VEAB
Heat Tech AB

PGK
Rectangular duct coolers for cooled water

PGK

Rectangular duct coolers for cooled water

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

- 16 standard sizes
- Same model for left-hand or right-hand installation
- Stainless steel condensate drip tray
- A droplet eliminator can be fitted regardless of the direction of air flow
- Tappings for venting and drainage
- Easily removable drip tray to simplify cleaning and inspection
- Fins with hydrophilic coating for better water run-off
- The coil is easily accessible for cleaning through the removable drip tray

Design

The casing is made of Aluzinc-coated sheet steel, AZ 185. The coil has copper tubes and aluminium fins with hydrophilic coating. Tappings for venting and drainage. Stainless steel drip tray for condensate collection, with G½" drain connection.

Operating data

Max. operating press.: 1,0 MPa (10 bar)
The coils are tested for leakage.

Capacity

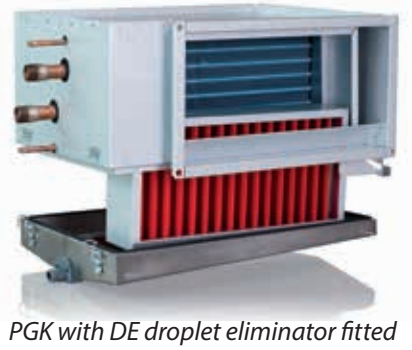
Examples of capacity for each size are given on pages 4 and 5. You can also do your own calculations using our web-based VEAB Select calculation program (www.veab.com), or get in touch with our sales technicians for assistance.

Installation

The PGK is intended for installation in a horizontal duct, with the air flow in either direction.

Control

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



PGK with DE droplet eliminator fitted

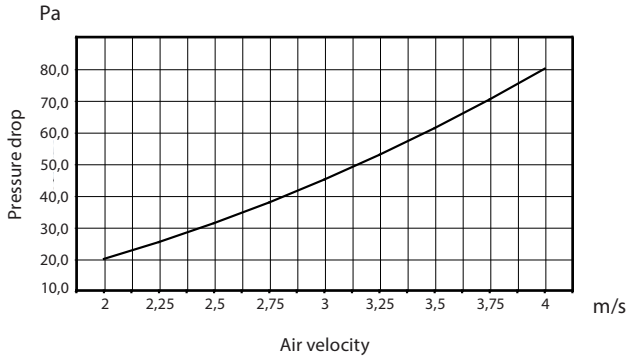
Hygiene

The design, that facilitates cleaning and the prevention of water accumulation, ensures that particles and stagnant water does not introduce bacteria to the air stream. In this way, fresh and healthy air is assured.

Droplet eliminator, DE

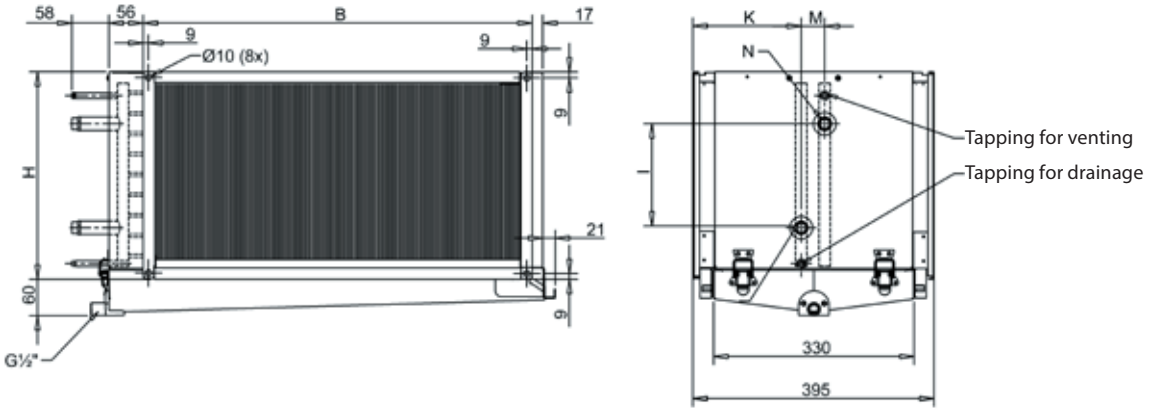
We recommend that a droplet eliminator should be installed on the outlet side of the coil if the air velocity is in excess of 2.5 m/s. This prevents water droplets being entrained by the air flow out into the duct system. The collected water is discharged through the stainless steel condensate drip tray. The droplet eliminator is easily accessible after the drip tray has been removed. The droplet eliminator must be ordered separately.

Pressure drop across droplet eliminator



Product range overview and dimensions

Type	B mm	H mm	I mm	K mm	M mm	N conn. R	Coil inside volume l	DE
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 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	3/4''	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 800×500-3-2.0	838	538	340	170	55	1¼''	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	1¼''	5.52	DE 100x50
PGK 1000×500-4-2.0	1038	538	350	170	55	1¼''	7.36	DE 100x50



Project design/ordering

Descriptive text for - PGK

VEAB type PGK duct cooler with casing made of Aluzinc-coated sheet steel, AZ 185, coil with copper tubes and aluminium fins with hydrophilic coating. Stainless steel drip tray for condensate. The cooler is controlled by an external regulator, sensors, valves and actuators, which must be ordered separately. The DE droplet eliminator should be ordered if the air velocity is higher than 2.5 m/s.

Specify the following for project ordering:

1. Duct size: - mm
2. Air flow rate: - m^3/h
3. Inlet air temp.: - °C
4. Inlet air humidity: - % RH
5. Outlet air temp. or required output: - °C or kW
6. Inlet water temp.: - °C
7. Outlet water temp. or water flow: - °C or l/sec
8. Anti-freeze agent: - type / %
9. Droplet eliminator, if any:

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

Size designation

Number of tube rows

Fin pitch, mm

Capacity PGK 400×200-3-2,0

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^3/h	Pa	°C	% RH	°C	kW	l/s	kPa
576	33	25	50	18.0	1.3	0.05	1.3
576	36	30	45	18.1	2.8	0.11	6.0
864	65	25	50	17.5	2.2	0.09	3.8
864	72	30	45	19.2	3.8	0.15	10.0
1152	106	25	50	17.9	2.7	0.11	5.7
1152	118	30	45	20.1	4.5	0.18	14.0

Capacity PGK 500×250-3-2,0

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^3/h	Pa	°C	% RH	°C	kW	l/s	kPa
900	33	25	50	16.3	2.7	0.11	3.7
900	37	30	45	17.5	4.8	0.19	10.2
1350	66	25	50	16.9	3.7	0.15	6.7
1350	74	30	45	18.8	6.4	0.25	16.9
1800	108	25	50	17.5	4.6	0.18	9.7
1800	121	30	45	19.8	7.6	0.30	23.4

Capacity PGK 500×300-3-2,0

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^3/h	Pa	°C	% RH	°C	kW	l/s	kPa
1080	33	25	50	16.5	3.1	0.12	3.3
1080	37	30	45	17.6	5.6	0.22	9.7
1620	66	25	50	17.0	4.4	0.17	6.3
1620	74	30	45	18.9	7.5	0.30	16.0
2160	107	25	50	17.6	5.5	0.22	9.2
2160	120	30	45	19.8	9.0	0.36	22.3

Capacity PGK 600×300-3-2,0

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^3/h	Pa	°C	% RH	°C	kW	l/s	kPa
1296	33	25	50	16.5	3.7	0.15	3.4
1296	37	30	45	17.6	6.8	0.27	10.0
1944	66	25	50	17.0	5.3	0.21	6.4
1944	74	30	45	18.9	9.0	0.36	16.7
2592	107	25	50	17.6	6.6	0.26	9.5
2592	120	30	45	19.8	10.8	0.43	23.3

Capacity PGK 600×350-3-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
1512	33	25	50	16.5	4.3	0.17	3.7
1512	37	30	45	17.6	7.9	0.31	11.0
2268	66	25	50	17.0	6.2	0.24	7.1
2268	74	30	45	18.9	10.5	0.42	18.4
3024	107	25	50	17.6	7.7	0.30	10.5
3024	120	30	45	19.8	12.6	0.50	25.8

Capacity PGK 700×400-3-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
1920	35	25	50	16.3	5.6	0.22	2.2
1920	43	30	45	17.5	9.9	0.39	6.2
2880	70	25	50	17.0	7.7	0.31	4.0
2880	84	30	45	19.0	12.8	0.51	9.9
3840	114	25	50	17.6	9.5	0.38	5.8
3840	137	30	45	20.0	15.3	0.61	13.5

Capacity PGK 800×500-3-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
2743	36	25	50	15.9	8.5	0.34	3.4
2743	43	30	45	17.3	14.7	0.58	9.3
4115	72	25	50	16.8	11.5	0.46	6.0
4115	86	30	45	18.8	19.0	0.75	14.8
5486	117	25	50	17.5	14.1	0.56	8.6
5486	140	30	45	19.8	22.5	0.89	20.3

Capacity PGK 1000×500-3-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
3429	36	25	50	15.9	10.6	0.42	4.1
3429	43	30	45	17.3	18.4	0.73	11.2
5144	72	25	50	16.8	14.4	0.57	7.1
5144	86	30	45	18.8	23.7	0.94	17.8
6858	117	25	50	17.5	17.6	0.70	10.3
6858	140	30	45	19.8	28.2	1.12	24.5

Capacity PGK 400×200-4-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
576	43	25	50	16.4	1,6	0.06	1.2
576	48	30	45	16.4	3,2	0.13	5
864	86	25	50	16.5	2,4	0.09	3
864	98	30	45	17.4	4,5	0.18	9
1152	140	25	50	16.6	3,2	0.13	5
1152	160	30	45	18.3	5,5	0.22	13

Capacity PGK 500×250-4-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
900	44	25	50	15	3,1	0.12	4
900	51	30	45	15.5	5,8	0.23	11
1350	89	25	50	15.6	4,5	0.18	7
1350	103	30	45	16.7	7,8	0.31	18
1800	146	25	50	16.2	5,6	0.22	10
1800	167	30	45	17.7	9,4	0.37	26

Capacity PGK 500×300-4-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
1080	44	25	50	15	3,7	0.15	4
1080	51	30	45	15.5	6,9	0.27	12
1620	89	25	50	15.6	5,4	0.21	7
1620	103	30	45	16.7	9,3	0.37	20
2160	145	25	50	16.2	6,7	0.27	11
2160	167	30	45	17.7	11,3	0.45	28

Capacity PGK 600×300-4-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
1296	49	25	50	15.9	5,5	0.22	4
1296	49	30	45	17.8	8,1	0.32	9
1944	95	25	50	16.7	7,5	0.30	8
1944	95	30	45	19.0	11,0	0.44	15
2592	153	25	50	17.4	9,3	0.37	11
2592	153	30	45	19.8	13,6	0.54	23

Capacity PGK 600×350-4-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
1512	43	25	50	15.4	4,8	0.19	2.8
1512	51	30	45	15.7	9,4	0.37	9
2268	88	25	50	15.7	7,2	0.29	6
2268	101	30	45	16.9	12,7	0.50	16
3024	144	25	50	16.3	9,1	0.36	9
3024	165	30	45	17.8	15,5	0.61	22

Capacity PGK 700×400-4-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
1920	63	25	50	13.8	8,0	0.32	6
1920	76	30	45	14.1	14,1	0.55	16
2880	123	25	50	14.8	10,7	0.42	10
2880	152	30	45	15.7	18,2	0.72	24
3840	199	25	50	15.5	13,1	0.52	15
3840	248	30	45	16.8	22,0	0.87	37

Capacity PGK 800×500-4-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
2743	59	25	50	14.4	10,2	0.40	3
2743	74	30	45	14.6	18,7	0.74	9
4115	118	25	50	15.1	14,2	0.56	6
4115	147	30	45	16.1	24,6	0.98	15
5486	192	25	50	15.7	17,7	0.70	9
5486	239	30	45	17.2	29,7	1.18	22

Capacity PGK 1000×500-4-2,0

Water temperature 6/12°C

Air flow	Press. drop	Inlet air temp.	Inlet air humidity	Outlet air temp.	Output	Water flow	Water press. drop
m³/h	Pa	°C	% RH	°C	kW	l/s	kPa
3429	64	25	50	13.6	15,1	0.60	5
3429	77	30	45	13.9	25,3	1.00	13
5144	126	25	50	14.6	20,0	0.79	9
5144	154	30	45	15.5	33,3	1.32	22
6858	203	25	50	15.4	24,0	0.95	12
6858	250	30	45	16.7	40,1	1.59	30

Regulators

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 ±3°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

PGK

Actuators and valves for Kvs 0.25 – 8.0

(110°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 ½" valve	0.25	ZTV15-0.25
2-way ½" valve	0.4	ZTV15-0.4
2-way ½" valve	0.6	ZTV15-0.6
2-way ½" valve	1.0	ZTV15-1.0
2-way ½" valve	1.6	ZTV15-1.6
2-way ¾" valve	2.0	ZTV20-2.0
2-way ¾" valve	2.5	ZTV20-2.5
2-way ¾" valve	4.0	ZTV20-4.0
2-way ¾" valve	6.0	ZTV20-6.0
2-way 1" valve	8.0	ZTVB25-8.0
3-way ½" valve	0.25	ZTR15-0.25
3-way ½" valve	0.4	ZTR15-0.4
3-way ½" valve	0.6	ZTR15-0.6
3-way ½" valve	1.0	ZTR15-1.0
3-way ½" valve	1.6	ZTR15-1.6
3-way ¾" valve	2.0	ZTR20-2.0
3-way ¾" valve	2.5	ZTR20-2.5
3-way ¾" valve	4.0	ZTR20-4.0
3-way ¾" valve	6.0	ZTR20-6.0
3-way 1" valve	8.0	ZTRB25-8

Actuator RVAZ4-24

Valve ZTV

Valve ZTR

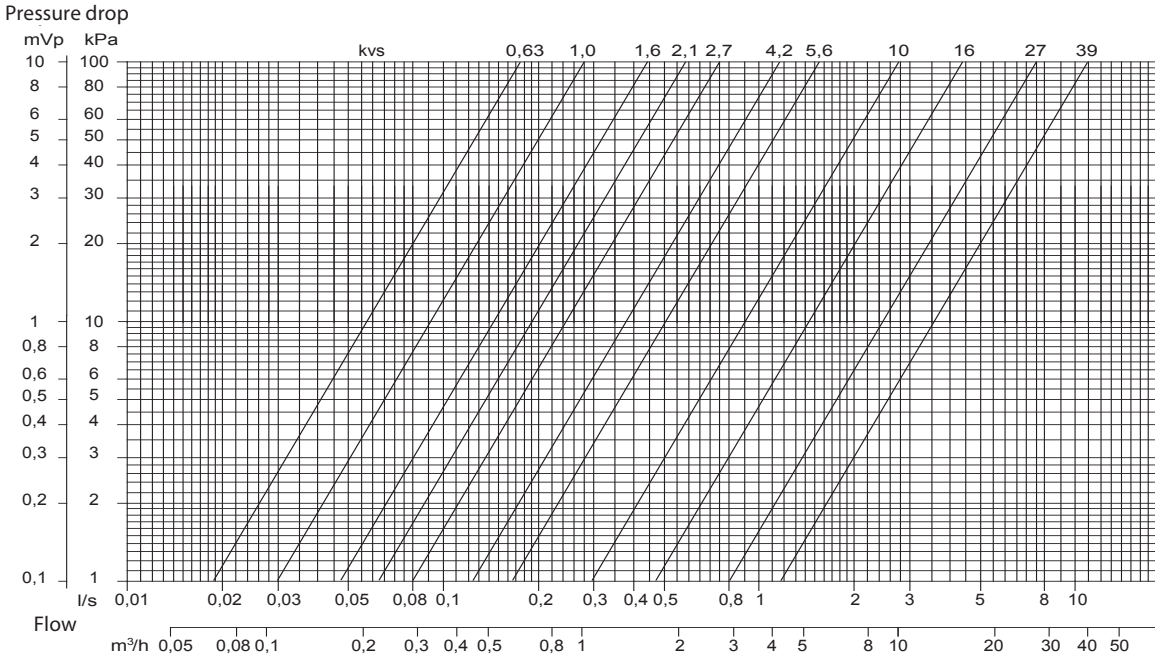
Guide for selection of valves and actuators for PGK coolers

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 PGK	Valve type	Kvs
PGK 400×200-3-2,0	2-way ZTV15-1,6	1.6
PGK 400×200-4-2,0	2-ways ZTV15-2,0	2.0
PGK 500×250-3-2,0	2-ways ZTV20-1,6	1.6
PGK 500×250-4-2,0	2-ways ZTV20-2,0	2.0
PGK 500×300-3-2,0	2-ways ZTV20-2,5	2.5
PGK 500×300-4-2,0	2-ways ZTV20-2,5	2.5
PGK 600×300-3-2,0	2-ways ZTV20-2,5	2.5
PGK 600×300-4-2,0	2-ways ZTV20-2,5	2.5
PGK 600×350-3-2,0	2-ways ZTV20-2,5	2.5
PGK 600×350-4-2,0	2-ways ZTV20-4,0	4.0
PGK 700×400-3-2,0	2-ways ZTV20-4,0	4.0
PGK 700×400-4-2,0	2-ways ZTV20-4,0	4.0
PGK 800×500-3-2,0	2-ways ZTV20-6,0	6.0
PGK 800×500-4-2,0	2-ways ZTVB25-8	8.0
PGK 1000×500-3-2,0	2-ways ZTV20-6,0	6.0
PGK 1000×500-4-2,0	2-ways ZTVB25-8	8.0

Pressure drops across valves



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