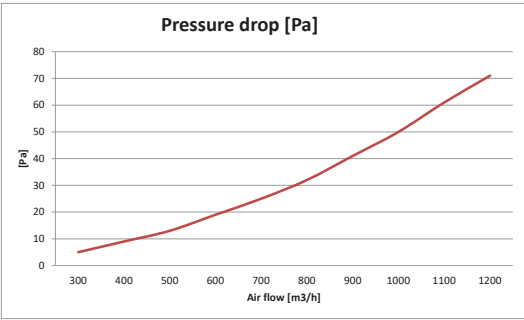

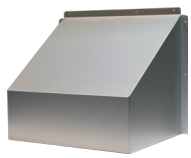

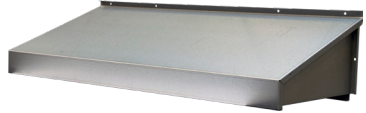

DIMENSIONS DFC450



ACCESSORIES

Dantherm No.	Description	
Filters (not included in the product)		
299821	Bag filter, ePM10 55% Bag (F5) 352 x 149 x 1600 mm	
067335	Bag filter, ePM2,5 50% Bag (F6) 352 x 149 x 1600 mm	
299749	Bag filter, ePM10 55% Bag (F5) 450 x 215 x 1600 mm	
840058	Bag filter, ePM2,5 50% Bag (F6) 450 x 216 x 1600 mm	
Dampers		
074600	Damper, motorized Inside measurement: 300 x 311 mm Dimensions: H x W x D: 361 x 432 x 125 mm	
074603	Damper, motorized Inside measurement: 400 x 411 mm Dimensions: H x W x D: 461 x 532 x 125 mm	
074605	Damper, motorized, spring-return Inside measurements: 400 x 411 mm Dimensions: H x W x D: 461 x 552 x 125 mm	
074609	Damper, motorized Inside measurements: 800 x 211 mm Dimensions: H x W x D: 272 x 921 x 125 mm	
074611	Damper, motorized, spring-return Inside measurements: 800 x 211 mm Dimensions: H x W x D: 272 x 952 x 125 mm	

299945	Gravity damper (Aluminum) Inside measurements: 800 x 180 mm Dimensions: H x W x D: 219 x 837 x 73 mm	 
098178	Gravity damper (ABS plastic) Including bird Net and mosquito net Inside measurements: 310 x 310 mm Dimensions: H x W x D: 360 x 360 x 27 mm	 
299943	Gravity damper (Aluminum) Inside measurements: 400 x 400 mm Dimensions: H x W x D: 442 x 442 x 50 mm	 
Re-circulation damper		
091346	TC function Damper for re-circulation Measurements: H x W x D: 487 x 455 x 150 mm To be installed between the wall and the DFC450. Note this Art. No. suits DFC450 only.	

Weather protection		
091265	<p>AirMaze Panel AirMaze® for DFC350/450 Measurements: H x W x D: 744 x 472 x 137 mm</p>  <p>The Airmaze gives weather protection for all DFC inlets and for Damper outlets.</p>	
299653	<p>External rain hood Opening: 513 x 607 mm Dimensions: H x W x D: 578 x 672 x 442 mm The rainhood gives weather protection for all DFC inlets and for Damper outlets.</p>	
090768	<p>External rain hood Opening: 440 x 440 mm Dimensions: H x W x D: 472 x 500 x 300 mm The rainhood gives weather protection for Damper outlet art. No: 074600 and 098178.</p>	
299942	<p>External rain hood Opening: 800 x 200 mm Dimensions: H x W x D: 280 x 961 x 450 mm The rainhood gives weather protection for Damper Art. No 299945, 074609 and 074611.</p>	
087317	<p>Damper rain/snow protection Dimensions: H x W x D: 500 x 600 x 151 mm (Exhaust air only) And location which is protected for windy conditions.</p>	

Electrical Accessories										
081640	Smoke and heat detector kit Optical detector can cover up to cover up to 100 m², detectiong by light scatter. Include also a heat detector gives alarm at 77°C and a alarm relay.									
094166	Humidity controller Operation temperatures: -20°C to +50°C @ < 90%RH. The Humidity sensor had a cable length of 480 mm and can be connected directly to CC3000 controller, the %RH is shown in the CC3000 display.									
840140	DC/DC Converter 24/48VDC Output 500W Operation temperature -20°C to +60°C Efficiency 89 % Dimensions: H x W x D: 50 x 215 x 115 mm For indoor use only									
299879	Heater Electrical heater 1300W, 230V AC Dimension: H x W x D: 153 x 185 x 65 mm Wall bracket included The heater is a self-regulating PTC element with following performance: <table><tr><th>Ambient air temperature</th><th>App. heat</th></tr><tr><td>-25°C</td><td>1300W</td></tr><tr><td>± 0°C</td><td>1100W</td></tr><tr><td>+29°C</td><td>900W</td></tr></table>	Ambient air temperature	App. heat	-25°C	1300W	± 0°C	1100W	+29°C	900W	
Ambient air temperature	App. heat									
-25°C	1300W									
± 0°C	1100W									
+29°C	900W									
095842	Heater relay Relay for operating the electrical heater Relay built in Box and including PG grommets Max fuse: 10Amps 230V/50Hz Dimensions: H x W x D: 130 x 130 x 99 mm									