

A close-up photograph of a circular duct cooler. The device is a rectangular metal box with a circular opening on the front. Inside the opening, a dense array of horizontal metal fins is visible. Two brass-colored ports with black caps are located on the right side of the front panel. The top part of the image is partially obscured by a red overlay containing text.

**CWK**  
**Circular duct coolers**  
**for cooled water**

# CWK

## Circular duct coolers for cooled water

The CWK with circular duct connection uses chilled water as the energy carrier and is used for cooling the ventilation air in a ventilation system. The CWK 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.

- 7 standard sizes
- 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 1751

### Design

The casing is made of Aluzinc-coated sheet steel, AZ 185. The coil has copper tubes and tube connections, and aluminium fins. An openable cover simplifies inspection and cleaning. Stainless steel drip tray for condensate collection, with G $\frac{1}{2}$ " drain connection. The duct connections have rubber seals. The duct coolers conforms to airtightness class C to EN 1751.

### Operating data

Max. operating temp.: +150°C  
 Max. operating press.: 1,0 MPa (10 bar)  
 The coils are tested for leakage.

### Capacity

Examples of capacity for each size are given on pages 4 and 5. You can also do your own calculations using our web-based VEAB Select calculation program ([www.veab.com](http://www.veab.com)), or get in touch with our sales technicians for assistance.

### Installation

The CWK is designed for installation in a horizontal duct.

### Control

See pages 6 to 9 for a list of regulators, sensors, valves and actuators.

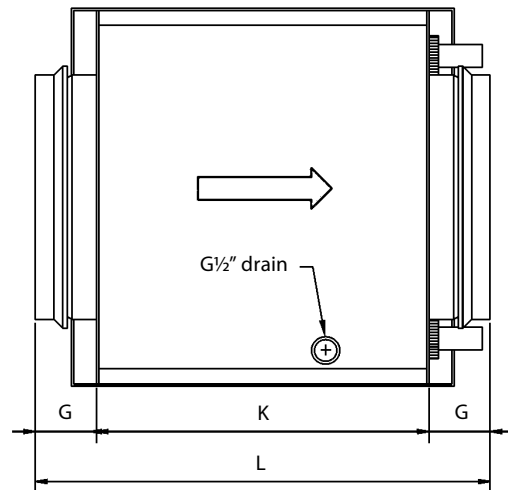
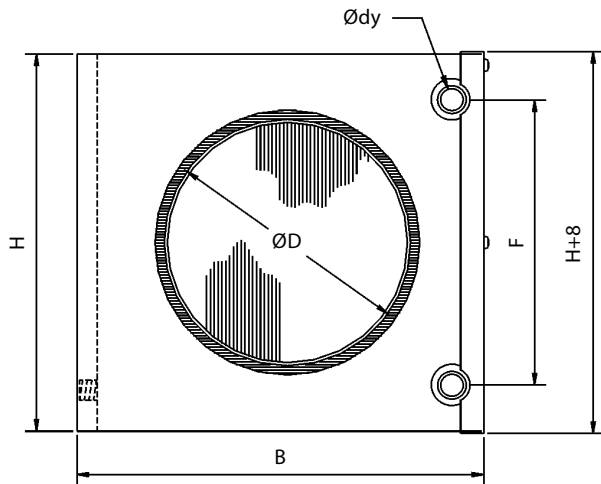


### Air tightness class C

The CWK 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.

## Overview of range and dimensions

Type	ØD mm	B mm	H mm	Ødy mm	F mm	G mm	K mm	L mm	Coil inside volume l	Weight kg
CWK 100-3-2.5	100	251	180	10	100	40	276	356	0.20	4.4
CWK 125-3-2.5	125	326	255	10	175	40	276	356	0.42	6.5
CWK 160-3-2.5	160	326	255	10	175	40	276	356	0.42	6.7
CWK 200-3-2.5	200	411	330	22	250	40	276	356	0.96	9.4
CWK 250-3-2.5	250	486	405	22	325	40	276	356	1.35	11.0
CWK 315-3-2.5	315	560	504	22	400	40	276	356	1.87	14.3
CWK 400-3-2.5	400	710	529	22	425	65	330	460	2.55	19.5



CWK

### Project design/ordering

#### Descriptive text for - CWK

VEAB type CWK duct cooler with casing made of Aluzinc-coated sheet steel, AZ 185, coil with copper tubes and tube connections, and with aluminium fins. Stainless steel drip tray for condensate. The duct cooler conforms to air tightness class C. The cooler is controlled by an external regulator, sensors, valves and actuators, which must be ordered separately.

#### Type designation **CWK 100 - 3 - 2.5**

(example)

Size designation

Number of tube rows

Fin pitch, mm

#### Specify the following for project ordering:

- Air flow rate: - m<sup>3</sup>/h
- Inlet air temperature: - °C
- Outlet air temp. or required output: - °C or kW
- Duct size: - mm
- Inlet water temperature: - °C
- Outlet water temp. or water flow: - °C or l/sek
- Inlet air humidity: - % RH
- Anti-freeze agent: - type / %

## Capacity CWK 100-3-2,5

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
54	11	25	50	15.2	0.2	0.01	<0,5
54	11	30	45	17.2	0.3	0.01	1
100	30	25	50	16.9	0.4	0.01	1
100	30	30	45	19.5	0.5	0.02	1
145	55	25	50	17.9	0.4	0.02	1
145	55	30	45	20.4	0.7	0.03	2

## Capacity CWK 125-3-2,5

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
85	5	25	50	13.9	0.4	0.02	2
85	5	30	45	15.1	0.7	0.03	4
150	13	25	50	15.0	0.7	0.03	5
150	13	30	45	16.7	1.0	0.04	9
215	23	25	50	15.7	1.0	0.04	8
215	23	30	45	17.8	1.4	0.06	15

## Capacity CWK 160-3-2,5

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
145	12	25	50	14.9	0.7	0.03	4
145	12	30	45	16.6	1.0	0.04	9
250	29	25	50	16.1	1.1	0.04	9
250	29	30	45	18.2	1.5	0.06	18
355	52	25	50	16.8	1.4	0.06	15
355	52	30	45	19.3	2.0	0.08	30

## Capacity CWK 200-3-2,5

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
225	9	25	50	14.8	1.1	0.04	2
225	9	30	45	16.2	1.6	0.06	4
390	21	25	50	15.8	1.7	0.07	5
390	21	30	45	17.8	2.5	0.10	10
555	38	25	50	16.6	2.2	0.09	8
555	38	30	45	18.9	3.2	0.13	16

## Capacity CWK 250-3-2,5

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
360	8	25	50	14.6	1.8	0.07	3
360	8	30	45	16.1	2.6	0.10	5
630	21	25	50	15.8	2.8	0.11	6
630	21	30	45	17.8	4.0	0.16	11
900	37	25	50	16.5	3.7	0.14	9
900	37	30	45	18.9	5.2	0.21	18

## Capacity CWK 315-3-2,5

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
560	9	25	50	14.6	2.8	0.11	3
560	9	30	45	16.2	4.0	0.16	7
985	22	25	50	15.8	4.4	0.17	8
985	22	30	45	17.9	6.2	0.25	15
1410	41	25	50	16.6	5.7	0.23	12
1410	41	30	45	19.0	8.1	0.32	24

## Capacity CWK 400-3-2,5

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
900	11	25	50	14.9	4.4	0.17	4
900	11	30	45	16.6	6.3	0.25	7
1590	26	25	50	16.1	6.8	0.27	8
1590	26	30	45	18.3	9.7	0.38	16
2280	50	25	50	16.9	8.8	0.35	13
2280	50	30	45	19.4	12.6	0.50	26

## Regulators



AQUA24/230T



AQUA24TF



RC



RC-DO



OPTIGO OP10

### AQUA

Complete regulator with built-in room sensor. Floating control for controlling three-position actuators. Cascade connection with minimum limit for room temperature control. Can be equipped with external room and/or duct sensor and external setpoint adjustment. Temperature range 0 - 30°C, depending on the sensor employed.

#### AQUA24TF

24V supply. The regulator has a built-in controlling anti-freeze protection with two alarm relays and automatic control for heating during stoppage.

### REGIO MINI

Complete regulator with built-in room sensor. Can be equipped with external room and/or duct sensors. Has two control outputs, e.g. for heating and cooling in sequence.

#### RC

24V supply. 0...10V output control signal. DIP switches are used for basic 20 - 26°C setpoint setting. The basic setting can be adjusted by  $\pm 3^\circ\text{C}$  by means of the setpoint knob.

#### RC-DO

24V supply. 0...10V output control signal. The RC-DO has a back-lit display and a temperature range of 0 - 50°C.

### OPTIGO

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.

#### 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.




#### OP10-230

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

## Accessories for AQUA

	Product	Range	Design
	Duct sensor TG-K330	0-30°C	Degree of protection IP20
	Room sensor TG-R430 with setpoint adjustment	0-30°C	Degree of protection IP30
	Room sensor TG-R530	0-30°C	Degree of protection IP30
	Room sensor TG-R630	0-30°C	Degree of protection IP54
	Trafo 60 Totally enclosed transformer for wall mounting. Built-in two- pole fuse on secondary side.		Primary voltage 230V~ Secondary voltage 24V~ Max. rating 60 VA  Degree of protection IP44

## Accessories for OPTIGO and REGIO

	Product	Range	Design
	Duct sensor TG-K3/PT1000	-30...+70°C	Degree of protection IP65
	Room sensor TG-R5/PT1000	0-50°C	Degree of protection IP30
	Room sensor TG-UH/PT1000	-30...+120°C	Degree of protection IP65
	Trafo 60 Totally enclosed transformer for wall mounting. Built-in two- pole fuse on secondary side.		Primary voltage 230V~ Secondary voltage 24V~ Max. rating 60 VA  Degree of protection IP44

## Actuators and valves for Kvs 0.25 - 6.0 (95°C max.)

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

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
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

Actuator RVAZ4-24



Valve ZTV



Valve ZTR



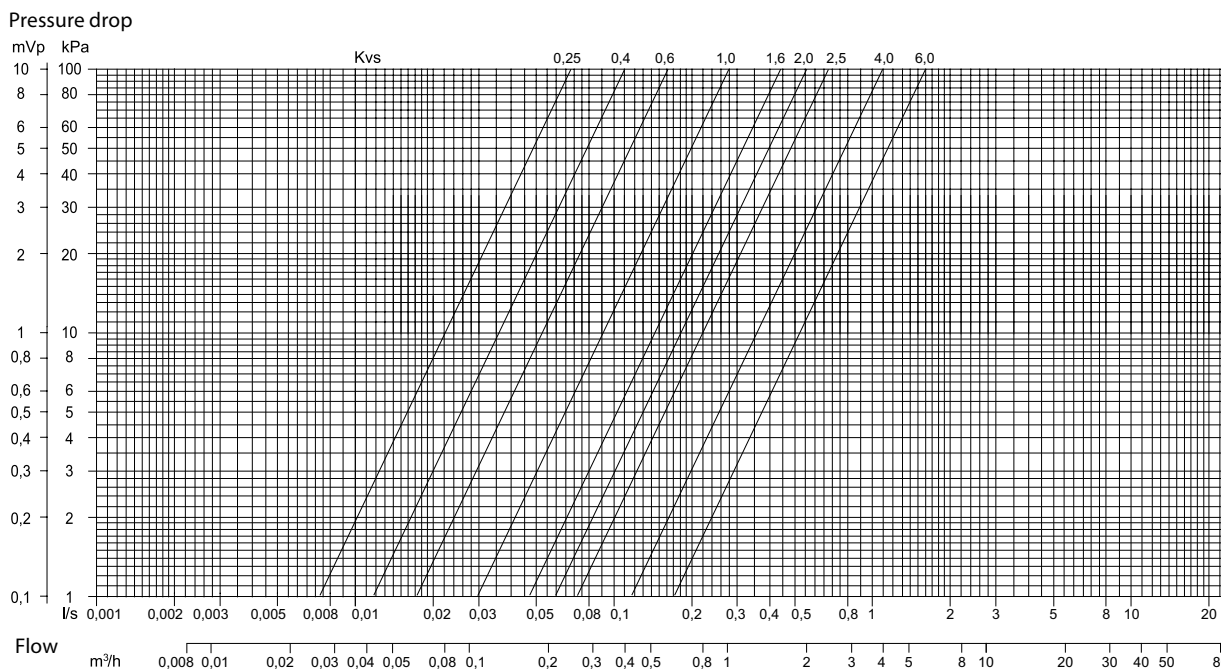
## Guide for selection of valves and actuators for CWK coolers

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

Type of CWK	Valve type	Kvs
CWK 100-3-2,5	2-way ZTV15-0,4	0.4
CWK 125-3-2,5	2-way ZTV15-0,4	0.4
CWK 160-3-2,5	2-way ZTV15-0,4	0.4
CWK 200-3-2,5	2-way ZTV15-0,6	0.6
CWK 250-3-2,5	2-way ZTV15-1,0	1.0
CWK 315-3-2,5	2-way ZTV15-1,6	1.6
CWK 400-3-2,5	2-way ZTV20-2,5	2.5

CWK

## Pressure drops across valves





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