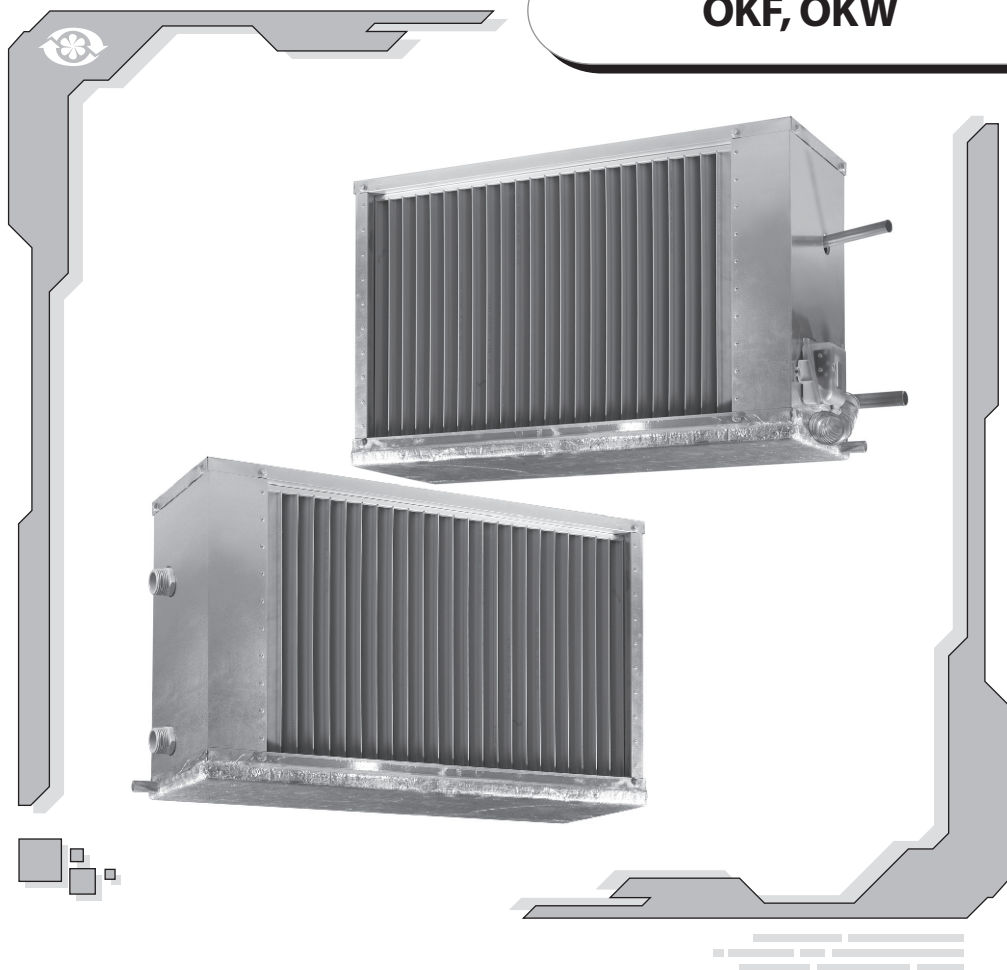


USER MANUAL

DUCT COOLERS

OKF, OKW



CONTENT

Introduction	3
Use	3
Delivery set	3
Main technical data	3
Designation key structure	3
Design and operating logic	4
Main parameters and dimensions	5
Mounting	7
Condensate drainage	8
Maintenance	8
Safety precautions	9
Storage and transportation rules	9
Manufacturer's warranty	9
Acceptance certificate	10
Warranty card	10

INTRODUCTION

The present user manual contains technical description, operation and mounting instructions, technical data for the duct coolers, hereinafter referred as the coolers.

USE

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

DELIVERY SET

- duct cooler - 1 item;
- user manual - 1 item;
- packing box - 1 item.

MAIN TECHNICAL DATA

The coolers are available in two types: direct expansion cooler (OKF) or water cooler (OKW).

- **Duct water cooler OKW:**
Maximum operating pressure: 1.5 Map (15 bar).

- **Direct evaporation cooler OKF:**
Maximum operating pressure: 2.8 Map (28 bar).

All the coolers are proved for pressure and leakages. The coolers are designed for operation in the cold and moderate climatic zones.

DESIGNATION KEY STRUCTURE

OKx XXXxXXX - 3

Number of cooling coil rows

Flange dimensions [width x height], mm

Cooler type:

W - water, **F** - direct evaporation



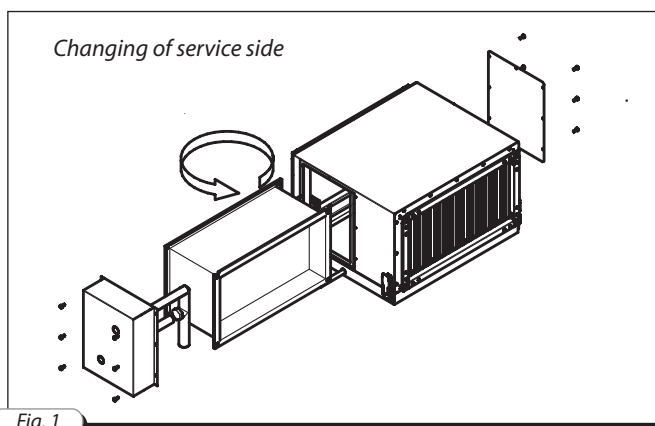
DESIGN AND OPERATING LOGIC

The cooler casing is made of polymer coated steel, the tubular manifold is 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 coolers are equipped with 3-row coils.

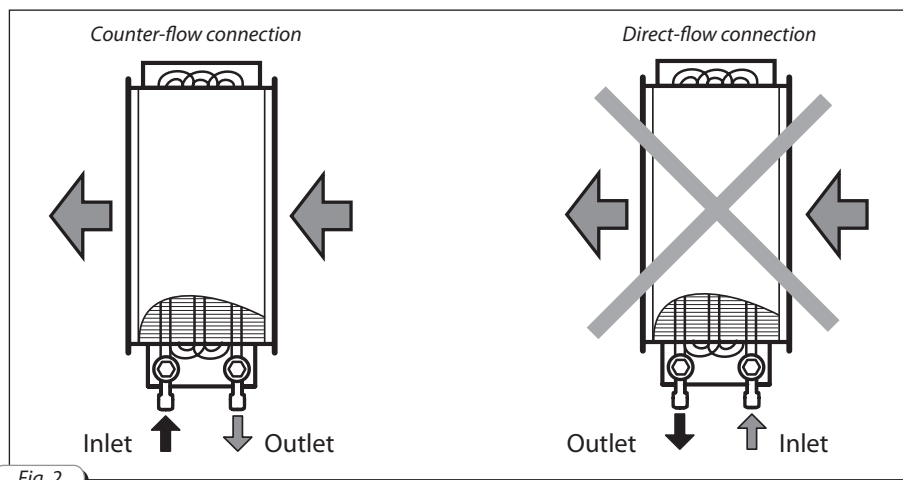
The internal operating medium of the OKF cooler is a direct evaporation refrigerant, i.e. R123, R134a, R152a, R404a, R407c, R410a, R507, R12, R22.

The internal operating medium of the OKW cooler is water or antifreeze.

In case of need to change the service side turn the cooling coils by 180°, fig. 1. The economy modification of the product does not have this option.



To attain the most efficient cooling capacity connect the cooler on counter-flow basis, fig. 2.



MAIN PARAMETERS AND DIMENSIONS

Main dimensions of the OKW cooler with rectangular connection to air duct are shown in fig. 3 and in table 1.

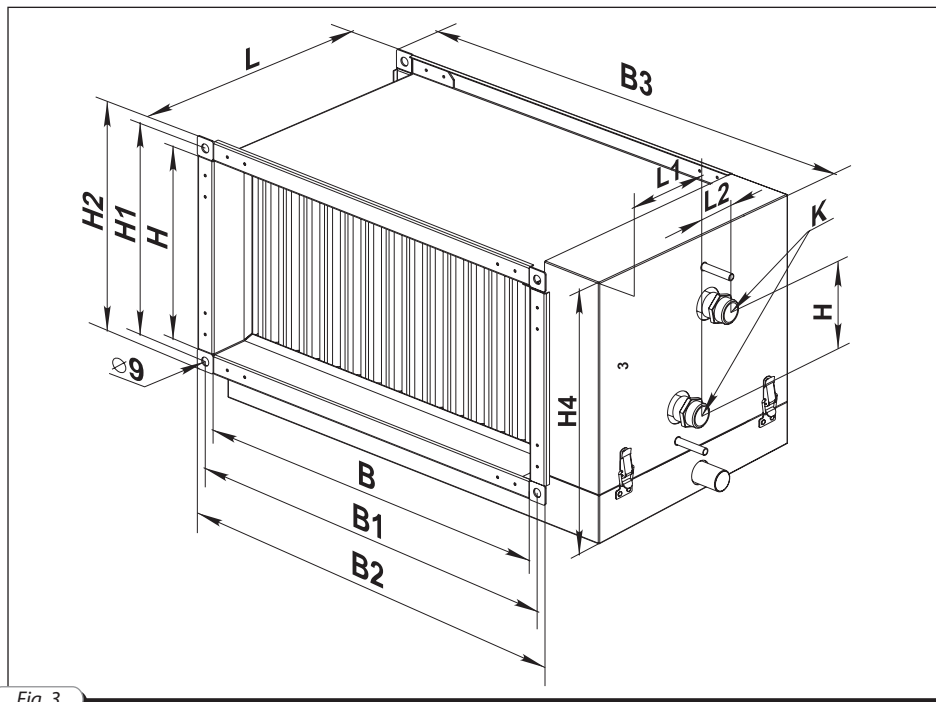


Fig. 3

Table. 1

Тип	Dimensions, mm												
	B	B1	B2	B3	H	H1	H2	H3	H4	L	L1	L2	K
OKW 400x200-3	400	420	438	528	200	220	238	70	273	395	176	43	G 3/4"
OKW 500x250-3	500	520	538	628	250	270	288	120	323	395	176	43	G 3/4"
OKW 500x300-3	500	520	538	628	300	320	338	175	373	395	176	43	G 3/4"
OKW 600x300-3	600	620	638	728	300	320	338	170	373	395	176	43	G 3/4"
OKW 600x350-3	600	620	638	728	350	370	388	220	423	395	176	43	G 3/4"
OKW 700x400-3	700	720	738	828	400	420	438	250	423	395	170	55	G 1"
OKW 800x500-3	800	820	838	928	500	520	538	340	573	395	170	55	G 1"
OKW 900x500-3	900	920	938	1028	500	520	538	350	573	395	170	55	G 1"
OKW 1000x500-3	1000	1020	1038	1128	500	520	538	350	573	395	170	55	G 1"

Main dimensions of the OKF cooler with rectangular connection to air duct are shown in fig. 4 and in table 2.

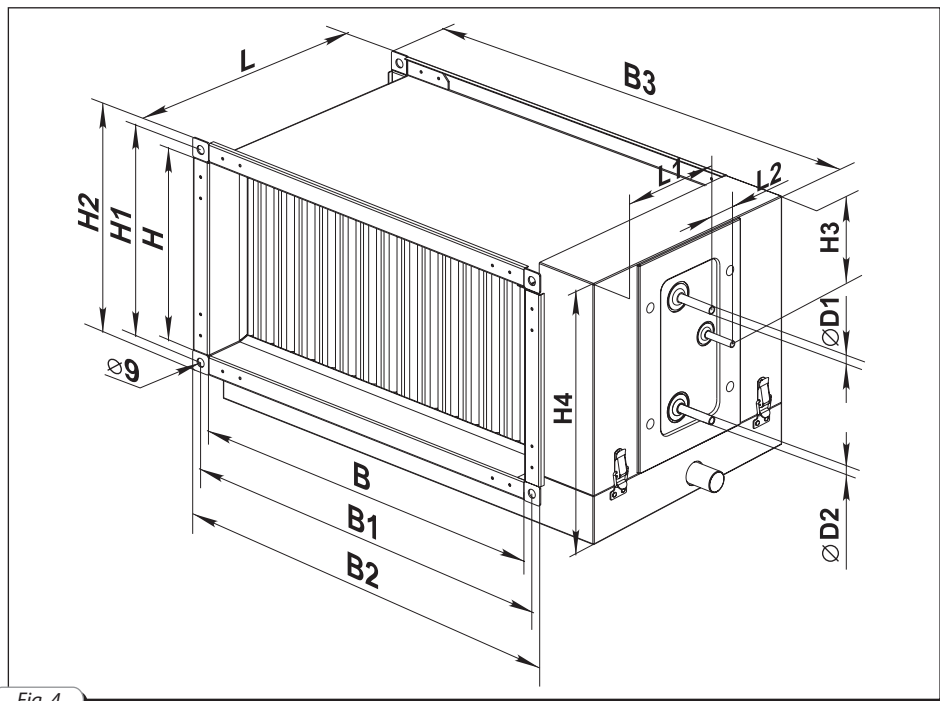


Fig. 4

Table. 2

Тип	Dimensions, mm													
	ØD1	ØD2	B	B1	B2	B3	H	H1	H2	H3	H4	L	L1	L2
OKF 400x200-3	12	22	400	420	438	528	200	220	238	70	273	395	165	60
OKF 500x250-3	12	22	500	520	538	628	250	270	288	120	323	395	165	60
OKF 500x300-3	12	22	500	520	538	628	300	320	338	175	373	395	165	60
OKF 600x300-3	18	28	600	620	638	728	300	320	338	170	373	395	165	60
OKF 600x350-3	18	28	600	620	638	728	350	370	388	220	423	395	165	60
OKF 700x400-3	22	28	700	720	738	858	400	420	438	250	423	395	160	75
OKF 800x500-3	22	28	800	820	838	958	500	520	538	340	573	395	160	75
OKF 900x500-3	22	28	900	920	938	1058	500	520	538	350	573	395	160	75
OKF 1000x500-3	22	28	1000	1020	1038	1158	500	520	538	350	573	395	160	75

MOUNTING AND SET-UP

The cooler is connected to the air duct with a flange connection, fig. 5.

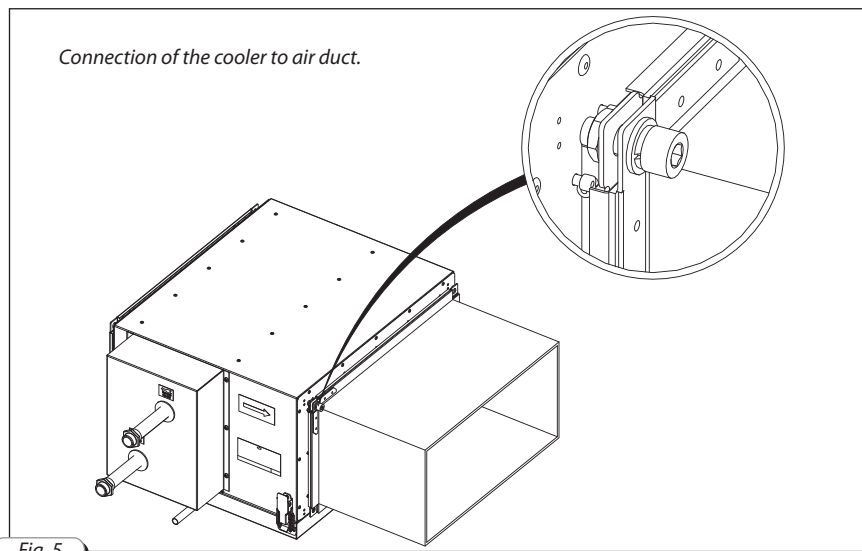


Fig. 5

Outdoor installation of the cooler is allowed only if the refrigerant is an 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 is designed for horizontal installation only 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 ventilation unit. 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.

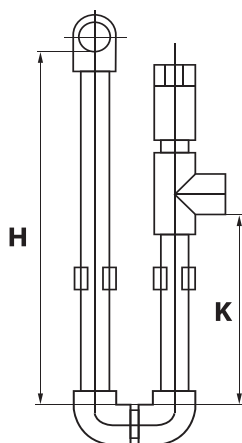
Prior to starting mounting check the tube, plates and tubular manifold condition. Flanges of the system components are mounted with galvanized bolts and M8 nuts.

Prior to starting operation and after a long downtime fill the U-trap with water. The supply / air handling unit may be equipped with a U-trap and a ball valve, especially for the units with negative pressure. This 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 (fig.6). While selecting the U-trap dimension type consider the total fan pressure. The U-trap must ensure correct operation of the ventilation system.



H, мм	K, мм	P, Па
100	55	600
200	105	1100
260	140	1400

H - U-trap height
K - drainage tube height
P - total fan pressure

Fig. 6

MAINTENANCE

Maintenance means regular preventive measures during operations.

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 clearance.



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

SAFETY PRECAUTIONS

While installing and operating the cooler consider the requirements of the present user manual, acting construction norms and standards. Prior to turning the cooler on make sure that the air duct is not damaged and does not contain any foreign objects inside. Make sure of no leakages in the connection points. «

The cooler must be connected to power mains by a qualified electrical engineer, duly authorized for such operations. The cooled air must not contain solid, fibrous, sticky, aggressive substances that may provoke aluminium, copper and zinc corrosion.

STORAGE AND TRANSPORTATION RULES

Store the product in the original packing in a ventilated room at the temperatures between -10°C and +40°C and the relative humidity not more than 80% at the temperature +25°C.

The storage environment must not contain vapours or substances that may provoke metal corrosion and damage insulation and the connection point tightness.

Transportation with any vehicles is allowed provided that the products are protected against mechanical and weather damage. Avoid any mechanical shocks and strokes during handling operations.

MANUFACTURER'S WARRANTY

The coolers are manufactured at «Ventilation Systems» JSC.

While buying the present product the Customer agrees to accept the following warranty conditions:

The manufacturer guarantees normal performance of the product for 24 months from the date of resale, subject to the compliance with transport, storage, mounting and operation rules. In case of no confirmation of the sales date the guarantee period is calculated from the manufacturing date.

All the units and components belonging to the faulty product and replaced within the warranty period shall be covered by the previous warranty period and general warranty conditions. Thus the warranty period is neither extended nor renewed for the replaced components or the product.

In case of failure due to faulty equipment during the warranty period the consumer has the right for the product replacements. Replacements are offered by the Seller.

The accessories operated together with the product, both included and not included into the delivery list as well as other equipment operating jointly with the product are not covered by the warranty.

The company is not responsible for compatibility of their goods with other producers' goods.

The warranty covers the manufacturing defects only. All the defects and faults resulting from gross mechanical effect during operation process or natural wear-and-tear are not covered by the warranty conditions.

The faults caused by violence of operation, servicing and maintenance guidelines either by Customer or third parties or caused by unauthorized design modifications shall not be covered by warranty.

NO LIABILITY FOR THE RELATED DAMAGES:

The manufacturer is not responsible for any mechanical or physical damages resulting from the manual requirements violence, the product misuse or gross mechanical effect.

Indirect damages such as re-installation or re-connection of the product, direct or indirect losses related to the product replacement shall not be indemnified.

Mounting/dismantling, connection/disconnection and adjustment of the product shall not be covered by the warranty.

The contractor for mounting, electric mounting and adjustment works shall be responsible for quality and warranty of these works. In any case the indemnity amount shall not exceed the actually paid value for the defective unit price.

ACCEPTANCE CERTIFICATE

OKV (OKF) duct cooler
is recognized as serviceable.

Approval mark _____

Manufacturing date _____

Sold by

name of retail company, stamp of the shop _____

Date of sale _____

WARRANTY CARD





