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POLAND

## CHW-V DRY COOLER



- I. CONTACTS
- II. ORIGINAL INSTRUCTION MANUAL
- III. WARRANTY TERMS AND CONDITIONS
- IV. UNIT STARTUP REPORT
- V. INSPECTION AND MAINTENANCE DOCUMENT
- VI. SERVICE NOTIFICATION
- VII. LIST OF SUBASSEMBLIES INSTALLED IN THE UNIT



**Please read this instruction manual carefully before beginning any work.**

## I. CONTACTS



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## II. ORIGINAL INSTRUCTION MANUAL

### DRY COOLERS CHW-V all sizes

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## 1. INTENDED USE

Fan coolers are used for cooling hot water, glycol and other liquids, with outer air. They are used in industrial plants, in manufacturing processes requiring removal of excess heat of cooling media and in other facilities where it is required to keep a constant internal temperature.



Fan coolers are used for cooling liquids with temperatures at inlet by ~15°C higher than ambient temperatures and temperatures at outlet not lower than freezing point.

## 2. DESIGNATIONS

Dry cooler

CHW-V-3+ -2x3w -FN/AC -W-III

Arrangement	V;
Size	1; 2; 3; 3+; 4; 4+
Arrangement and number of fans <sup>1)</sup>	1w; 2w; 3w; 2x2w; 2x3w; 2x4w
Fan type	FN/AC; FN/EC; FB/AC
Cooled factor	W - water; GL - glycol
Number of heat exchanger rows	II; III

<sup>1)</sup> FN - fan type; AC - with asynchronous motor, EC - with electronically commutated motor.

## 3. DESCRIPTION OF DEVICE

Series of types of coolers includes 6 sizes with heat exchangers in V arrangement. Each arrangement includes few sizes differing in:

- » number and size of fans;
- » placement of fans in one or two rows;
- » number of rows of heat exchanger pipes;

The cooler consists of:

- » fin heat exchangers made of copper pipes and high-performance aluminium fins, connectors are made with external thread (on demand could be supplied with collars);
- » axial-flow fans with asynchronous motors and multi-stage rotational speed control or electronically commutated motors. All fans conform to ErP2015 directive;
- » (casing) frames;
- » main switch (OPTIONAL);
- » overcurrent and thermal protections for all fans (OPTIONAL);
- » terminal strip for connecting cooler components, control signals and main switch (OPTIONAL);
- » vibro-insulators (OPTIONAL).

For larger coolers in order to adjust them to operation in summer and autumn specific season conditions, gradual fan switching function is provided. To keep a constant temperature of the cooled liquid, coolers feature automatic adjustment system to adjust rotational speed of the fans. The system comprises temperature sensors and a controller.

Service switch installed in the cooler prevents energising the device during maintenance works.

Fan coolers are mounted outside buildings and require no additional protections as protective canopies.

In standard version, fan motors come with 3-phase power supply.

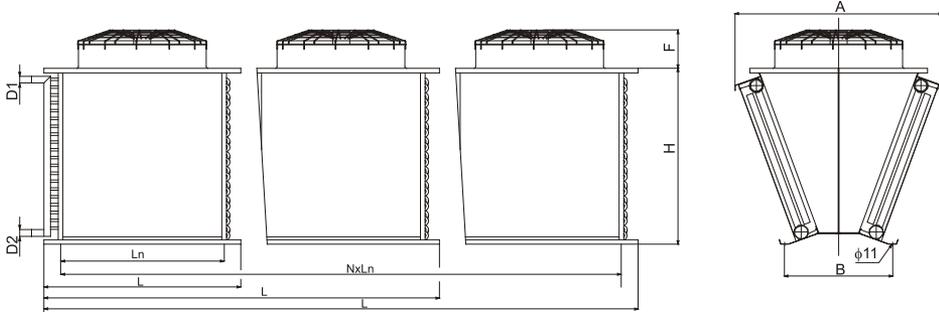
On arrangements with the manufacturer, coolers can be delivered with 1-phase motors.



Permissible working temperatures are as follows:  
 -60°C - working temperature for fans;  
 -110°C and pressure of 1.5Mpa for fin heat exchangers.

#### 4. TECHNICAL DATA

Basic dimensions of CHW-V dry coolers - with one row of fans

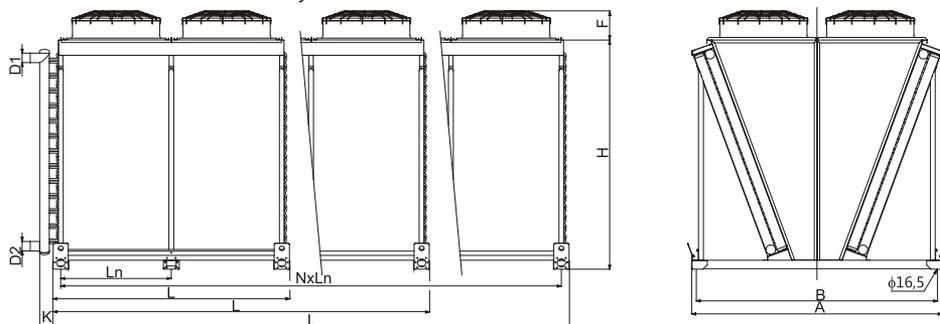


Cooler size	Number of fans	L [mm]	H [mm]	A [mm]	B [mm]	NxLn [mm]	D	
							II rows	III rows
CHW-V-1-1x1W	1	840	755	830	470	1x630	2x3/4"	2x3/4"
CHW-V-1-1x2W	2	1440	755	830	470	2x615	2x3/4"	2x1"
CHW-V-2-1x1W	1	990	945	1050	565	1x780	2x3/4"	2x1"
CHW-V-2-1x2W	2	1740	945	1050	565	2x765	2x1 1/4"	2x1 1/4"
CHW-V-2-1x3W	3	2490	945	1050	565	3x765	2x1 1/4"	2x1 1/2"
CHW-V-3-1x1W	1	1140	1035	1160	610	1x930	2x1"	2x1 1/4"
CHW-V-3-1x2W	2	2040	1035	1160	610	2x915	2x1 1/4"	2x1 1/2"
CHW-V-3-1x3W	3	2940	1035	1160	610	3x915	2x1 1/2"	2x2"
CHW-V-3+-1x1W	1	1140	1035	1160	610	1x930	2x1"	2x1 1/4"
CHW-V-3+-1x2W	2	2040	1035	1160	610	2x915	2x1 1/4"	2x1 1/2"
CHW-V-3+-1x3W	3	2940	1035	1160	610	3x915	2x1 1/2"	1 1/2"
CHW-V-4-1x1W	1	1240	1125	1310	680	1x1030	-	2x1 1/4"
CHW-V-4-1x2W	2	2240	1125	1310	680	2x1015	-	2x2"
CHW-V-4-1x3W	3	3240	1125	1310	680	3x1015	-	2x2"
CHW-V-4+-1x1W	1	1240	1125	1310	680	1x1030	-	2x1 1/2"
CHW-V-4+-1x2W	2	2240	1125	1310	680	2x1015	-	2x2"
CHW-V-4+-1x3W	3	3240	1125	1310	680	3x1015	-	2x2"

Remark: Dimensions of connectors are given for water under rated conditions. The F dimension is given in table of technical data for fans.

D1 supply connector, D2 return connector

### Basic dimensions of CHW-V dry coolers - with two rows of fans



Cooler size	Number of fans	L [mm]	H [mm]	A [mm]	B [mm]	NxLn [mm]	K [mm]	D	
								II rows	III rows
CHW-V-3-2x2W	4	1990	1970	2100	2010	2x920	100	2x2"	2x2"
CHW-V-3+-2x2W	4	1990	1970	2100	2010	2x920	100	-	2x2"
CHW-V-3+-2x3W	6	2890	1970	2100	2010	3x920	120	-	2x2 1/2"
CHW-V-4-2x2W	4	2190	2150	2315	2225	2x1020	120	-	2x2 1/2"
CHW-V-4-2x3W	6	3190	2150	2315	2225	3x1020	120	-	2x2 1/2"
CHW-V-4+-2x4W	8	4190	2150	2315	2225	4x1020	120	-	2x2 1/2"
CHW-V-4+-2x2W	4	2190	2150	2315	2225	2x1020	120	-	2x2 1/2"
CHW-V-4+-2x3W	6	3190	2150	2315	2225	3x1020	120	-	2x2 1/2"
CHW-V-4+-2x4W	8	4190	2150	2315	2225	4x1020	120	-	2x3"

Remark: Dimensions of connectors are given for water under rated conditions. The F dimension is given in table of technical data for fans.  
D1 supply connector, D2 return connector

Technical parameters for individual fans used in dry coolers of basic series of types with AC (asynchronous) motors.

Cooler size	Number of fans	Air flow [m <sup>3</sup> /h]	Voltage [V]	Current I p.p. / I nom. A/A	Motor power N p.p. N nom. kW/kW	F [mm]
CHW-...-1	400	3550	3~400	0,4/0,46	0,23/0,23	130
CHW-...-2	560	6800	3~400	0,65/0,7	0,28/0,34	220
CHW-...-3	630	10200	3~400	1,15/1,25	0,46/0,62	245
CHW-...-3+	710	13500	3~400	1,35/1,7	0,60/0,94	260
CHW-...-4	800	16500	3~400	2,0/2,1	0,76/0,82	265
CHW-...-4+	800	23700	3~400	3,7/4,2	1,65/1,8	285

Air flow, drawn current (I p.p.) and rated current (I nom.), and drawn power (N p.p.) and rated power (N nom.) of cooler is as many times higher as the number of fans built into them.

Air flow and operation noise level of dry coolers with fans of basic series of types with AC (asynchronous) motors.

Cooler size	Number of fans											
	1		2		3		2x2		2x3		2x4	
	Air flow [m <sup>3</sup> /h], operation noise level <sup>1)</sup> [dBA]											
	m <sup>3</sup> /h	dBA	m <sup>3</sup> /h	dBA	m <sup>3</sup> /h	dBA	m <sup>3</sup> /h	dBA	m <sup>3</sup> /h	dBA	m <sup>3</sup> /h	dBA
CHW-...-1	3550	39	7100	42								
CHW-...-2	6800	43	13600	46	20400	48						
CHW-...-3	10200	43	20400	46	30600	48	40800	49				
CHW-...-3+	13500	42	27000	45	40500	47	54000	48	81000	50		
CHW-...-4	16500	42	33000	45	49500	47	66000	48	99000	50	132000	51
CHW-...-4+	23700	46	47400	49	71100	51	94800	52	142200	54	189600	55

<sup>1)</sup>Operation noise level Lp [dBA] - level of acoustic pressure from the distance of 10m in the free sound field at the Q=2 directivity factor

## 5. TRANSPORT

Fan coolers should be transported in a position in which they are normally operated. To suspend the devices for lifting, holders on the bottom are used.

During storage and transportation coolers should be protected with, e.g. polyethylene foil.

The cooler is delivered with the Product Book (instruction manual).

Automatic equipment components are delivered separately upon a customer's request.



For lifting use all available transport handles.



Other handling methods must be arranged with the manufacturer.

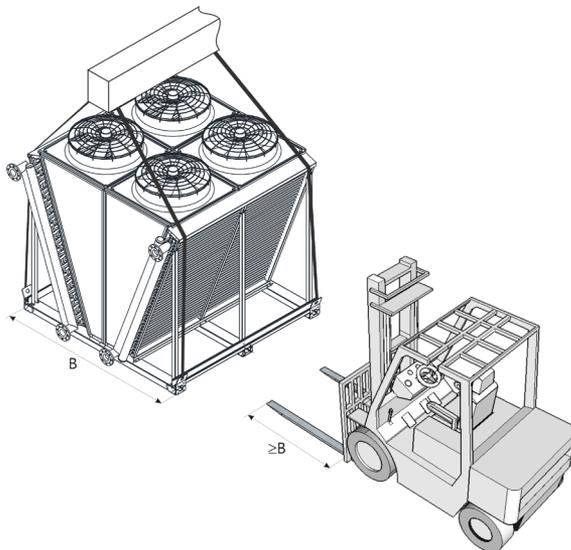


Fig. 1. Method for lifting of CHW-V dry cooler

## 6. SETTING AND DEVICE STARTUP

- » The device should be set on a specially prepared hardened surface; in a place of leg anchoring foundations should be prepared in accordance with valid standards and building regulations;



In the cooler, heat exchangers are supplied from the top. Cooler should be levelled with 1% incline towards the supply.



Filling of exchangers with medium should be from bottom (in direction from return to supply)

- » Anchoring, supporting and bolting elements should be adjusted to the device stability and weight, calculated basing on the device weight + medium weight + weight of any potential contaminations and precipitations.
- » The device should be fixed using all mounting points.
- » It is recommended to use vibro-insulators and provide additional space in foundations or frame to anchor or screw vibro-insulators,
- » Reduce stresses in the device by checking whether all support points are on the same plane and within the same distance as before and after subjecting the device to a stress.



All connections should be secured against loosening.

- » Devices should be placed so they are accessible for control at either side;



The air stream must not be obstructed due to air demand; optimum setting in parallel arrangement is provided in Fig. 3. If it is necessary to reduce Hw distance, coolers should be set on a support structure of Ha height so as to ensure sufficient access of air. The structure should be provided in accordance with valid standards and building regulations. Height of the structure should be determined on arrangements with the manufacturer.

- » Once the device is set correctly, pipework can be installed.
- » Pipework should be installed in accordance with EN 378-1, EN 378-3.
- » Connection should be carried out so that no stresses are present.
- » Before connecting the device, the completed pipework should be supported so that no loads and vibrations onto collectors are transmitted, and the other way round.
- » Before connecting, make sure to thoroughly clean inner parts of the pipework of any contaminations.



There is a risk that welding scale, soldering scale, filings might get into the cooling system what in turn may cause corrosion or damage to its components.

- » On supply and return of all coils on devices, cut-off valves should be installed.
- » After heat exchangers are filled, vent them with manual vent at drainage ports.



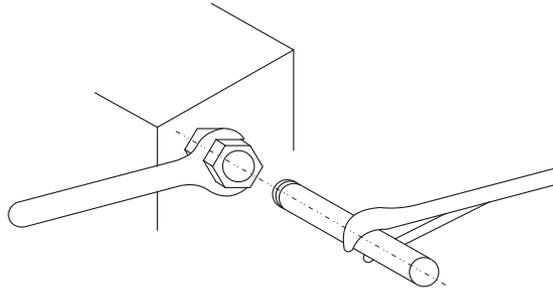
When filling the device there is risk of a medium leakage! Secure the area against penetration of the medium into groundwater.



Improper venting of heat exchanger can lead to failure to achieve the desired parameters.



Test pressure should not be higher than 1.3 the permissible pressure.



When connecting heat exchangers to the network, protect connections against over-rotating as shown above.

» Heat exchangers can be supplied individually or connected to collector pipes.



In periods when ambient temperature drops below freezing point of liquid being cooled, empty the liquid from heat exchanger.

- » Once the pipework is connected and inspected, electrical wiring can be connected (see chapter 9).
- » Before fans are started-up check the condition of electrical connection insulation, inspect heat exchangers for cleanliness, area around fans and exchangers for the presence of contaminations that might be sucked in.
- » When starting-up check rotational direction of fans and their power consumption.
- » Check whether the device works properly with automatic equipment and pipework.
- » The device should be placed so it is accessible for control at either side;
- » Due to air demand, optimum setting in parallel arrangement is provided in Fig. 3. If it is necessary to reduce Hw distance, coolers should be set on a support structure of H<sub>a</sub> height so as to ensure sufficient access of air. The structure should be provided in accordance with valid standards and building regulations. Height of the structure should be determined on arrangements with the manufacturer.

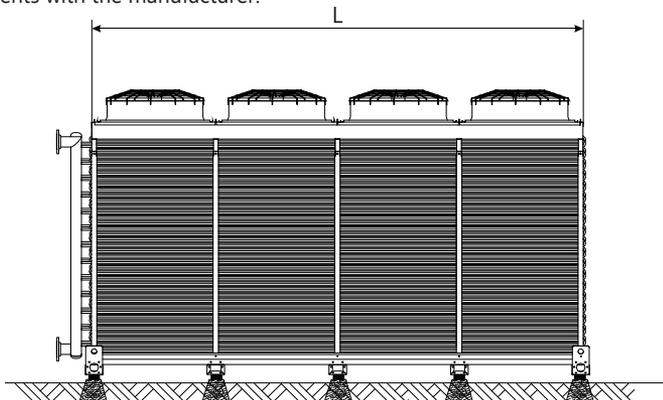


Fig. 2. Setting of CHW-V cooler

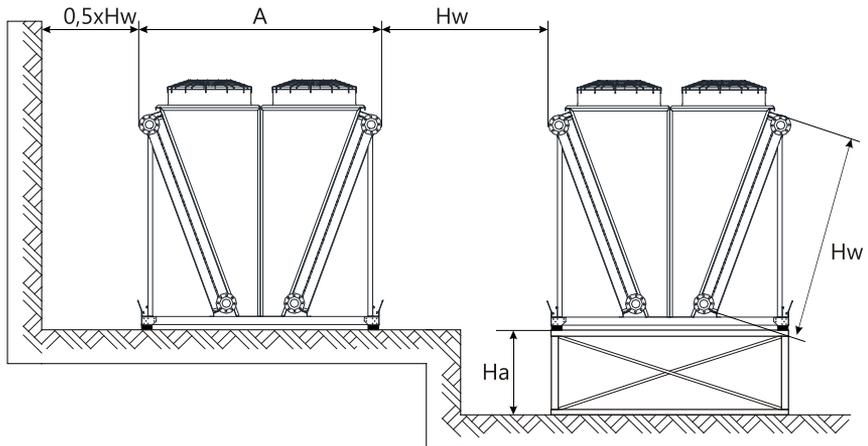


Fig. 3. Optimum settings of CHW-V cooler

Hw - finned part of heat exchanger.

Ha - height of supporting structure.

## 7. SAFETY RECOMMENDATIONS



Installation, start-up, maintenance and use of coolers should be performed by authorised, experienced and specialized personnel.



Personnel responsible for technical condition, use, maintenance and assessment of the system along with related components are considered authorised if they have education, experience and expertise adequate for works being carried out in accordance with EN 378-1. It is admissible that the device is operated by the user or his personnel without expertise in cooling technology, but trained in operation, use and maintenance and with experience and knowledge sufficient to assess technical condition of the system and the device. However, they are not intended to modify technical parameters of cooling system with its components.



Electrical connections to the cooler can only be carried out by an authorized electrician familiar with the instruction manual.



All installation and repair works should be carried out with voltage off.



The device must be used only as intended.



The device is adjusted to operation at a defined rated point as described in a separate tender file presented for a specific order.



Filling the device with a medium other than described in the file requires written consent of the manufacturer. **Warning! Hot surface.** When working the coil can reach temperatures above 45°C. Therefore risk of burns exists due to contact with surface of the pipework and connecting collectors. Wear protective gloves.



Warning! Freeze-up. In periods when temperatures below zero are frequent with shortage of the medium, in a standstill state, during storage period, with shortage of protective medium the coil might freeze-up and get damaged.



The device should only be accessible to personnel who are trained and authorized in this respect, and the device's working area should be protected against access of any unauthorized.



Warning! Risk of hand injury. There is a risk of cutting skin on hands and fingers due to contact with the device's sharp edges and corners. Wear protective gloves.



Warning! Risk of finger loss or entanglement. The fan is a rotating part of the device. Thus there is a risk of deep cuts on fingers and hands, loss of fingers or hands, entanglement of loose parts of garments, chains, etc. Before any maintenance works make sure that the device is de-energized, protect it against accidental switching by third parties, and perform lock out/tag out procedure.



Warning! Risk of health loss. There is a risk of health loss on contact with cooling liquid when a leakage occurs during filling, use and emptying of the device. When a leakage occurs, protect the area affected against access of third persons, provide an adequate number of fire-extinguishing devices, wear protective clothing and masks. Under any circumstances do not smoke around the area affected! Follow occupational health and safety and fire protection procedures.



There is a residual risk of material losses due to improper installation, presence of vibrations on working parts, changing working conditions of pressure elements, their breakage and leakage of cooling medium as well as changing weather and environmental conditions. In case of any doubts the user should follow provisions given herein, respect recommended maintenance plan, contact the manufacturer.

Due to its design, the device does not emit any hazardous radiation.

Despite the fact that the device has been designed and manufactured in accordance with the standards valid as for the moment of the manufacture start, likeliness of injury and damage to health when using the device is unavoidable. This likeliness is related to frequency of using, cleaning and repairing the device, presence of persons within the danger area, and not respecting the safety rules as set out in the instruction.

Severity of the bodily injury and deterioration of health is dependent on numerous conditions which can be foreseen partially only by considering them when designing the device and by providing descriptions and warnings in the instruction manual.

Therefore **residual risk** is present if recommendations and instructions are not respected by the operator.

## 8. INSTALLATION

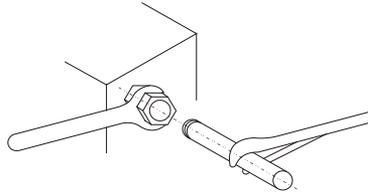
In the cooler, heat exchangers are supplied from the bottom. Cooler should be levelled with 1% incline towards the supply. After heat exchangers are filled, vent them with manual vent at drainage ports.



Improper venting of heat exchanger can lead to failure to achieve the desired parameters.



When connecting heat exchangers to the network, protect connections against over-rotating as shown above



Heat exchangers can be supplied individually or connected by exhaust collector.



In periods when ambient temperature drops below freezing point of liquid being cooled, empty the liquid from heat exchanger.

## 9. REPAIR, MAINTENANCE AND WITHDRAWAL FROM USE



It is recommended to use the work schedule in the table below.

Scope of work	Work schedule			
	c	t	m	r
Control of fans contamination and if necessary cleaning of device.	X			
Fans control for smooth running, in the case of vibration tighten the screws, adjust the balance of the rotor.		X		
Fans control for stable operation, level of noise, bearing condition control, if necessary replace bearings.			X	
Fans control for corrosion in the case of strong corrosion replace the fastening screws and / or impeller.				0,5
Control of the coil for dirt and deposits and, if necessary, clean the fins of coil.	X			
Control coil for leaks (visual inspection), if necessary, remove leaks.	X			
Control coil for damage.		X		
Control of the coil for operating parameters, restore the operating point of the coil and fan.			X	
Control coil for leaks (pressure test) and, if necessary, removing the leaks.				X
Control coil for corrosion and repair damaged parts of the device.				X

c- daily, t - weekly, m - every month, r - once a year.

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

## 10. WIRING SYSTEM



Electrical installation and connection of the power supply to the cooler must be carried out in accordance with relevant construction standards and regulations.



Electrical connections to the cooler can only be carried out by an authorized electrician familiar with the instruction manual.



Before connecting make sure that the voltage and frequency rating of the power supply are in accordance with the data given on the cooler data plates. Otherwise, do not connect the device.

Coolers fitted with 3-phase fans (3~400V/50Hz) with internal thermal contacts Tk that, in case of any malfunctions of the device (increased winding temperature), cause the fan to stop. This ensures longer and safer fan operation. Electrical connection of the fan(s) should be carried out including both the disconnecting device (where distance between contacts of all poles is about 3mm) and overload and short-circuit protections.



Make sure to provide the required motor protections, otherwise the warranty is void.

Power supply (control) cable of the fan(s) should be routed through glands into strip's box located in the upper part of the fan, and thermal contact Tk of the fan(s) should be wired in series and connected directly into control circuit for power supply of the fans.

**Use only the factory-assembled motor thermal protection systems, otherwise the warranty is void.**

## 11. AUTOMATIC EQUIPMENT

As an additional option, coolers can be fitted with the following automatic equipment components:

- » Coolers with fans with AC motors
  - Fan rotational speed controller: adjusts rotational speed of the fan(s) according to cooling medium outlet temperature. Thermal protection of the fan(s) is provided by connecting thermal contacts. When the installed thermal contact is disconnected, the controller turns off. It is re-started when the motor is cooled down, and by turning mains voltage off and then on again.
  - Band temperature sensor included.
  - Power supply and control box installed on the cooler, fitted with the above controller and sensor.



The 3~400V/50Hz power supply to the controller should be delivered from the main switchgear fitted with main switch and differential protection.

- Power supply and control box enables manual control of the air flow by turning individual fan sections on and off.
- » Coolers with fans with EC motors
  - Power supply and control box fitted with a controller with HMI panel for adjusting rotational speed of fans or fan assemblies according to the cooling medium temperature. Band temperature sensor included.



For order including automatic equipment and apparatus, wiring diagram for apparatus and automatic equipment is also delivered.

## 12. TROUBLESHOOTING

<b>Trouble description</b>	<b>Possible trouble cause</b>	<b>Troubleshooting</b>
Leaking heat exchanger	Mechanical damage to heat exchanger (might occur if care is not exercised when connecting the device to the system)	For installation on the system, counter wrench must be used
	Admissible heating medium parameters exceeded	Connect the device to heating system protected against excessive increase in pressure and temperature
	Frozen heat exchanger	Use anti-freeze thermostat, non-freezing heating media or drain water from the device in standstill period and period when high risk of freezing is likely
	Device used in aggressive environment	
Too loud device operation	Failure to keep minimum distance away from wall or ceiling	Keep distances as recommended in the manual
	Incorrect rotational direction	Carry out electrical connection correctly
	Incorrect parameters of mains electrical supply	Use the device only if parameters of mains electrical supply and the device are compatible
	Air exhaust throttled by louvres of outlet grille	Avoid closing the louvre of outlet grille too much at high speeds
	Fan vibrations, blades rubbing fixed elements	Check fan for correct mounting and other parts of the machine for proper fixing
	Fan mounted off the centre on its support plate	
Fan won't work	Incorrect or unstable electrical connections	Check and if necessary correct:
	Incorrect parameters of mains power supply (three phases are not available in three-phase motors)	1)electrical connections to be compatible with diagrams in the manual
	Damaged fan motor	2)stability of connections on electrical terminals
	Damaged fan operation controls	3) parameters of the mains
Actuator won't open the valve	Improper thermostat operation (characteristic "click" when switching)	Check and if necessary correct:
		1)electrical connections to be compatible with diagrams in the manual 2)stability of connections on electrical terminals 3)parameters of the mains 4)whether actuator responds to an electrical impulse. If damage to the actuator is evident, file a claim against the damaged component.
Room thermostat transmits no signal	More than one apparatus connected directly to thermostat (thermostat overload if more than one apparatus is connected)	Check and if necessary correct:
	Location of thermostat in a room	1)electrical connections to be compatible with diagrams in the manual 2)stability of connections on electrical terminals 3)parameters of the mains 4)If no characteristic "click" sound is heard, the thermostat is mechanically damaged and should be subject to a claim.

## 13. INFORMATION

In case of any inquiries or doubts regarding CHW fan coolers, please contact our JUWENT Factory or our Representations.

### III. 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**

<b>TYPE OF UNIT:</b>	
<b>FACTORY NUMBER:</b>	
<b>YEAR OF PRODUCTION:</b>	

#### IV. UNIT STARTUP REPORT

<b>Date of startup</b>	<b>Executor of startup stamp / name and signature</b>	<b>Motor current [A]</b>	<b>User's representative stamp / name and signature</b>	<b>Remarks</b>

#### V. INSPECTION AND MAINTENANCE DOCUMENT

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

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

## VI. SERVICE NOTIFICATION

Date:

Notification type WARRANTY  POST-WARRANTY  PAID

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

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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## VII. LIST OF SUBASSEMBLIES INSTALLED IN THE UNIT

No.	Name of subassembly	*)
1	Axial fan with three-phase motor	
2	Metal louvre II-row heat exchanger	
3	Metal louvre III-row heat exchanger	

\*) - mark proper box corresponding with the equipment variant