

# PGK

## Rectangular cooling battery for cold water



### Installation and Service

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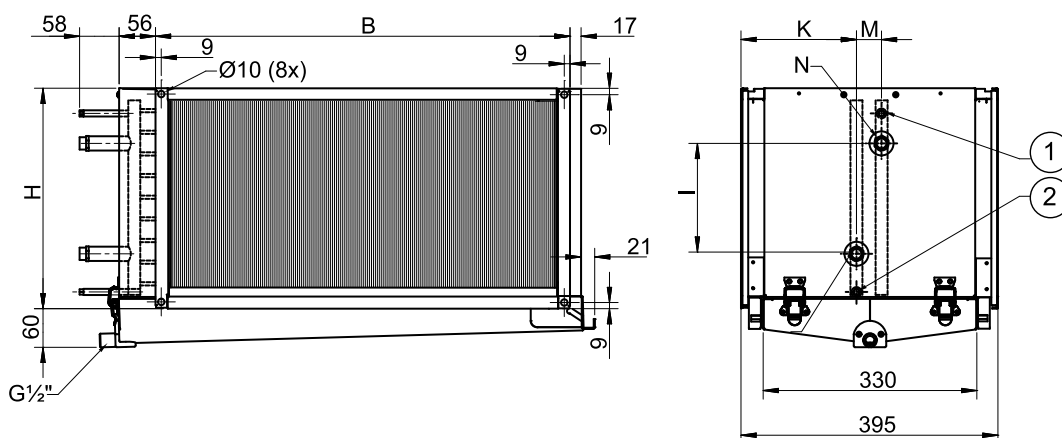
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# 1 Product information

Duct cooler for cold water for mounting in rectangular ventilation ducts.

Read these instructions before using the product. Save the instructions for future use.

## 2 Dimensions



**Fig. 1 Dimensions (mm)**

Pos 1 = Tapping for venting

Pos 2 = Tapping for drainage

Typ	B mm	H mm	l mm	K mm	M mm	N ansl. R	Invändig rörvolym l	DE
PGK 400x200-3-2.0	438	238	70	176	43	3/4"	0.65	DE 40x20
PGK 400x200-4-2.0	438	238	70	176	43	3/4"	0.87	DE 40x20
PGK 500x250-3-2.0	538	288	120	176	43	3/4"	1.02	DE 50x25
PGK 500x250-4-2.0	538	288	120	176	43	3/4"	1.36	DE 50x25
PGK 500x300-3-2.0	538	338	175	176	43	3/4"	1.23	DE 50x30
PGK 500x300-4-2.0	538	338	175	176	43	3/4"	1.64	DE 50x30
PGK 600x300-3-2.0	638	338	170	176	43	3/4"	1,47	DE 60x30
PGK 600x300-4-2.0	638	338	170	176	43	3/4"	1,96	DE 60x30
PGK 600x350-3-2.0	638	388	220	176	43	3/4"	1.72	DE 60x35
PGK 600x350-4-2.0	638	388	220	176	43	3/4"	2.29	DE 60x35
PGK 700x400-3-2.0	738	438	250	170	55	1"	3.09	DE 70x40
PGK 700x400-4-2.0	738	438	250	170	55	1"	4.12	DE 70x40
PGK 800x500-3-2.0	838	538	340	170	55	1 1/4"	4.42	DE 80x50
PGK 800x500-4-2.0	838	538	340	170	55	1 1/4"	5.89	DE 80x50
PGK 1000x500-3-2.0	1038	538	350	170	55	1 1/4"	5.52	DE 100x50
PGK 1000x500-4-2.0	1038	538	350	170	55	1 1/4"	7.36	DE 100x50

## 3 Installation

### 3.1 Installing the unit

The PGK duct cooler is designed for using chilled water as the cooling medium. The duct cooler coil consists of copper tubes and aluminium fins.

 <b>Warning</b>
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The cooling coil must not be used for direct-expansion refrigerant.
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For air flow, water flow and other technical particulars, see tabells in chapter 4.

The cooler should not be installed close to a fan outlet or a duct bend, since the air flow across the coil would then be uneven and the cooling capacity would thus be impaired.

Make sure that the cooler is installed so that the finned coil, drip tray and condensate outlet are accessible for cleaning (chapter 5). The duct cooler should be installed in a horizontal duct, but the air flow may be in either direction. Secure the duct cooler to the duct system by means of screws or slip joints.

The condensate outlet (pos C) in figure 2 should be connected across a water trap in order to avoid air leakage.

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**Note:**

The size of the outlet should be such that no water will remain in the drip tray. When the drip tray is to be removed, ensure that the condensate outlet is easy to disconnect.

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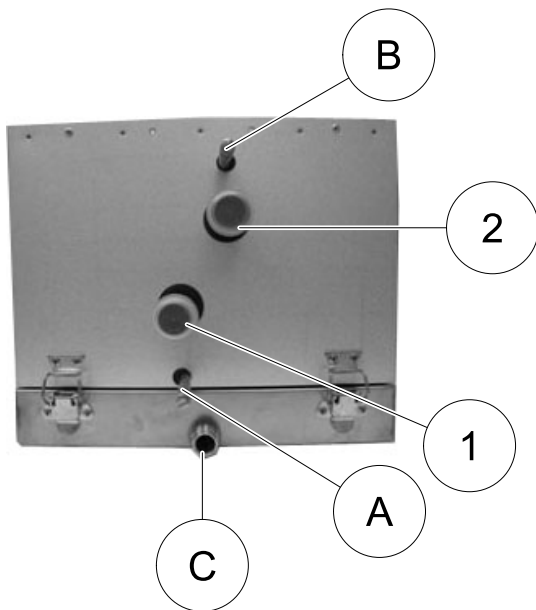
An efficient filter is recommended in the system in order to reduce fouling and thus also cut down the need for maintenance (see chapter 5).

The duct cooler should be installed downstream of the fan unit, although it can also be installed upstream, but care should then be taken to ensure that the fan motor and other components will not be harmed by the humid air downstream of the cooler.

The duct cooler must be insulated on the outside, so that no condensate will form. The ducts that carry the chilled air must normally also be insulated.

### 3.2 Water connections

Operating data: Max. operating temperature/operating pressure 100°C/1.0 MPa (10 bar)



**Fig. 2 Water connections**

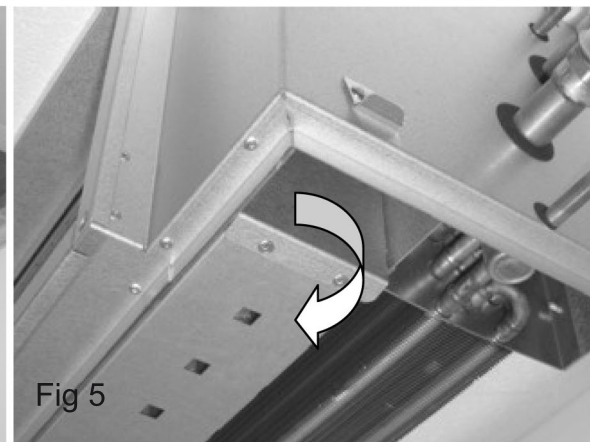
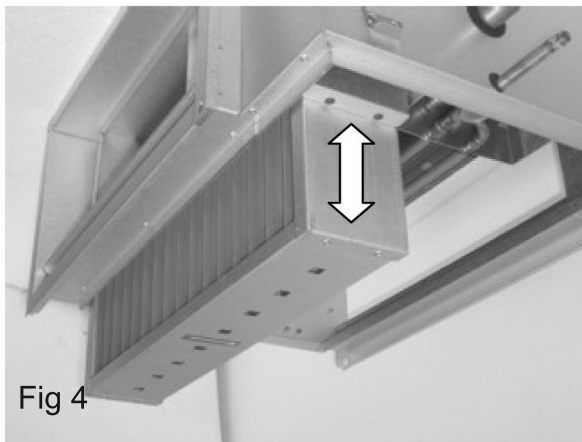
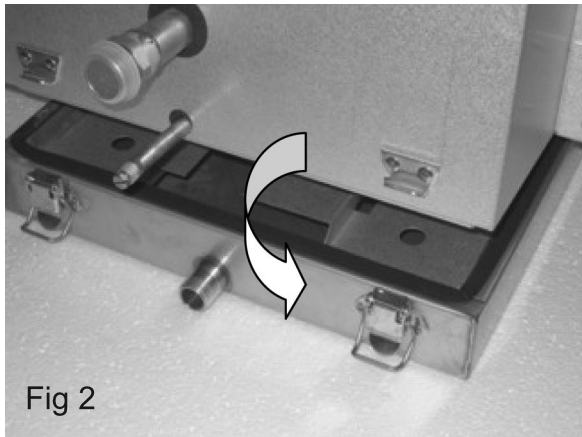
The following must be taken into account when connecting the duct cooler to the pipe system.

1. The pipes connected to the cooler must not be subjected to twisting or bending loads. Use tools to restrain the pipes when tightening the coupling nuts.
2. Ensure that expansion forces in the system or the deadweight of the pipe system are not applied to the connections on the cooler.
3. The water inlet must be connected to the lower pipe (pos 1) and the outlet to the upper pipe (pos 2) in figure 2. The inlet is provided with a drain connection (pos A) and the outlet with an air purging connection (pos B).
4. After the system has been filled with water, check the duct cooler and its connections to ensure that there is no water leakage. Any leakage could cause water damage.
5. The cooling coil can be drained of water through the drain connection (pos A).

 **Warning**

If the water in the coil should freeze, the coil may burst which would allow water to run out of the system, and this could cause water damage. When the duct cooler is not in service and there is risk of freezing, the cooler should be drained of water through the drain connection and blown with compressed air to ensure that all water has been drained.

### 3.3 Droplet eliminator



Droplet eliminator DE must be installed downstream of the cooling coil in the duct cooler, viewed in the direction of air flow.

Remove the drip tray from underneath. Push the droplet eliminator up until the holder secures it in position (Fig 5). Carefully check that the air flow is in the direction of the arrow on the droplet eliminator and that the drain holes face downwards towards the drip tray (Fig 3).

## 4 Capacity

### 4.1 3 rows

Water temperature 6/12°C							
Airflow	Pressure drop	Inlet air temp	Inlet air humidity	Outlet air temp.	Output	Water flow	Water pressure drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
<b>PGK 400x200-3-2.0</b>							
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
<b>PGK 500x250-3-2.0</b>							
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
<b>PGK 500-300-3-2.0</b>							
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
<b>PGK 600x300-3-2.0</b>							
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
<b>PGK 600x350-3-2.0</b>							
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	7.0
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

Water temperature 6/12°C							
Airflow	Pressure drop	Inlet air temp	Inlet air humidity	Outlet air temp.	Output	Water flow	Water pressure drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
<b>PGK 700x400-3-2.0</b>							
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
<b>PGK 800-500-3-2.0</b>							
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
<b>PGK 1000-500-3-2.0</b>							
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

## 4.2 4 rows

Water temperature 6/12°C							
Airflow	Pressure drop	Inlet air temp	Inlet air humidity	Outlet air temp.	Output	Water flow	Water pressure drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
<b>PGK 400x200-4-2.0</b>							
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



Water temperature 6/12°C							
Airflow	Pressure drop	Inlet air temp	Inlet air humidity	Outlet air temp.	Output	Water flow	Water pressure drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
<b>PGK 500x250-4-2.0</b>							
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
<b>PGK 500x300-4-2.0</b>							
1080	44	25	50	15	3.7	0.15	4
1080	551	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
<b>PGK 600x300-4-2.0</b>							
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
<b>PGK 600x350-4-2.0</b>							
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
<b>PGK 700x400-4-2.0</b>							
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
<b>PGK 800-500-4-2.0</b>							
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

Water temperature 6/12°C							
Airflow	Pressure drop	Inlet air temp	Inlet air humidity	Outlet air temp.	Output	Water flow	Water pressure drop
m <sup>3</sup> /h	Pa	°C	% RH	°C	kW	l/s	kPa
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
PGK 1000x500-4-2.0							
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

## 5 Maintenance

### 5.1 Cleaning

In order to ensure full cooling capacity of the duct cooler, the finned coil and the droplet eliminator, if any, must be regularly cleaned. The intervals between cleaning are entirely dependent on the cleanliness of the air and on how well filters and the system in general are maintained.



#### Caution

- Make sure that there is no one underneath the drip tray when it is being removed.
- Disconnect the condensate outlet, and blank off the connection so that any remaining condensate will not run out.

Remove the drip tray by releasing the excentric lock on the front. Lower the drip tray about 2-3 cm and then move it towards the back so that the locking mechanism at the back will be released. The drip tray is held captive by hinges the rear, but it can easily be released to enable it to be removed from the cooler. If a droplet eliminator is fitted, push the holders to the side (Fig 3), and remove the droplet eliminator for cleaning with compressed air or warm water.

Then clean the inlet side of the coil with a soft brush and the entire coil can then be cleaned by means of compressed air or by vacuum cleaning. Blow away the dirt in a direction from the outlet side of the air towards the inlet. Take care not to deform the thin fin edges.

Clean the bottom of the drip tray and check with your finger that the condensate outlet is not clogged with dirt. Then fit the droplet eliminator, if any (see chapter 3.3), the drip tray and the anti-condensation insulation.



Systemair AB reserves the right to make changes and improvements to the contents of this manual without prior notice.



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