

Circular duct cooler for cooled water

DCC



Description

The DCC with circular duct connection uses chilled water as the energy carrier and is used for cooling the ventilation air in a ventilation system. The DCC can also be used for cooling individual rooms or zones. For controlling the room or supply air temperature, the duct cooler is supplemented with regulators, sensors, actuators, valves and anti-freeze protection.

Standard sizes

DCC: 100, 125, 160, 200, 250, 315 and 400

Materials

The casing is made of Aluzinc-coated sheet steel. The coil has copper tubes and tube connections, and aluminium fins. Stainless steel drip tray for condensate collection, with R1/2 drain connection. The duct connections have rubber seals. The duct coolers conforms to airtightness class C to EN 15727.

Operating data

Max. operating temperature: +150°C

Max. operating pressure: 1,0 MPa (10 bar)

Capacity

Performance data can be found in the tables on the following pages. For other information and selections, please contact Airvent.

Main features

- Circular duct connection with rubber seals
- Casing of Aluzinc-coated sheet steel, AZ 185
- Openable cover for inspection and cleaning
- Stainless steel drip tray for collecting the condensate
- Air tightness class C to EN 15727

Installation

The DCC can only be installed in a horizontal air duct. If the product is used for cooling, the outer surface of the casing must be insulated.

Control

See next pages for a list of regulators, sensors, valves and actuators.

Air tightness class C

The DCC duct cooler conforms to air tightness class C, which ensures that the heated air will reach its destination and will not leak out of the ventilation system – which saves energy and money.

Accessories

OPTIGO regulators

Regulator with display. One knob for all settings. For mounting on DIN rail. Operates with PT1000 sensor in the range of -20°C to + 40°C. Started/stopped with "run" signal from the fan.

OP5

24V supply. 0...10V control signal output. Operates with one sensor (room or duct sensor). Can be reset for heating or cooling control. Doesn't have frost protection, so it must be provided with a separate thermostat. (pic. 1)



pic. 1

OP10

24V supply. Can be reset for 0...10V control signal output or 3-point control. Two control outputs, e.g. for heating and cooling in sequence. Input for two sensors and anti-freeze sensor. Supply air temperature control or room temperature control with cascade-controlled supply air. Anti-freeze control with heating during stoppage. Output, e.g. for starting/stopping of fans via 230V~, 5A relay. Programmable one-week timer for controlling of both fan and heating/cooling. Terminal for external timer that extends the operating time. Can be equipped with external setpoint adjuster. (pic. 2)



pic. 2

OP10-230

Same functions as the OP10, but with 230V~ supply.

Accessories for OPTIGO:

TG-K3/PT1000 duct sensor (pic. 3)

Range: -30...+70°C
Design: Degree of protection IP20



pic. 3

TG-R5/PT1000 room sensor (pic. 4)

Range: 0-50°C
Design: Degree of protection IP30



pic. 4

TG-UH/PT1000 room sensor (pic. 5)

Range: -30...+120°C
Design: Degree of protection IP65



pic. 5

TG-A1/PT1000 temperature sensor (pic. 6)

With holder.
Range: -30...+150°C
Design: Degree of protection IP65



pic. 6

Trafo 60 (pic. 7)

Totally enclosed transformer for wall mounting.
Built-in two-pole fuse on secondary side.
Design: Degree of protection IP44
Primary voltage 230V~
Secondary voltage 24V~
Max. rating 60 VA



pic. 7

Actuators and valves for Kvs 0,25-8,0
(110°C maximum)

Description	Type
Actuator for 0...10V signal for ZTV/ZTR valves, degree of protection IP44	RVAZ4-24A

Actuator
RVA Z4 -24



Description	Kvs	Type
2-way 1/2" valve	0,25	ZTV15-0,25
2-way 1/2" valve	0,4	ZTV15-0,4
2-way 1/2" valve	0,6	ZTV15-0,6
2-way 1/2" valve	1,0	ZTV15-1,0
2-way 1/2" valve	1,6	ZTV15-1,6
2-way 3/4" valve	2,0	ZTV20-2,0
2-way 3/4" valve	2,5	ZTV20-2,5
2-way 3/4" valve	4,0	ZTV20-4,0
2-way 3/4" valve	6,0	ZTV20-6,0
2-way 1" valve	8,0	ZTVB25-8,0
3-way 1/2" valve	0,25	ZTR15-0,25
3-way 1/2" valve	0,4	ZTR15-0,4
3-way 1/2" valve	0,6	ZTR15-0,6
3-way 1/2" valve	1,0	ZTR15-1,0
3-way 1/2" valve	1,6	ZTR15-1,6
3-way 3/4" valve	2,0	ZTR20-2,0
3-way 3/4" valve	2,5	ZTR20-2,5
3-way 3/4" valve	4,0	ZTR20-4,0
3-way 3/4" valve	6,0	ZTR20-6,0
3-way 1" valve	8,0	ZTRB25-8,0

Valve ZTV



Valve ZTR



Guide for selection of valves and actuators

110°C max. water temperature.

Actuator RVAZ4-24 (3-position) or RVAZ4-24A (0...10V) can be used for all ZTV/ZTR valves.

Type of DCC	Valve type	Kvs
DCC 100-3	2-way ZTV15-0,4	0,4
DCC 125-3	2-way ZTV15-0,4	0,4
DCC 160-3	2-way ZTV15-0,4	0,4
DCC 200-3	2-way ZTV15-0,6	0,6
DCC 250-3	2-way ZTV15-1,0	1,0
DCC 315-3	2-way ZTV15-1,6	1,6
DCC 400-3	2-way ZTV15-2,5	2,5

Performance

■ T.1. Cooling capacity DCC 100-3

Water temperature in/out 6 / 12 [°C]							
Air flow [m ³ /h]	Air pressure drop [Pa]	Inlet air temperature [°C]	Inlet air humidity [%RH]	Outlet air temperature [°C]	Output [kW]	Water flow [l/s]	Water pressure drop [kPa]
57	11	25	50	15,4	0,2	0,0083	0,10
	12	30	45	17,4	0,3	0,0120	0,15
	12	32	40	17,7	0,3	0,0140	0,17
	13	35	40	19,5	0,4	0,0160	0,23
85	18	25	50	16,5	0,3	0,0110	0,13
	20	30	45	18,9	0,4	0,0150	0,20
	19	32	40	19,3	0,4	0,0170	0,24
141	21	35	40	21,2	0,5	0,0200	0,33
	35	25	50	18,2	0,3	0,0130	0,16
	38	30	45	20,8	0,5	0,0190	0,29
	37	32	40	21,7	0,5	0,0210	0,34
	40	35	40	23,7	0,6	0,0250	0,47

■ T.2. Cooling capacity DCC 125-3

Water temperature in/out 6 / 12 [°C]							
Air flow [m ³ /h]	Air pressure drop [Pa]	Inlet air temperature [°C]	Inlet air humidity [%RH]	Outlet air temperature [°C]	Output [kW]	Water flow [l/s]	Water pressure drop [kPa]
88	7	25	50	13,6	0,4	0,0170	0,39
	8	30	45	15,2	0,6	0,0240	0,72
	8	32	40	15,6	0,7	0,0260	0,81
	9	35	40	16,9	0,8	0,0320	1,17
132	12	25	50	14,9	0,5	0,0210	0,57
	13	30	45	17,1	0,8	0,0300	1,05
	13	32	40	7,0	0,9	0,0350	1,32
	15	35	40	17,9	1,2	0,0460	2,17
221	22	25	50	16,6	0,7	0,0270	0,89
	26	30	45	18,1	1,2	0,0470	2,27
	26	32	40	18,4	1,3	0,0530	2,75
	29	35	40	19,8	1,7	0,0680	4,29

■ T.3. Cooling capacity DCC 160-3

Water temperature in/out 6 / 12 [°C]							
Air flow [m ³ /h]	Air pressure drop [Pa]	Inlet air temperature [°C]	Inlet air humidity [%RH]	Outlet air temperature [°C]	Output [kW]	Water flow [l/s]	Water pressure drop [kPa]
145	13	25	50	15,3	0,6	0,0220	0,61
	15	30	45	17,2	0,8	0,0330	1,22
	15	32	40	17,2	1,0	0,0380	1,54
	17	35	40	18,2	1,3	0,0500	2,47
217	21	25	50	16,5	0,7	0,0270	0,87
	25	30	45	18,1	1,2	0,0460	2,20
	25	32	40	18,3	1,3	0,0520	2,71
	28	35	40	19,7	1,7	0,0680	4,21
362	45	25	50	17,6	1,0	0,0390	1,65
	53	30	45	19,5	1,7	0,0680	4,25
	52	32	40	20,0	1,9	0,0750	5,11
	59	35	40	21,9	2,4	0,0960	7,80

■ T.4. Cooling capacity DCC 200-3

Water temperature in/out 6 / 12 [°C]							
Air flow [m³/h]	Air pressure drop [Pa]	Inlet air temperature [°C]	Inlet air humidity [%RH]	Outlet air temperature [°C]	Output [kW]	Water flow [l/s]	Water pressure drop [kPa]
226	13	25	50	14,1	1,1	0,0420	2,64
	15	30	45	15,3	1,7	0,0660	5,71
	14	32	40	15,4	1,8	0,0720	6,64
	16	35	40	16,6	2,3	0,0900	9,84
339	22	25	50	14,9	1,5	0,0580	4,57
	25	30	45	16,6	2,3	0,0890	9,69
	25	32	40	16,9	2,5	0,0980	11,32
	27	35	40	18,4	3,1	0,1200	16,50
565	45	25	50	16,2	2,1	0,0840	8,66
	52	30	45	18,4	3,2	0,1300	18,05
	51	32	40	18,9	3,5	0,1400	21,12
	56	35	40	20,7	4,3	0,1700	30,72

■ T.5. Cooling capacity DCC 250-3

Water temperature in/out 6 / 12 [°C]							
Air flow [m³/h]	Air pressure drop [Pa]	Inlet air temperature [°C]	Inlet air humidity [%RH]	Outlet air temperature [°C]	Output [kW]	Water flow [l/s]	Water pressure drop [kPa]
353	23	25	50	15,0	1,5	0,0600	4,85
	27	30	45	16,7	2,3	0,0920	10,22
	26	32	40	17,1	2,5	0,1000	11,89
	29	35	40	18,6	3,2	0,1200	17,37
530	41	25	50	16,0	2,0	0,0800	8,03
	47	30	45	18,2	3,1	0,1200	16,79
	46	32	40	18,7	3,4	0,1300	19,56
	51	35	40	20,4	4,2	0,1700	28,50
883	97	25	50	17,3	2,8	0,1100	14,56
	110	30	45	20,0	4,3	0,1700	29,97
	108	32	40	20,7	4,7	0,1900	35,24
	121	35	40	22,8	5,8	0,2300	50,90

■ T.6. Cooling capacity DCC 315-3

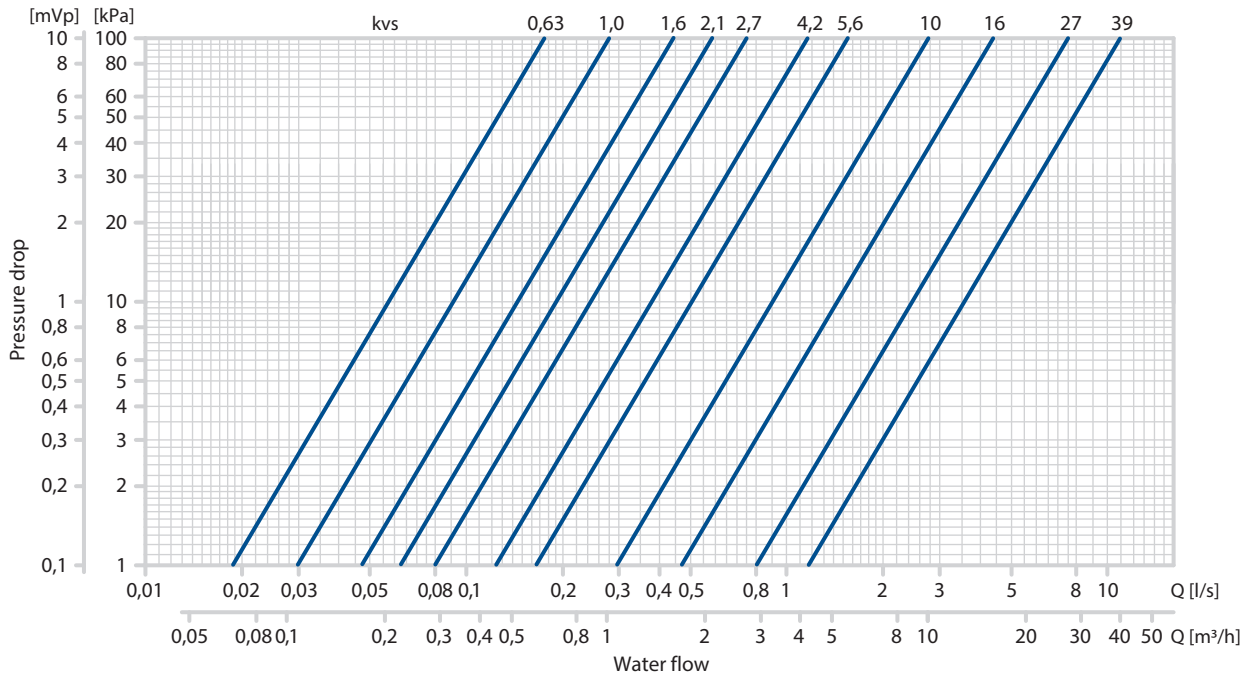
Water temperature in/out 6 / 12 [°C]							
Air flow [m³/h]	Air pressure drop [Pa]	Inlet air temperature [°C]	Inlet air humidity [%RH]	Outlet air temperature [°C]	Output [kW]	Water flow [l/s]	Water pressure drop [kPa]
561	23	25	50	15,8	2,1	0,0820	1,83
	27	30	45	17,4	3,4	0,1300	4,30
	27	32	40	17,7	3,7	0,1500	5,08
	30	35	40	19,2	4,7	0,1900	7,61
841	42	25	50	16,6	2,8	0,1100	3,16
	48	30	45	18,7	4,5	0,1800	7,05
	47	32	40	19,2	5,0	0,2000	8,33
	53	35	40	21,0	6,2	0,2500	12,38
1402	99	25	50	17,8	4,0	0,1600	5,81
	114	30	45	20,5	6,3	0,2500	12,63
	111,55	32	40	21,1	6,9	0,2700	14,99
	125,51	35	40	23,3	8,6	0,3400	22,04

T.7. Cooling capacity DCC 400-3

Water temperature in/out 6 / 12 [°C]V							
Air flow [m³/h]	Air pressure drop [Pa]	Inlet air temperature [°C]	Inlet air humidity [%RH]	Outlet air temperature [°C]	Output [kW]	Water flow [l/s]	Water pressure drop [kPa]
904	20	25	50	14,8	3,9	0,1600	2,99
	23	30	45	16,4	6,1	0,2400	6,43
	22	32	40	16,7	6,7	0,2600	7,49
	25	35	40	18,1	8,3	0,3300	11,04
1356	35	25	50	15,8	5,3	0,2100	5,05
	40	30	45	17,8	8,1	0,3200	10,64
	39	32	40	18,2	8,9	0,3500	12,44
2261	43	35	40	20,0	11,0	0,4400	18,21
	78	25	50	17,1	7,5	0,3000	9,25
	89	30	45	19,7	11,4	0,4500	19,34
2261	87	32	40	20,3	12,5	0,4900	22,72
	97	35	40	22,3	15,4	0,6100	32,99

Correction

Pressure drops across valves



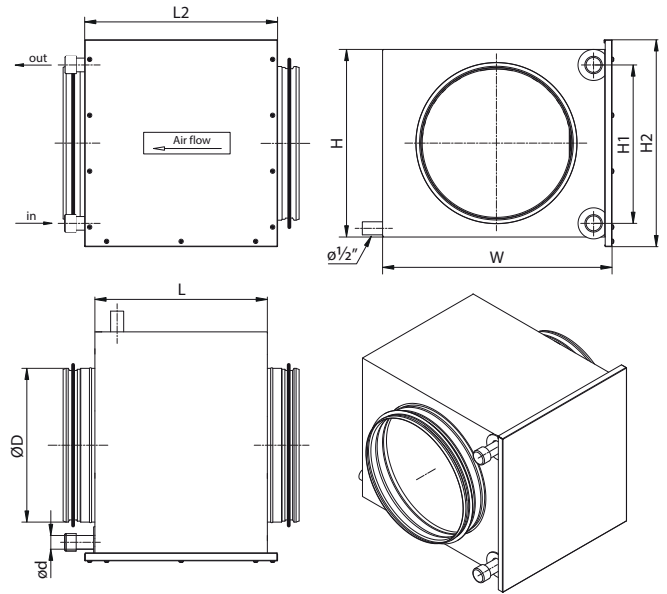
Dimensions

T.8.

DCC air cooler with a circular duct connection

Size	L	L2	W	H	H1	H2	Ød	ØD	Weight kg
100	278	311	255	157	100	188		100	5,1
125	278	311	320	235	175	265		125	7,3
160	278	311	320	235	175	264		160	7,3
200	278	310	370	302	245	334	22	200	9,4
250	278	311	370	302	245	333		250	9,4
315	278	311	429	374	315	405		315	12
400	332	365	631	470	423	502		400	21,2

The dimensions shown are in mm.



Specification

Ordering code:	DCC -X -3
Product type:	DCC
Size of air heater:	100 125 160 200 250 315 400
Number of tube rows:	3
Example: DCC-250-3	

If you do not find the correct size cooler based on the data in the tables, please provide the information below for sizing.

From standard DCC, we choose the one that is closest to your needs.

Sizing data:

1. Air flow rate: - m³/h
2. Inlet air temperature: - °C
3. Inlet air humidity: - % RH
4. Outlet air temperature or output: - °C or - kW
5. Inlet water temperature: - °C
6. Outlet water temperature or water flow: - °C or - l/s
7. Duct size: - mm
8. Type of antifreeze: - type / %