



## DUCT COOLERS



**KWK  
KFK**



**EN OPERATION MANUAL**



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**BLAUBERG Ventilatoren GmbH** is happy to offer your attention the duct coolers **KWK / KFK**.

### INTRODUCTION

The present operation manual contains a technical description, technical data sheets, operation and mounting guidelines, safety precautions and warnings for safe and correct operation of the unit.

Read carefully and understand the operation manual, especially the safety requirements, before the unit mounting and start up.

Keep the operation manual available as long as you use the unit.

### GENERAL

The duct coolers are designed for supply air cooling in supply or air handling units integrated into rectangular ventilation systems.

The cooler is a component part and is not designed for independent operation.

Each cooler is subjected to a pressure and a tightness test. The cooler is designed for operation in the cold and moderate climatic zones.

The unit design is regularly improved, so some models can slightly differ from those ones described in this service instruction.

### SAFETY RULES

While mounting and operating the cooler fulfil the user's manual requirements as well as the provisions of all the applicable local and national construction, electrical and technical norms and standards.

Prior to turning the cooler on make sure that it is not damaged and does not contain any foreign objects inside. Make sure of no leakages in the connection points.

Mounting and connecting of the cooler is allowed by a qualified electrician with a work permit for this type of operations.

The cooled air must not contain solid, fibrous, sticky, aggressive substances that may provoke aluminium, copper and zinc corrosion.

Fulfil the operation manual requirements to ensure a trouble-free and long service life of the unit.

### TRANSPORTATION AND STORAGE REGULATIONS

Transportation of the unit is allowed by any vehicle provided the unit is transported in the original package and is protected against weather and mechanical damages.

Use hoist machinery for handling and transportation to prevent possible mechanical damages of the unit. Fulfil the requirements for transportation of the specified cargo type during cargo-handling operations.

Store the unit in a dry and cool place in the original packing.

The storage environment must not be subjected to any aggressive and/or chemical evaporation, admixtures, foreign objects that may provoke corrosion and damage connection tightness.

Store the unit in an environment with minimized risk of mechanical damages, temperature and humidity fluctuations.

Do not expose the unit to the temperatures below +10 °C and above +40 °C.

### MANUFACTURER'S WARRANTY

The unit complies with the requirements according to the EU norms and directives.

The manufacturer hereby warrants normal operation of the unit over the period of two years from the retail sale date provided observance of the installation and operation regulations.

In case of a failure due to a manufacturing fault during the warranty period the consumer has the right to exchange it.

The replacement is offered by the Seller.

If case of no confirmation of the purchase date, the warranty period shall be calculated from the manufacturing date.

The MANUFACTURER is not responsible for any damage resulting from any misuse of or gross mechanical interference with the unit.

The MANUFACTURER is not responsible for the damages resulted due to the use of third party equipment or to third party equipment.



#### WARNING

*The unit may not be operated by children or persons with reduced physical, mental or sensory capacities, or lacking the appropriate training. Supervise the children and do not let them play with the product.*



#### WARNING

*Do not dispose in domestic waste. The unit contains in part materials that can be recycled and in part substances that should not end up as domestic waste.*

*Dispose of the unit once it has reached the end of its working life according to the regulations valid in your country.*

### DELIVERY SET

- ✓ Cooler - 1 item;
- ✓ Operation manual - 1 item;
- ✓ Packing box - 1 item.



#### ATTENTION

*Make sure the unit has no visible transport damages while accepting the goods. Check the ordered and the delivered goods for compliance.*

**DESIGN**

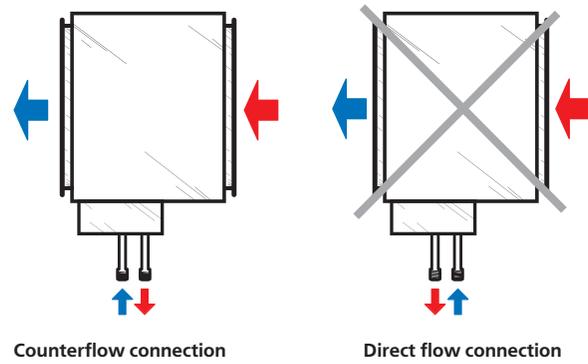
The cooler casing is made of polymer coated steel, the tube collectors are made of copper and the heat exchanger surface is made of aluminium plates. The cooler casing has a dismantable design that provides easy access to the heat exchanger and the droplet separator. The cooling coils are available in 3 rows modification.

Direct evaporation cooler KFK: maximum operating pressure: 2.8 MPa (28 bar). The internal operating medium of the KFK duct cooler is an evaporating refrigerant, i.e. R123, R134a, R152a, R404a, R407c, R410a, R507, R12, R22.

Duct water cooler KWK: maximum operating pressure: 1.5 MPa (15 bar). The internal operating medium of the KWK cooler is water or antifreeze.

If necessary change the service side by turning the cooling coil through 180°. By default the service side is on the right in the direction of the air flow.

To attain the maximum cooling capacity the cooler must be connected on counter-flow basis.



**TECHNICAL DATA**

Table 1. Overall dimensions of the KWK cooler

Model	Dimensions [mm]											Weight [kg]
	B	B1	B2	B3	H	H1	H2	H3	H4	L	K	
KWK 40x20-3	400	420	440	470	200	220	240	295	124	56	G 3/4"	10.4
KWK 50x25-3	500	520	540	570	250	270	290	345	188	45	G 3/4"	12.8
KWK 50x30-3	500	520	540	570	300	320	340	395	252	56	G 3/4"	14.3
KWK 60x30-3	600	620	640	670	300	320	340	395	252	56	G 3/4"	16
KWK 60x35-3	600	620	640	670	350	370	390	445	268	56	G 3/4"	17.7
KWK 70x40-3	700	720	740	770	400	420	440	495	314	56	G 3/4"	21.9
KWK 80x50-3	800	820	840	870	500	520	540	595	442	56	G 3/4"	26.9
KWK 90x50-3	900	920	940	970	500	520	540	595	442	56	G 3/4"	31.5
KWK 100x50-3	1000	1020	1040	1070	500	520	540	595	442	56	G 1"	32

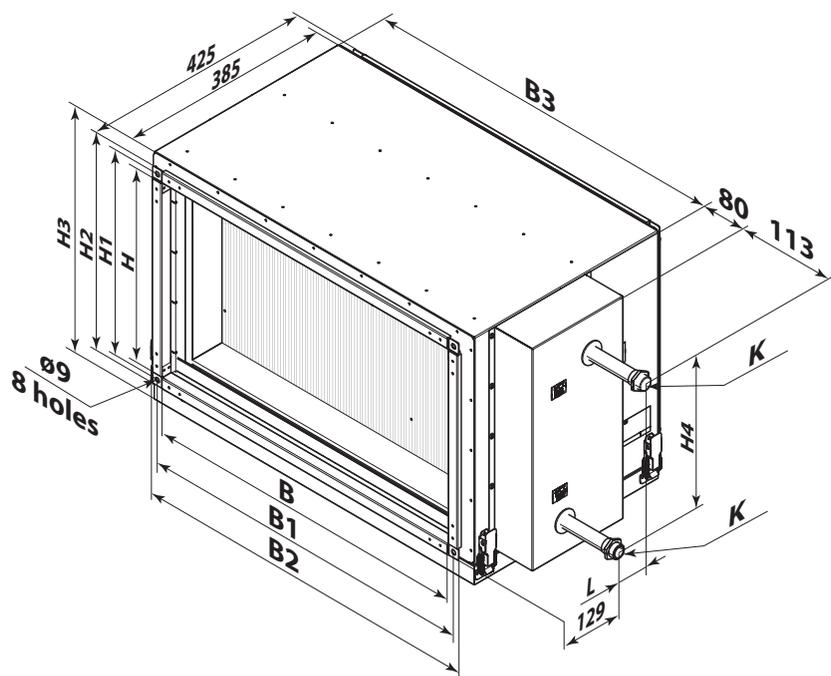


Fig. 1. Overall dimensions of the KWK cooler

Table 2. Overall dimensions of the KFK cooler

Model	Dimensions [mm]												Weight [kg]
	B	B1	B2	B3	H	H1	H2	H3	H4	L	D1	D2	
KFK 40x20-3	400	420	440	470	200	220	240	295	103	44	12	22	10.4
KFK 50x25-3	500	520	540	570	250	270	290	345	155	44	12	22	12.8
KFK 50x30-3	500	520	540	570	300	320	340	395	210	33	12	22	14.3
KFK 60x30-3	600	620	640	670	300	320	340	395	199	44	18	28	16
KFK 60x35-3	600	620	640	670	350	370	390	445	199	44	18	28	17.7
KFK 70x40-3	700	720	740	770	400	420	440	495	224	44	22	28	21.9
KFK 80x50-3	800	820	840	870	500	520	540	595	340	44	22	28	26.9
KFK 90x50-3	900	920	940	970	500	520	540	595	340	44	22	28	31.5
KFK 100x50-3	1000	1020	1040	1070	500	520	540	595	325	44	22	28	32

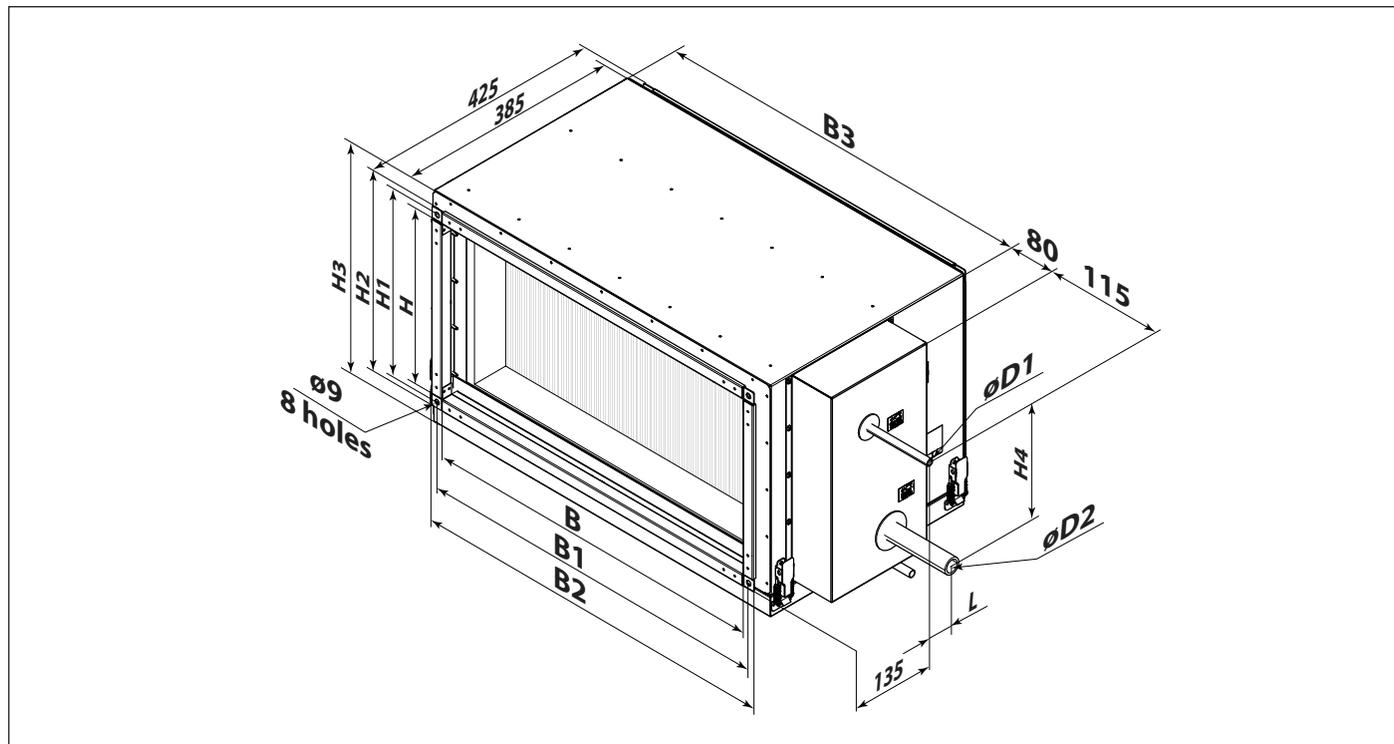


Fig. 2. Overall dimensions of the KFK cooler

### MOUNTING

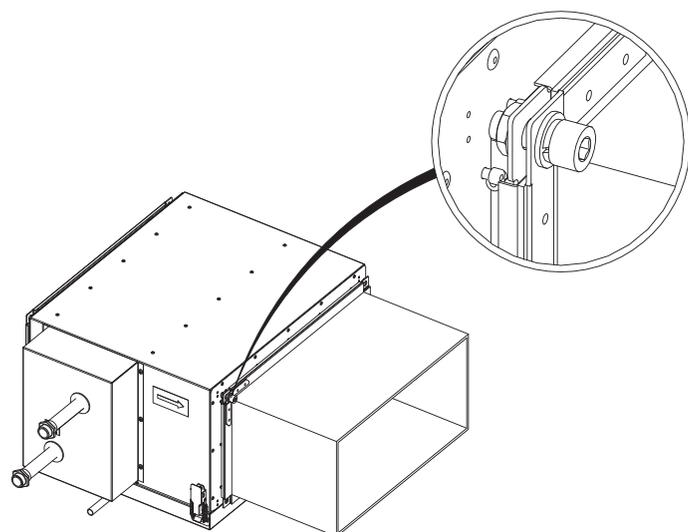
The cooler is connected to the air duct with a flange connection. Outdoor installation of the cooler is allowed only if the refrigerant is antifreeze (ethylene glycol solution). During mounting consider the operating characteristics of the mixing unit actuator.

While mounting the cooler provide quick and easy dismantling of the heat exchanger, drain pan and the drain pipe.

- The cooler can be installed only horizontally to enable condensate drainage.
- While mounting the cooler provide enough access for servicing and repair operations.
- The duct cooler may be installed upstream and downstream of the fan. If the cooler is installed downstream of the fan, provide at least 1-1.5 m air duct between the cooler and the fan for air flow stabilization.

Prior to starting mounting check the tube, plates and the tube collector condition. Flanges of the system components are mounted with galvanized bolts and M8 nuts.

Prior to starting operation and after a long downtime fill the U-trap with water. Negative pressure coolers can be equipped with a U-trap and a ball valve. Such U-trap must not be filled with water.



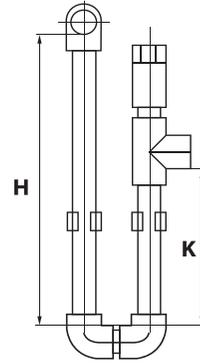
**CONDENSATE DRAINAGE**

A drain pan with a drain pipe connected to a sewage system is designed for condensate drainage. While selecting the U-trap dimension type consider the total fan pressure. The U-trap must ensure correct operation of the ventilation system.

Connect the drain pipe, the U-trap (not included in the standard delivery set) and the sewage system with metal, plastic or rubber pipes. The pipe slope downwards must be at least 3°. Before starting the cooler fill the system with water and check that the U-trap is always filled with water. Make sure that the water drainage is correct. Wrong connection to sewage system may result in condensate accumulation inside the cooler.

**The condensate drainage system is designed for operation at the ambient temperature above 0 °C!**

If the ambient temperature is below 0 °C, the condensate drainage system must be heat insulated and pre-heated.



H, mm	K, mm	P, Pa
100	55	600
200	105	1100
260	140	1400

**H** - U-trap height  
**K** - drain height  
**P** - total pressure in the fan

**TECHNICAL MAINTENANCE**

**WARNING**

*While cleaning the ribbed battery be careful not to damage the ribbed surface.*

Maintenance means regular preventive measures during operation. The aluminium ribs and the droplet separator must be cleaned at least once per year by vacuum cleaner or pressure water flushing. The cleaning periodicity depends on air pollution degree and maintenance quality of the filters and equipment.

If the internal environment is clean enough, the cleaning may be performed more seldom, as required.

The U-trap maintenance includes regular control of water level and sufficient U-trap and drain pipes clearance.

**TROUBLESHOOTING AND FAULT HANDLING**

Table 3. Faults and fault handling

Fault	Possible reason	Troubleshooting
<b>Refrigerant leakage</b>	The tube collectors are damaged. Pipe connection is loose.	Contact the Seller.
<b>Low air flow</b>	The heat exchanger and/or the droplet separator are soiled.	Clean the heat exchanger and the droplet separator.
<b>Water leakage</b>	The drainage system is soiled, damaged or arranged not correctly.	Clean the drain line. Check the drain line slope angle. Make sure that the U-trap is filled with water and the drain pipes are frost protected.

**ACCEPTANCE CERTIFICATE**

**Duct cooler**

KFK 40x20-3		KFK 70x40-3		KWK 40x20-3		KWK 70x40-3	
KFK 50x25-3		KFK 80x50-3		KWK 50x25-3		KWK 80x50-3	
KFK 50x30-3		KFK 90x50-3		KWK 50x30-3		KWK 90x50-3	
KFK 60x30-3		KFK 100x50-3		KWK 60x30-3		KWK 100x50-3	
KFK 60x35-3				KWK 60x35-3			

**is recognized as serviceable.**

The unit complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

Approval mark \_\_\_\_\_ Manufacturing date \_\_\_\_\_

**INSTALLATION CERTIFICATE**

**Duct cooler**

KFK 40x20-3		KFK 70x40-3		KWK 40x20-3		KWK 70x40-3	
KFK 50x25-3		KFK 80x50-3		KWK 50x25-3		KWK 80x50-3	
KFK 50x30-3		KFK 90x50-3		KWK 50x30-3		KWK 90x50-3	
KFK 60x30-3		KFK 100x50-3		KWK 60x30-3		KWK 100x50-3	
KFK 60x35-3				KWK 60x35-3			

is connected in compliance with the operation manual requirements by the professional:

Company \_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_ Signature \_\_\_\_\_

**WARRANTY CARD**

KFK 40x20-3		KFK 70x40-3		KWK 40x20-3		KWK 70x40-3	
KFK 50x25-3		KFK 80x50-3		KWK 50x25-3		KWK 80x50-3	
KFK 50x30-3		KFK 90x50-3		KWK 50x30-3		KWK 90x50-3	
KFK 60x30-3		KFK 100x50-3		KWK 60x30-3		KWK 100x50-3	
KFK 60x35-3				KWK 60x35-3			

**SALLER**

**SALES DATE**

**REPRESENTATIVE IN EU**

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 Germany



**BLAUBERG**  
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