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FIN WATER HEAT EXCHANGERS NLW AND CLW



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Please read this instruction manual carefully before beginning any work.

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I. CONTACTS



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II. ORIGINAL INSTRUCTION MANUAL

FIN WATER HEAT EXCHANGERS NLW and CLW

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1. INTENDED USE

Fin water heat exchangers are designed to heat or cool air in ventilating and air conditioning installations.



The air being heated or cooled must not contain any factors causing early corrosion of the aluminium ribbing, steel and copper parts.

2. DESIGNATIONS

Fin water heater

Heat exchanger type	NLW - heater; CLW - cooler
Size	24x24cm - 144x144cm
No. of rows	II; III
Manufacturer's designation	
Version	left (L); right (P)
Connector nominal diameter	

3. DEVICE DESCRIPTION

The series of fin heat exchangers includes 14 sizes with dimensions from 24x24cm up to 144x144cm. As standard, the fin heat exchangers are manufactured with II or III rows. The applied design allows for combining the fin heat exchangers into sets of IV, V, or more rows.

Each standard-manufactured fin heater enables de-aeration and drainage in both horizontal and vertical position.

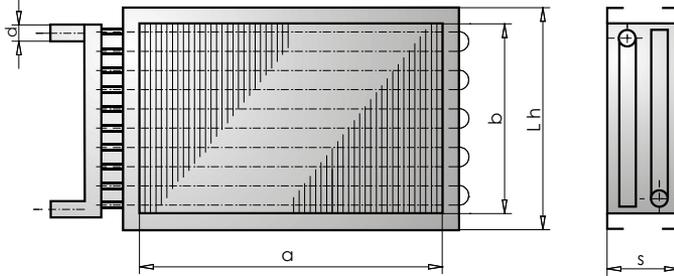
The fin heater comprises:

- » frame with collar;
- » fin heat exchanger made of copper tubes $\Phi 12$ and aluminium fins spaced $s = 2.0; 2.4; 3.0\text{mm}$;
- » copper collectors and brass connectors.

At air speeds $>2.5\text{m/s}$ coolers can be equipped with drop separators and drip trays.

4. TECHNICAL DATA

Basic dimensions



axb [mm]	Manufacturer's designation		Lh [mm]	s [mm]		dn [mm]		Water capacity [l]		Weight [kg]	
	II	III		II	III	II	III	II	III	II	III
24x24	2	3	304	130	150	15	15	0,7	1,0	5,2	7,0
48x24	2	3	304	130	150	15	20	1,0	1,4	7,5	10,0
48x48	4	6	544	130	150	20	25	1,8	2,6	11,6	14,0
72x48	4	6	544	130	150	25	32	2,5	3,7	14,7	18,1
64x64	8	12	704	130	150	25	32	3,5	4,2	16,3	20,5
96x64	8	12	704	130	150	32	40	4,2	5,8	22,0	27,3
80x80	20	30	864	130	150	32	40	4,6	6,5	22,5	28,0
120x80	20	30	864	130	150	40	50	6,8	9,4	30,0	37,9
96x96	24	36	1024	130	150	40	50	7,0	9,3	29,4	36,8
144x96	24	36	1024	130	150	40	50	9,9	13,5	39,6	50,2
112x112	28	42	1184	130	150	40	50	9,0	13,3	36,5	47,2
168x112	28	42	1184	130	150	50	65	13,0	17,9	49,6	63,9
128x128	32	-	1344	130	-	50	-	12,7	-	46,6	-
144x144	36	-	1504	130	-	50	-	17,2	-	53,8	-



For fin water heat exchangers max. temperature of heating medium is 150°C, with max. operating pressure of up to 1,5MPa.



There is a risk of freezing the heating medium in the heater in rooms with temperature below 0°C.

This risk can be limited by using an anti-freeze thermostat (delivered upon request), using non-freezing heating media, or draining water from the heater.

5. TRANSPORT

For transport fin heat exchangers should be protected with polyethylene foil.

The fin heater is delivered with the Product Book.

Automation elements are also delivered separately upon a customer's request.



Fin heat exchangers can be stacked for transport using pads to prevent any mechanical damages.

6. SAFETY RECOMMENDATIONS



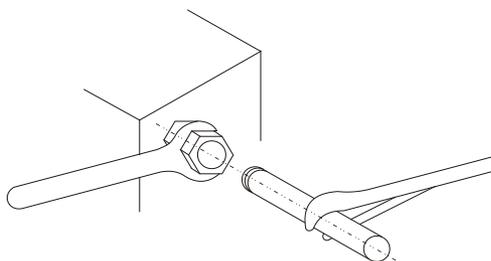
Do not exceed the heating medium pressure value as specified in the order and technical documentation for a given fin heater.



Avoid resting the installation ducts on the fin heater's connectors.



When connecting a heater (type NLW) or a cooler type CLW to the installation, protect the heater's connectors against potential twisting as shown in figure.



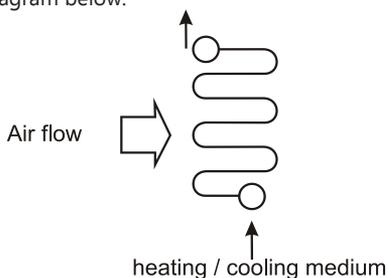
When transporting do not lift fin heaters by their connectors.

Note: Damages to fin heaters resulting from the above action are not covered by the warranty.

7. INSTALLATION

Connection of the fin heater to a water heating installation should enable its de-aeration while filling the installation with water, and its drainage while emptying water from the installation.

The fin heater can be supplied both from the top and the bottom. In new installations, supply from the bottom is preferable due to facilitated de-aeration of the fin heaters. Correct connection of the fin heaters is shown in the diagram below.



Also make sure that all fin heaters within the installation are connected in the same way, so that they can be de-aerated while filling, draining and emptying the installation. It is recommended to use cut-off valves and pipe unions before and behind the heat exchanger or set of heat exchangers Once

the fin heater is installed, do the following:

- » fill the installation with a heating or cooling medium;
- » de-aerate the fin heater (de-aeration and drainage to be performed centrally within the installation);
- » adjust the amount of the medium flowing through the fin heater on basis of the yield of the designed heating power and the temperature of the return water;
- » check tightness of the fin heater's connector;
- » check monitoring water flow function protecting the fin heater against freezing during its idle periods.

In the case of long-term idle periods in the fin heater operation, it is advisable to drain all the water, and possibly close the cut-off valves.

8. REPAIR, USE, MAINTENANCE AND WITHDRAWAL FROM USE

Depending on the level of the air pollution, but no less than once a year, remove dust and dirt from the fin with dry compressed air with pressure < 3 bar in the direction opposite to the normal air flow through the fin heater.



If repairs of the fin heaters are performed on user's own, the fin should be checked for test pressure in accordance with the valid standard.



When cleaning the fin heater's surfaces with warm water under pressure, pay attention not to damage the fins.

In order to ensure proper use of NLW and CLW fin water heaters supply them with water meeting the following requirements.

Once the device is withdrawn from use, handle it to a proper waste treatment plant.

9. INDICATORS FOR WATER QUALITY IN CENTRAL HEATING INSTALLATIONS

Requirements and tests regarding the water quality in heating installations according to PN-93/C-046077

Type of materials used in installation	Installation system	General hardness mval/l (mmol/l)	Content of aggressive ions mg/l	Content of ammonium nitrogen mg/l (N_{NH4+})	Inhibitor concentration	pH	Oxygen content mg/l O ₂	Inhibitor concentration
Steel / cast iron	open	$\leq 4,0$ ($\geq 2,0$)	$\leq 50 \sum (Cl^- + SO_4^{2-})$ including $< 30 Cl^-$	x	x	8,0-9,5	$\leq 0,1$	x
			$> 50 \sum (Cl^- + SO_4^{2-})$		as recommended by the manufacturer	x	x	as recommended by the manufacturer
	closed		$\leq 150 \sum (Cl^- + SO_4^{2-})$ including $< 100 Cl^-$		x	8,0-9,5	$\leq 0,1$	x
			$> 150 \sum (Cl^- + SO_4^{2-})$		as recommended by the manufacturer	x	x	as recommended by the manufacturer
Steel / copper	closed	$\leq 4,0$ ($\geq 2,0$)	$\leq 50 \sum (Cl^- + SO_4^{2-})$ including $< 30 Cl^-$	$\leq 0,5$	x	8,0-9,0	$\leq 0,1$	x
Copper	open od closed	$\leq 4,0$ ($\geq 2,0$)	-	$\leq 0,5$	x	8,0-9,0	$\leq 0,1$	x
Steel / aluminium	open	$\leq 4,0$ ($\geq 2,0$)	$\leq 50 \sum (Cl^- + SO_4^{2-})$ including $< 30 Cl^-$	x	x	8,0-8,5	$\leq 0,1$	x
	closed		$\leq 150 \sum (Cl^- + SO_4^{2-})$ including $< 100 Cl^-$					
Plastics	open or closed	$\leq 4,0$ ($\geq 2,0$)	-	x	x	x	x	x

10. INFORMATION

As to all issues concerning the water heat exchangers contact JUWENT Production Plant or our Representatives

IV. WARRANTY TERMS AND CONDITIONS

1. JUWENT Szymański, Nowakowski General Partnership, headquartered in Ryki at 31 Lubelska Str., hereinafter referred to as the Warrantor, grants the Customer a warranty of proper operation of the unit with reservation of the requirement of its use in accordance with the conditions determined in the instruction manual and the terms and conditions specified below.
2. The warranty has been granted for a period of 24 months from the purchase date demonstrated in this warranty document with a possibility of its special extension according to a separate agreement and specified in the Special Warranty Terms and Conditions.
3. The warranty covers the removal of technical defects of the unit arisen as a result of its use in accordance with the instruction manual, revealed within the warranty period. The warranty provisions are valid in the territory of the Republic of Poland.
4. By virtue of the granted warranty the Warrantor is not liable for the loss of expected profits and costs resulting from a periodical impossibility of the use of the unit incurred by the Customer.
5. To realize the Customer's rights resulting from the warranty it is required to deliver the claimed unit with the warranty document to the Warrantor at his expense.
6. The claimer delivers the unit in an original factory packing, in case there is no factory packing the claimed unit should be delivered by the Customer for the repair in a way ensuring a safe transport. The risk of accidental damage of the unit during the transport burdens always the party that dispatches the parcel.
7. The defects revealed with the warranty period will be removed by the Warrantor free of charge. A method selection of the realization of obligations resulting from the warranty granted to the Customer belongs to the Warrantor that may remove a defect by the repair or the replacement of the damaged subassembly or by the replacement of the unit. The property of the unit withdrawn from service and / or defective subassemblies is transferred to the Warrantor.
8. The warranty is extended by a period for which the Customer has been deprived of a possibility to use the unit.
9. The Warrantor will make efforts that the repair is executed without further delay within the time-limit of up to 14 working days from the delivery date of the unit. In reasonable cases of which the Customer will be informed by the Warrantor, this time-limit may be extended, e.g. by the time of provision import or when there is a necessity to execute an expertise or laboratory tests in specialized institutions.
10. The Warrantor is liable exclusively for the defects inherent in the sold unit. The damages arisen after its sale for other reasons are not covered by the warranty, in particular:
 - a) mechanical damages (including also damages caused by microparticles occurring in the working environment of the unit), thermal damages, chemical damages and aleatory damages or damages caused by the atmospheric factors,
 - b) damages occurred as a result of non-observance of typical rules or the rules required by the instruction manual related to the operation and mounting of the unit or the use of the unit against the intended use and other damages caused by the Customer's activity or omission,
 - c) damages being a result of defective operation of the system in which the unit has been built or used,
 - d) damages occurred as a result of non-execution of the actions to which the Customer has been obliged in accordance with the instruction manual, e.g. periodical cleaning, maintenance, adjustment, etc.,
 - e) damages occurred due to the use of materials or parts subject to a normal operational wear other than the materials recommended by the Warrantor in the instruction manual,
 - f) damages being a result of use of power supply of the unit (of the system in which this unit functions) incompliant with the standard, and in case the unit is also supplied with water, damages being a result of use of water (supply water and / or boiler water) with parameters other than the parameters foreseen in the valid standard (PN-93/C-04607),
 - g) damages occurred as a result of operation and / or maintenance of the unit in a way incompliant with the instruction manual and / or executed by the unauthorized persons.
11. The warranty does not cover as well:
 - a) activities executed by the Customer in accordance with the recommendations included the instruction manual of the unit within the framework of normal maintenance and inspections,
 - b) travel and work costs of the Warrantor's service or an entity delegated by the Warrantor in case when a warrant call turns out to be groundless.
12. An annotation made by a trained employee in the Inspection and Maintenance Document of the unit is a confirmation of time-limit holding and range of activities foreseen for the maintenance of the unit.
13. The Warrantor is not liable for damages incurred by the Customer or third parties caused the run of the unit occurred in particular as a result of non-observance of the afore-mentioned terms and conditions by the Customer.
14. In case the service works are executed by the Warrantor at the place where the unit is mounted, the Customer will make available a free access to the rooms where the units are located to the Warrantor.
15. In case the units are mounted at the height making an access from the floor surface impossible, the Customer will ensure the scaffolding compliant with the OHS regulations or mobile lifting platforms and vertical transport equipment.
16. The equipment from the electric and / or hydraulic system is disassembled by the Customer.
17. The claims should be lodged at the Warrantor's address in writing / by fax / email using a service notification form.
18. The Warrantor refuses to execute the warranty activities (periodical service works or repair) in case the price for the unit or previous service work is not paid for the benefit of the Warrantor.

DATE OF SALE

STAMP AND SIGNATURE

Special Warranty Terms and Conditions:

Warranty period extension up to months.

Other:

STAMP AND SIGNATURE

TYPE OF UNIT:	
FACTORY NUMBER:	
YEAR OF PRODUCTION:	

V. UNIT STARTUP REPORT

Date of startup	Executor of startup stamp / name and signature	User's representative stamp / name and signature	Remarks

VI. INSPECTION AND MAINTENANCE DOCUMENT

Date of inspection	Executor of inspection stamp / name and signature	Service activity range	Remarks

* Inspection of the unit in accordance with the section "Repair and Maintenance" in the instruction manual

VII. SERVICE NOTIFICATION

Date:

Notification type WARRANTY POST-WARRANTY PAID

Unit's user (name)	
Contact person	
User's address	
Phone, fax. and email	
Type of unit	
Factory No.	
Year of production	
Startup executed by	

Description of defect:

NOTE: AFTER COPYING AND FILLING IN SEND THE NOTIFICATION BY FAX OR EMAIL TOGETHER WITH A COPY OF THE STARTUP REPORT.

JUWENT Company accepts notifications filled legibly and completely.

When the lodged claim is not justified, the claimer will be burdened with service costs.

Date of warranty issue

Order No.

(company's stamp)

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