VEAB Heat Tech AB

PGK
Rectangular duct coolers for cooled water

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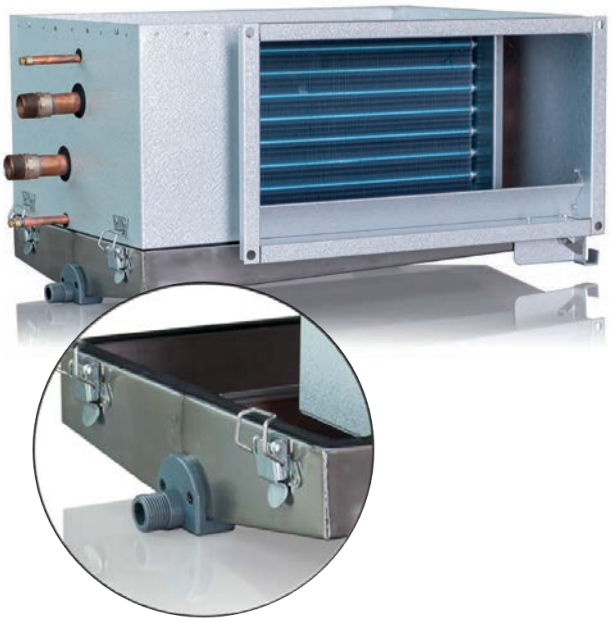
Rectangular duct coolers for cooled water

PGK duct coolers with rectangular duct connection use cold water as energy medium and are used to cool the ventilation air in a ventilation system. PGK duct coolers can also be used for individual cooling of specific rooms or areas.
To regulate the room or inlet air temperature, the duct coolers are complemented with regulators, sensors, actuators and valves.



- 22 standard sizes in stock
- Same model for left or right mounting
- Stainless steel drip tray for condensation water
- Droplet eliminator can be installed regardless of air direction
- Nipples for venting and draining
- Drip tray is easy to remove for cleaning and inspection
- Fins with hydrophilic coating for improved water runoff
- Coil is easy to access for cleaning via the removable drip tray

Design

Casing made of aluzinc-coated sheet steel, AZ 185. Coil with copper pipes and aluminium fins with hydrophilic coating. Nipples for venting and draining. Stainless steel drip tray (EN 1.4301) for collection of condensation water with G½" connection for drain.

Operating Data

Max. operating pressure: 1.0 MPa (10 bar)
The coils have been pressurised and leak tested.

Dimensioning

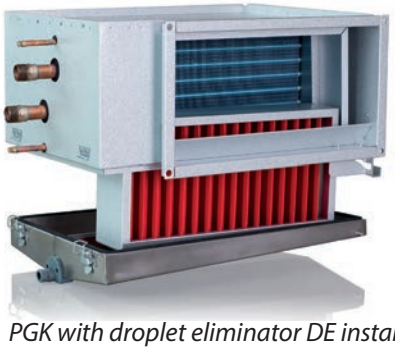
Dimensioning can easily be achieved with our web-based calculation program VEAB Select (www.veab.com). If necessary, contact our sales staff for help.

Installation

PGK duct coolers are intended for installation in horizontal ducts with the air flow in any direction.

Control Unit

See pages 4 to 7 for a list of regulators, sensors, valves and actuators.



PGK with droplet eliminator DE installed

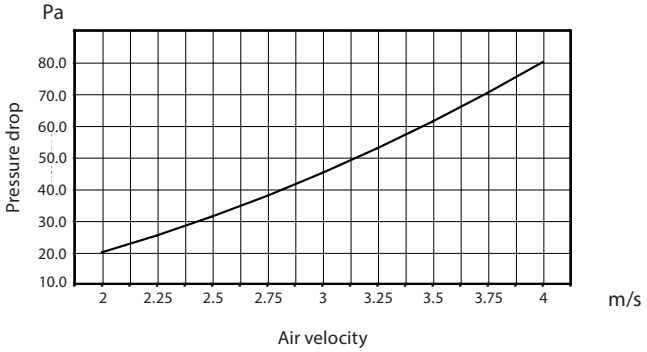
Hygiene

The design, which facilitates cleaning and prevents water accumulation, contributes to ensuring that dirt and stagnant water cannot give rise to bacteria in the ventilation air. In this way, healthy and fresh air is assured.

Droplet Eliminator, DE

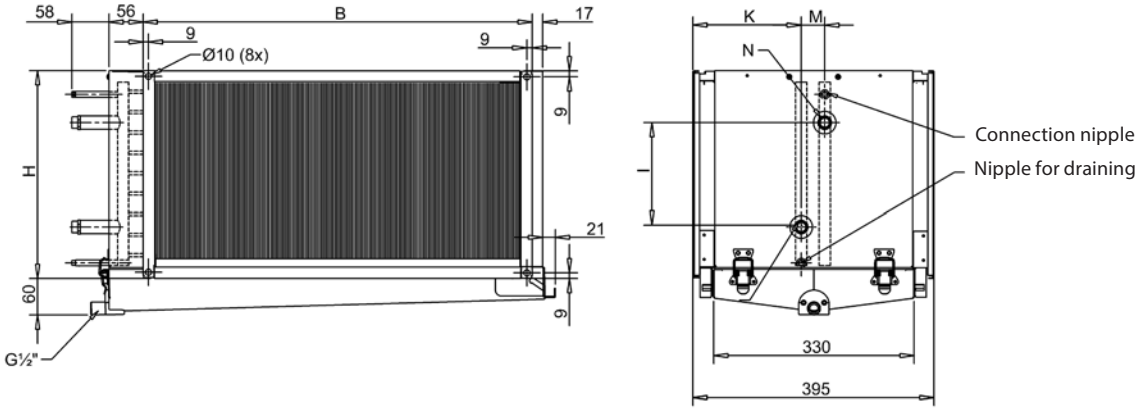
For air velocities above 2.5 m/s, we recommend installing a droplet eliminator at the outlet end of the coil. This prevents water droplets from being carried along with the air flowing through the duct system. The accumulated water is drained off via the stainless steel drip tray for condensation water. The droplet eliminator is easy to access after having removed the drip tray. The droplet eliminator must be ordered separately.

Pressure Drop above Droplet Eliminator



Product Range Overview with Dimensional Drawing

Type	B mm	H mm	I mm	K mm	M mm	N conn. R	Inner pipe volume l	DE
PGK 250x150-4-2.0	288	188	70	165	65	3/4"	0.63	DE 25x15
PGK 400×200-3-2.0	438	238	70	176	43	3/4"	0.65	DE 40x20
PGK 400×200-4-2.0	438	238	70	176	43	3/4"	0.87	DE 40x20
PGK 500×250-3-2.0	538	288	120	176	43	3/4"	1.02	DE 50x25
PGK 500×250-4-2.0	538	288	120	176	43	3/4"	1.36	DE 50x25
PGK 500×300-3-2.0	538	338	175	176	43	3/4"	1.23	DE 50x30
PGK 500×300-4-2.0	538	338	175	176	43	3/4"	1.64	DE 50x30
PGK 500×400-3-2.0	538	438	270	176	43	3/4"	2.2	DE 50x40
PGK 500×400-4-2.0	538	438	270	176	43	3/4"	3.0	DE 50x40
PGK 600×300-3-2.0	638	338	170	176	43	3/4"	1.47	DE 60x30
PGK 600×300-4-2.0	638	338	170	176	43	3/4"	1.96	DE 60x30
PGK 600×350-3-2.0	638	388	220	176	43	3/4"	1.72	DE 60x35
PGK 600×350-4-2.0	638	388	220	176	43	1"	2.29	DE 60x35
PGK 700×400-3-2.0	738	438	250	170	55	1"	3.09	DE 70x40
PGK 700×400-4-2.0	738	438	250	170	55	1"	4.12	DE 70x40
PGK 800×400-3-2.0	838	438	251	170	55	1"	3.9	DE 80x40
PGK 800×400-4-2.0	838	438	251	170	55	1"	5.1	DE 80x40
PGK 800×500-3-2.0	838	538	340	170	55	1"	4.42	DE 80x50
PGK 800×500-4-2.0	838	538	340	170	55	1¼"	5.89	DE 80x50
PGK 1000×500-3-2.0	1038	538	350	170	55	1"	5.52	DE 100x50
PGK 1000×500-4-2.0	1038	538	350	170	55	1¼"	7.36	DE 100x50
PGK 1200×600-3-2,0	1238	638	450	170	44	1½"	6,4	DE 120x60



Project Design/Orders

Description – PGK

Duct cooler, VEAB type PGK, with casing made of aluzinc-coated sheet steel, AZ 185, coil with copper pipes and aluminium fins with hydrophilic coating. Stainless steel drip tray for condensation water. Feedback control is achieved by means of an external regulator, sensors, valves and actuators to be ordered separately. For air velocities above 2.5 m/s, order droplet eliminator, DE.

Type designation PGK 400×200 - 3 - 2.0
(example)

Size designation

Number of rows of pipes

Fin spacing mm

Specify the following when configuring/ ordering

1. Duct dimensions: - mm
2. Air flow: - m^3/h
3. Inlet air temperature: - °C
4. Inlet air humidity: - % RH
5. Outlet air temp. or desired output: - °C or kW
6. Inlet water temperature: - °C
7. Outlet water temp. water flow: - °C or l/s
8. Antifreeze agent - type / %
9. Possible droplet eliminator

Regulators

AQUA24TF

RC

RC-DO

OPTIGO OP10

AQUA

Complete regulator with integrated room sensor. Floating feedback control for control of three-position actuators. Cascade connection with minimum limitation of inlet air in case of room feedback control. Can be fitted with external room and/or duct sensor as well as external setpoint adjuster. Temperature range 0-30 °C, depending on choice of sensor.

AQUA24TF

24 V supply. The regulator includes an integrated regulating antifreeze device with two alarm relays and automation for standstill heater.

REGIO MINI

Complete regulator with integrated room sensor. Can be fitted with external room and/or duct sensor. Includes two control outputs for sequential heating and cooling, for example.

RC

24 V supply. 0...10 V outgoing control signal.
Base setpoint 20-26 °C is adjusted with DIP switches.
The base setpoint can be adjusted by ±3 °C using the setpoint knob.

RC-DO

24 V supply. 0...10 V outgoing control signal. RC-DO includes a backlighted display and temperature range from 0-50 °C.

OPTIGO

Regulator with display. One knob for all adjustments. To be mounted on DIN rail. Operates with PT1000 sensor within the –20 °C to +40 °C range. Started/stopped with "run" signal from fan.

OP5

24 V supply. 0…10 V outgoing control signal. Operates with a room or duct sensor. Convertible for heating or cooling feedback control.

OP10

24 V supply. Adjustable for 0…10 V outgoing control signal or 3-point feedback control. Two control outputs for sequential heating and cooling, for example. Input for two sensors and possible antifreeze sensor. Inlet air feedback control or room feedback control with cascade controlled inlet air. Antifreeze control with standstill heater. Output for starting/stopping fans, for example, via relay 230 VAC 1-ph., 5 A. Programmable weekly timer for control of both fans and heating/cooling. Outputs for external timer that extends operating time. Can be equipped with an external setpoint adjuster.

OP10-230

Same functions as OP10 but with 230 VAC 1-ph supply.

AQUA Accessories

	Product	Range	Design
	Duct sensor TG-K330	0-30 °C	IP20 degree of protection
	Room sensor TG-R430 With setpoint adjuster	0-30 °C	IP30 degree of protection
	Room sensor TG-R530	0-30 °C	IP30 degree of protection
	Room sensor TG-R630	0-30 °C	IP54 degree of protection
	Transformer 60 Enclosed transformer for wall mounting. Integrated two-pole protection on secondary side.		Input voltage 230 VAC 1-ph. Output voltage 24 VAC 1-ph. Maximum load 60 VA IP44 degree of protection

OPTIGO and REGIO Accessories

	Product	Range	Design
	Duct sensor TG-K3/PT1000	-30...+70 °C	IP20 degree of protection
	Room sensor TG-R5/PT1000	0-50°C	IP30 degree of protection
	Room sensor TG-UH/PT1000	-30...+120 °C	IP65 degree of protection
	Transformer 60 Enclosed transformer for wall mounting. Integrated two-pole protection on secondary side.		Input voltage 230 VAC 1-ph. Output voltage 24 VAC 1-ph. Maximum load 60 VA IP44 degree of protection

Actuators and Valves with Kvs 0.25 – 8.0

(110 °C max.)

Designation	Type
3-way actuator for ZTV/ZTR valves, IP44 degree of protection	RVAZ4-24
0...10 V actuators for ZTV/ZTR valves, IP44 degree of protection	RVAZ4-24A

RVAZ4-24 actuator

Designation	Kvs	Type
2-way valve ½"	0.25	ZTV15-0,25
2-way valve ½"	0.4	ZTV15-0,4
2-way valve ½"	0.6	ZTV15-0,6
2-way valve ½"	1.0	ZTV15-1,0
2-way valve ½"	1.6	ZTV15-1,6
2-way valve ¾"	2.0	ZTV20-2,0
2-way valve ¾"	2.5	ZTV20-2,5
2-way valve ¾"	4.0	ZTV20-4,0
2-way valve ¾"	6.0	ZTV20-6,0
2-way valve 1"	8.0	ZTVB25-8
3-way valve ½"	0.25	ZTR15-0,25
3-way valve ½"	0.4	ZTR15-0,4
3-way valve ½"	0.6	ZTR15-0,6
3-way valve ½"	1.0	ZTR15-1,0
3-way valve ½"	1.6	ZTR15-1,6
3-way valve ¾"	2.0	ZTR20-2,0
3-way valve ¾"	2.5	ZTR20-2,5
3-way valve ¾"	4.0	ZTR20-4,0
3-way valve ¾"	6.0	ZTR20-6,0
3-way valve 1"	8.0	ZTRB25-8

ZTV valve

ZTR valve

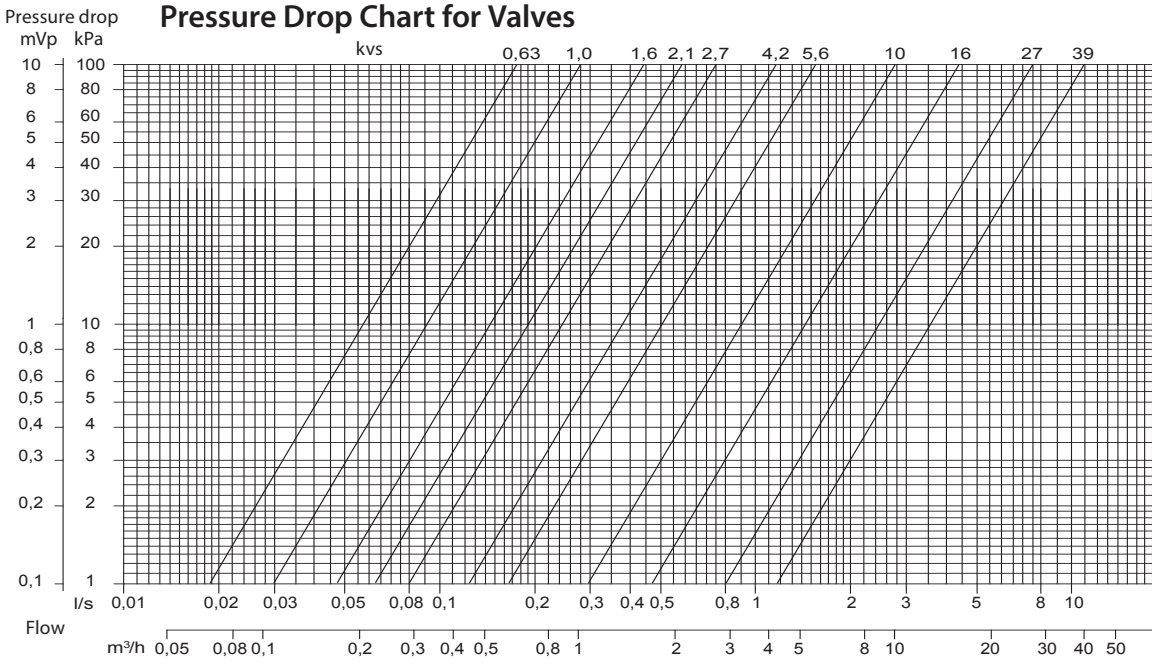
Valve and Actuator Selection Guide for PGK

Water temp. 110 °C max.

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

Type of PGK	Valve type	Kvs
PGK 250×150-4-2.0	2-way ZTV15-1.0	1.0
PGK 400×200-3-2.0	2-way ZTV15-1.6	1.6
PGK 400×200-4-2.0	2-way ZTV205-2,0	2.0
PGK 500×250-3-2.0	2-way ZTV15-1.6	1.6
PGK 500×250-4-2.0	2-way ZTV20 -2.0	2.0
PGK 500×300-3-2.0	2-way ZTV20 -2.5	2.5
PGK 500×300-4-2.0	2-way ZTV20 -2.5	2.5
PGK 500×400-3-2.0	2-way ZTV20 -4.0	4.0
PGK 500×400-4-2.0	2-way ZTV20 -4.0	4.0
PGK 600×300-3-2.0	2-way ZTV20 -2.5	2.5
PGK 600×300-4-2.0	2-way ZTV20 -2.5	2.5
PGK 600×350-3-2.0	2-way ZTV20 -2.5	2.5
PGK 600×350-4-2.0	2-way ZTV20 -4.0	4.0
PGK 700×400-3-2.0	2-way ZTV20 -4.0	4.0
PGK 700×400-4-2.0	2-way ZTV20 -4.0	4.0
PGK 800×400-3-2.0	2-way ZTV20 -6.0	6.0
PGK 800×400-4-2.0	2-way ZTV20 -6.0	6.0
PGK 800×500-3-2.0	2-way ZTV20 -6.0	6.0
PGK 800×500-4-2.0	2-way ZTVB25-8	8.0
PGK 1000×500-3-2.0	2-way ZTV20 -6.0	6.0
PGK 1000×500-4-2.0	2-way ZTVB25-8	8.0

Pressure Drop Chart for Valves



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