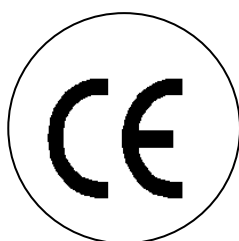
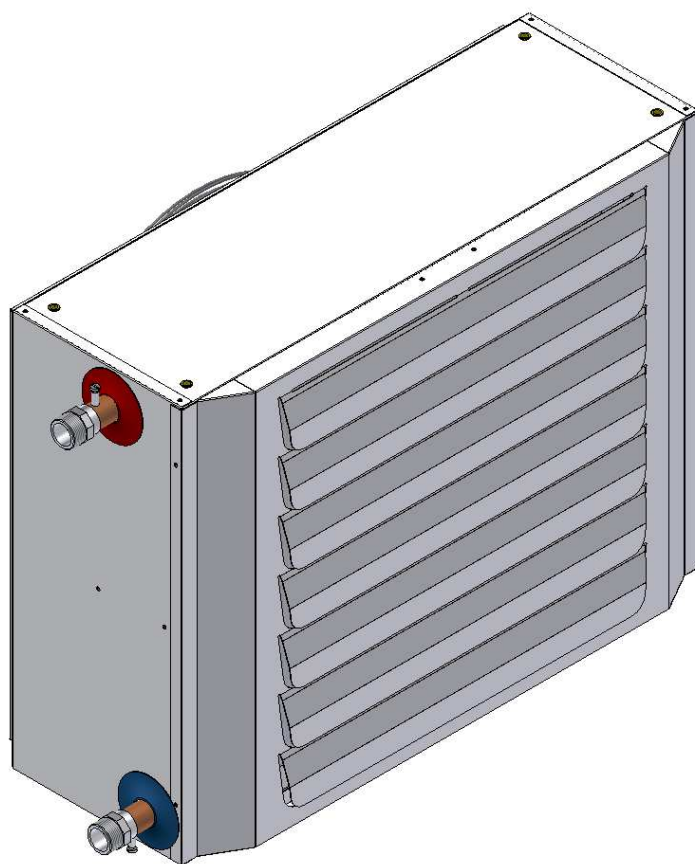


TECHNICAL INFORMATION, ASSEMBLY INSTRUCTIONS, USE AND MAINTENANCE

Water-Fed Fan Heaters Version for heating and cooling

SERIES AZN-F / AZN-FX



Dear Customer,

Thank you for choosing a Series **AZN-F – AZN-FX** water-fed fan heater, an innovative, modern, high quality, high efficiency product that will provide you with long-lasting comfort, silent running and safety; we recommend that your fan heater be serviced by a **Tecnoclima** Technical Service only so as to ensure optimum performance at all times, low running costs and immediate availability of original spare parts.

Thank you

Tecnoclima S.p.A.

CONFORMITY

AZN-F – AZN-FX water-fed fan heaters comply with:

- Machinery directives 2006/42/EEC.
- Low Voltage Directive 2006/95/EC
- Electromagnetic Compatibility Directive 2004/108/EC

RANGE

This manual includes references to the **TYPE**. The following table shows the series and the correspondence between the TYPE and the TRADE NAME.

Type	TRADE NAME	
	With external casing painted	With external casing stainless steel
1	AZN 13 F	AZN 13 FX
2	AZN 23 F	AZN 23 FX
3	AZN 33 F	AZN 33 FX
4	AZN 43 F	AZN 43 FX
5	AZN 53 F	AZN 53 FX
6	AZN 63 F	AZN 63 FX

WARRANTY

The series **AZN-F - AZN-FX** fan heaters have a specific warranty that begins on the date of purchase of the unit: the customer must retain documents as proof of purchase. If the customer is unable to provide such proof the Warranty period shall begin as from the date of production of the unit.

The warranty conditions are specified in the **WARRANTY CERTIFICATE**, provided together with the machine. We suggest reading it carefully.

NOTES FOR DISPOSAL



The unit contains electronic components, therefore it cannot be treated as household waste. For disposal methods, refer to the local laws in force relating to special waste.

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In the manual, the following symbols are used:



WARNING = operations requiring appropriate care and preparation.



FORBIDDEN = operations that MUST NOT be performed, in any case

This manual has 40 pages.

GENERAL WARNINGS



This manual is an integral part of the machine, therefore it should always be carefully kept and it should always be provided together with the machine, if it is transferred to another owner or user. In case of damage or loss of this booklet, request another copy from your local Technical Assistance Service or Manufacturer.

After unpacking the product, check its integrity and wholeness. If not, contact the Agency that sold the unit.

In reference to standard CEI EN 60335-1, for electric motors with rated current > 0.2 and ≤ 1.5 , a deviation equal to $+20\%$ is allowed. For this, the external electrical protections (not supplied and to be provided by the customer) located upstream of the device need to be sized with an adequate margin that takes into account the normal variables of the system.

The installation of the unit should be performed by a qualified company that, at the end of the work, must give the owner a declaration of conformity of the installation, performed according to the book, that is in compliance with the National and Local Standards in force and the instructions provided in this instruction booklet.

This unit has been manufactured for heating and cooling and it must be used for this purpose, compatibly with its performance characteristics.

The manufacturer is exonerated from any contractual or extra-contractual liability regarding damages caused by incorrect installation, adjustment, maintenance or improper use.

A temperature that is too high or too low is harmful to health and is an unnecessary waste of energy. Do not leave the rooms closed for a long time. Periodically open a window to air the room/building.

If you do not intend to use the unit for a long period of time you MUST at least do the following:

- turn the main switch of the unit and the general switch of the plant to "OFF"
- close the water check valves;
- if there is a risk of sub-zero temperatures, drain the water from the unit.

In case of water leaks, turn the main switch "off" and close the water taps. Immediately call the Technical Assistance Service or professionally qualified personnel and do not intervene personally on the unit.

Do not leave the rooms closed for a long time. Periodically open the windows to ensure proper ventilation.

The electrical system must provide adequate electrical individual and independent protections for each device, which in case of accidental failure, shall intervene on the single unit without jeopardizing the operation of the other units in the system.

If the unit has remained idle for a long period it is advisable to have it restarted by an authorised Technical Assistance Service or, in any case, by professionally qualified personnel.

All heaters must be fitted exclusively with original accessories. The manufacturer shall not be held responsible for any damage deriving from improper use of the unit or from the use of non-original materials and accessories.

All references to Law, standards, directives and technical rules in this manual are to be considered as informative only and valid at the date of printing of the Manual. The entry into force of new provisions or amendments to current laws does not represent an obligation of the manufacturer towards third parties.

Repairs or maintenance must be performed by the Technical Assistance Service or by qualified personnel in accordance with this manual. Do not modify or tamper with the appliance as dangerous situations can be created and the manufacturer will not be liable for any damage caused.

All connected systems (water supply, electrical connections etc.) must be secured safely and must not constitute obstacles or cause personnel to trip up.

The Producer is responsible for the product compliance with Laws, Directives or Construction Rules in force when the product is marketed. The knowledge and observance of the laws and standards regarding plant design, installation, operation and maintenance are the sole responsibility of the designer, installer and user.

The Producer shall not be held responsible for failure to comply with the instructions of this manual, for the consequences of any operations carried out and not specifically provided for or for translations open to misinterpretation.

MAIN SAFETY RULES



Bear in mind that if you use products powered through electric power, gas, etc., you should comply with some basic rules, such as:

This device cannot be used by people (including children) with reduced physical, sensory or mental abilities or lack of experience and knowledge, unless they are supervised or trained on the use of the unit by the person who is responsible for its safety.

Do not touch the heater if you are barefoot or if parts of your body are wet.

Before carrying out any cleaning and/or maintenance work on the unit always disconnect the unit from the mains power supply by turning the main switch to OFF.

Any modification to safety or regulation systems is strictly forbidden without the Manufacturer's permission and guidance.

Do not pull, disconnect and twist the electrical cables coming from the unit, even if it is disconnected from the electrical power supply.

Do not stand or sit on the unit and/or put any objects on the unit.

Do not spray or throw water directly over the unit.

Do not abandon or leave available to children the heater packing materials (cartons, nails, plastic bags etc.), as these are a potential source of danger.

Do not install the unit in areas with a damp or "aggressive" atmosphere.

Do not insert foreign objects through the grille in the cover.

Do not touch the heat exchanger battery with naked hands

Do not use adapters, multiple sockets or extension leads to connect the unit to the electricity supply.

It is forbidden to install the unit outdoors or where it is exposed to adverse weather conditions.

DESCRIPTION OF THE UNIT

MODE OF OPERATION

Water-fed fan heaters are designed to provide heating, cooling and summer ventilation. They are ideal for indoor areas such as shops, workshops and factories.

Heating:

The hot water produced by units such as the boiler or the heat pump in winter mode (not supplied), runs through one of the water-air exchangers which is brushed by an air flow generated by an electric axial helical fan running at three different speeds thanks to the accessory "variable speed switch with SUMMER/WINTER mode" (accessory on request). As the air flows through the exchanger it absorbs the heat contained in the coil and the air temperature increases.

Cooling:

The cold water produced by the chiller (not supplied), runs through one of the water-air exchangers which is brushed by an air flow generated by an electric axial helical fan running at low speed only thanks to the accessory "variable speed switch with SUMMER/WINTER mode" (accessory on request). The air collected from the environment to be treated in contact with the exchanger releases heat into the water and the air temperature decreases.

Summer ventilation

During the summer the fan can be run on its own to provide ventilation.

GENERAL CONSTRUCTION CHARACTERISTICS

Cover

The cover of the device is made of galvanized, pre-painted metal or stainless steel.

The cover features a modern and attractive aesthetic line. The geometry adopted gives the heater maximum compactness and versatility.

Water-air exchanger

Made of a high-efficiency copper battery with aluminium fins. Water connection couplings have a manual bleed valve.

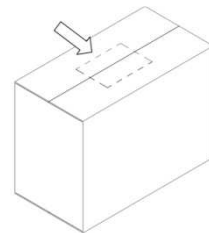
Helical fan

It consists of an axial helical electric fan with high performance and low noise, and a safety grid.

RECEIVING THE PRODUCT

The unit is sent in a single case and includes:

- WATER-FED FAN HEATER
- PLASTIC BAG containing:
 - Instruction Manual;
 - Warranty Certificate;
 - Spare Parts catalogue;
 - Label with barcode;
 - Hose connector;



Do not disperse the parts of the packaging in the environment, or leave them within the reach of children, as they are potentially dangerous.

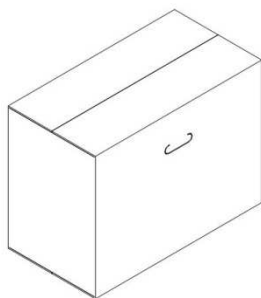


The booklet is an integral part of the unit and should be read carefully and kept for future reference.

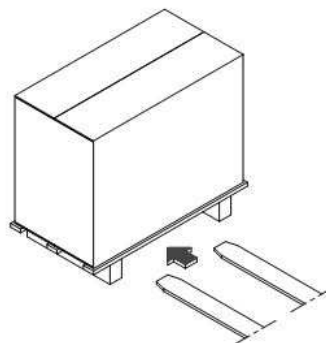
HANDLING AND TRANSPORT

Handling must be done by properly equipped personnel.

Manual handling



Handling with fork lift



WARNING!!!

Do not move the heater by holding it by the fins or by the fan motor.

Shipping and handling must be carried out with extreme care, so as to avoid damage to the unit and danger to the people involved.

During transportation and handling, it is forbidden to stand near the unit.

Use forklift forks with a minimum length equal to the width of the machine.

Should it be necessary to place more than one unit on top of each other, observe the index indicated on the packaging itself and be very careful when aligning the packages so as not to create unstable stacks.

If the device needs to be moved by hand, make sure that there is enough workforce available in proportion with the weigh indicated in the section "DIMENSIONS AND WEIGHT" and depending on the distance to cover.

We suggest using protection gloves.

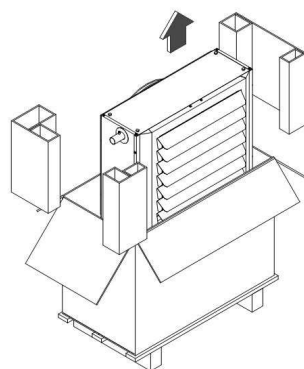
REMOVING THE PACKAGING

To remove the packaging proceed as follows:

- Remove the strap;
- Open the upper part of the case;
- Remove the inner spacers;
- Pull the unit upwards out of the case.



Do not dump packaging improperly as it is a potential source of danger. For proper disposal contact your local authorities.



IDENTIFICATION

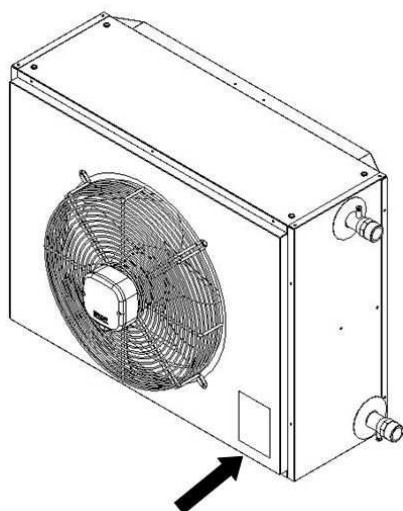
The water-fed fan heaters can be identified by:

- The **TECHNICAL DATA** plaque (positioned on the rear of the unit) which shows the main technical/performance data.
- The packaging label that shows the code, model and serial number of the unit.



In case of damage or loss, request a duplicate from Technical Assistance.

Position of data plate



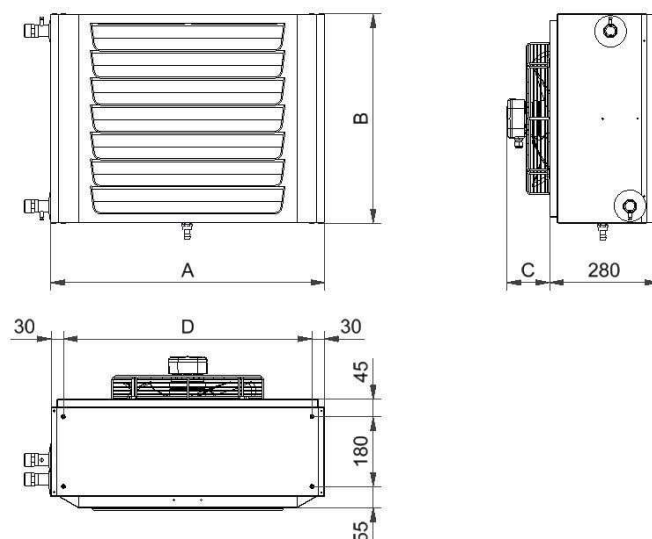
MANUFACTURER IDENTIFICATION DATA



WATER-FED FAN HEATER

Model			
Registration Number			
Country			
Code			
Year			
Max thermal power			kW
Max air flow rate			m³/h
Electrical Supply			
Max electrical power			W
Electrical power consumption			A
Degree of protection			IP
Max working pressure			bar

DIMENSIONS AND WEIGHT

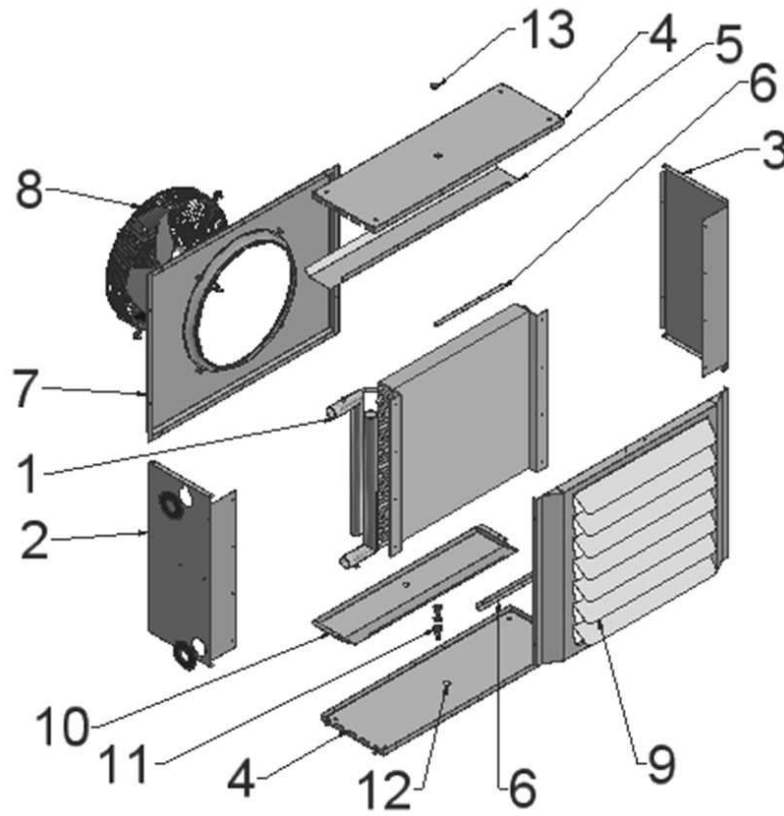


The M6 threaded inserts are both on the top and bottom of the unit.

TYPE	Unit	1	2	3	4	5	6
A	mm	555	605	655	705	755	805
B	mm	390	440	490	540	590	640
C	mm	90	116			122	
D	mm	489	539	589	639	689	739
Weight	Kg	15	18	21	24	28	32

STRUCTURE

Structure of devices:



1	Water-air exchanger
2	Side panel, left
3	Side panel, right
4	Upper-lower panel
5	Internal part
6	Fixing part

7	Fixing part
8	Fan(s)
9	Outflow grating
10	Condensate collection container
11	Hose connector
12	Condensate drain hole

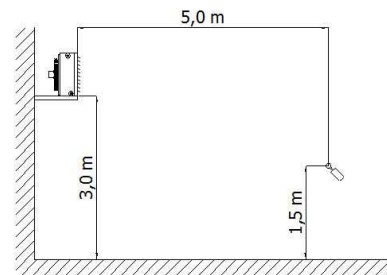
TECHNICAL SPECIFICATIONS

		TYPE								
		1			2			3		
Helical fan mode	-	Max	Med	Min	Max	Med	Min	Max	Med	Min
Number of helical fans	n°	1								
Helical fan speed (3)	rpm	1400 - 900 - 700								
Electrical Supply		SINGLE-PHASE 230V ~ 50Hz								
Total electrical power	W	74			86			120		
Max electrical current	A	0.34			0.38			0.55		
Rows	n°	3								
Air flow rate	m³/h	1,550	1,150	850	2,300	1,850	1,550	2,550	1,900	1,450
Air delivery	m	17	13	9	19	15	13	25	19	14
Sound pressure level (2)	dB (A)	50	47	41	51	47	45	52	50	43
Maximum working pressure	bar	8								
HEATING										
Thermal power (1)	kW	17.3	14.9	12.6	23.8	21.6	19.8	28.5	24.5	21.3
Air output temperature	°C	47	53	59	45	49	52	47	53	58
Water flow rate	l/h	1,020	875	741	1,401	1,271	1,168	1,680	1,446	1,255
Water side head loss	kPa	20	15	11	20	16	14	17	13	11
COOLING										
Total cooling capacity (2)	kW	-	7.7	6.5	-	11.3	10.3	-	12.8	10.9
Sensitive cooling capacity (2)	kW	-	4.2	3.4	-	6.2	5.5	-	6.9	5.7
Air output temperature	°C	-	18.5	17.3	-	19.5	19.0	-	18.5	17.5
Water flow rate	l/h	-	1,332	1,114	-	1,947	1,766	-	2,200	1,876
Water side head loss	kPa	-	63.0	46.0	-	68.0	57.5	-	55.0	41.5

		TYPE								
		4			5			6		
Helical fan mode	-	Max	Med	Min	Max	Med	Min	Max	Med	Min
Number of helical fans	n°	1								
Helical fan speed (3)	rpm	1400 - 900 - 700								
Electrical Supply		SINGLE-PHASE 230V ~ 50Hz								
Total electrical power	W	130			200			220		
Max electrical current	A	0.60			0.90			0.95		
Rows	n°	3								
Air flow rate	m³/h	3,400	2,000	1,350	3,900	2,650	1,850	4,900	3,150	2,200
Air delivery	m	25	19	10	24	16	11	26	17	12
Sound pressure level (2)	dB (A)	53	49	43	53	49	43	53	49	47
Maximum working pressure	bar	8								
HEATING										
Thermal power (1)	kW	36.4	27.9	22.4	42.7	35.4	29.2	52.4	42.2	34.8
Air output temperature	°C	46	56	65	47	54	61	46	54	61
Water flow rate	l/h	2,141	1,644	1,322	2,514	2,084	1,720	3,086	2,481	2,045
Water side head loss	kPa	19	12	8	13	10	7	16	11	8
COOLING										
Total cooling capacity (4)	kW	-	14.5	11.3	-	18.2	14.6	-	21.8	17.5
Sensitive cooling capacity (4)	kW	-	7.6	5.8	-	9.7	7.6	-	11.6	9.1
Air output temperature	°C	-	18.0	16.5	-	18.0	17.0	-	18.0	17.0
Water flow rate	l/h	-	2,485	1,941	-	3,126	2,514	-	3,749	3,014
Water side head loss	kPa	-	49.0	31.6	-	38.4	26.0	-	44.0	30.0

- (1) Data refers to following conditions:
 - Water temperature 85-70°C
 - Air temperature 15°C
 - R.H. 50%
 - Atmospheric pressure 1013 mbar
 - Max fan speed
- (2) Data refers to following conditions:
 - Area unobstructed
 - Max fan speed
 Unit installed on wall 3 m above ground with sound pressure measured frontally.
- (3) Variable speed obtainable through the use of a variable speed drive (accessory on request). RPM figures are average values as RPM varies from model to model. The maximum speed of 1,400 rpm can be used only in heating mode: in cooling mode the maximum speed causes problems with the condensate droplets.
- (4) Data refers to following conditions:
 - Water temperature 7-12 °C
 - Air temperature 30 °C
 - R.H. 60%
 - Atmospheric pressure 1013 mbar
 - Max fan speed
- (5) Measurement carried out in the following conditions:
 - Unit in neutral (without hot or cold water)
 - Air Temperature +15°C
 - Distance of the residual air speed 0.15m/s

UNOBSTRUCTED AREA SOUND PRESSURE MEASUREMENT DIAGRAM



TECHNICAL DATA OF HEATING

TYPES 1 AND 2 WATER DIFFERENCE 90-70°C

Fan heater type 1 at maximum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	17.8	16.3	14.8	kW
	15,350	14,050	12,750	Kcal/h
Air flow rate	1,550			m ³ /h
Sound pressure level (1)	50			dB(A)
Air outlet temperature	48	51	54	°C
Water side head loss	13	11	9	kPa
Water flow rate	790	722	656	l/h

Fan heater type 1 at medium fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	15.3	14.1	12.7	kW
	13,200	12,100	10,950	Kcal/h
Air flow rate	1,150			M ³ /h
Sound pressure level (1)	47			dB(A)
Air outlet temperature	54	57	59	°C
Water side head loss	10	8	7	kPa
Water flow rate	680	621	564	l/h

Fan heater type 1 at minimum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	13.0	11.9	10.8	kW
	11,200	10,250	9,300	Kcal/h
Air flow rate	850			m ³ /h
Sound pressure level (1)	41			Db(A)
Air outlet temperature	60	62	64	°C
Water side head loss	7	6	5	kPa
Water flow rate	577	527	478	l/h

Fan heater type 2 at maximum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	24.5	22.4	20.3	kW
	21,050	19,250	17,500	Kcal/h
Air flow rate	2,300			m ³ /h
Sound pressure level (1)	51			dB(A)
Air outlet temperature	46	49	52	°C
Water side head loss	12	11	9	kPa
Water flow rate	1,084	991	899	l/h

Fan heater type 2 at medium fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	22.3	20.3	18.5	kW
	19,150	17,500	15,900	Kcal/h
Air flow rate	1,850			m ³ /h
Sound pressure level (1)	47			dB(A)
Air outlet temperature	50	53	55	°C
Water side head loss	10	9	8	kPa
Water flow rate	985	901	817	l/h

Fan heater type 2 at minimum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	20.5	18.7	17.0	kW
	17,600	16,100	14,600	Kcal/h
Air flow rate	1550			m ³ /h
Sound pressure level (1)	45			dB(A)
Air outlet temperature	53	56	58	°C
Water side head loss	9	8	6	kPa
Water flow rate	906	828	752	l/h

TECHNICAL DATA OF HEATING

TYPES 3 AND 4 WATER DIFFERENCE 90-70°C

Fan heater type 3 at maximum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	29.4	26.9	24.4	kW
	25,300	23,150	21,000	Kcal/h
Air flow rate	2,550			m ³ /h
Sound pressure level (1)	52			dB(A)
Air outlet temperature	48	51	54	°C
Water side head loss	11	9	8	kPa
Water flow rate	1,301	1,190	1,080	l/h

Fan heater type 3 at medium fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	25.3	23.2	21.0	kW
	21,800	19,950	18,100	Kcal/h
Air flow rate	1,900			m ³ /h
Sound pressure level (1)	50			dB(A)
Air outlet temperature	54	57	59	°C
Water side head loss	9	7	6	kPa
Water flow rate	1,122	1,026	931	l/h

Fan heater type 3 at minimum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	22.1	20.2	18.3	kW
	19,000	17,350	15,750	Kcal/h
Air flow rate	1,450			m ³ /h
Sound pressure level (1)	43			dB(A)
Air outlet temperature	60	61	63	°C
Water side head loss	7	6	5	kPa
Water flow rate	977	893	810	l/h

Fan heater type 4 at maximum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	37.4	34.3	31.1	kW
	32,200	29,500	26,750	Kcal/h
Air flow rate	3400			m ³ /h
Sound pressure level (1)	53			dB(A)
Air outlet temperature	47	50	53	°C
Water side head loss	12	10	9	kPa
Water flow rate	1,658	1,516	1,376	l/h

Fan heater type 4 at medium fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	28.9	26.5	24.0	kW
	24,850	22,750	20,650	Kcal/h
Air flow rate	2000			m ³ /h
Sound pressure level (1)	49			dB(A)
Air outlet temperature	58	60	62	°C
Water side head loss	8	7	6	kPa
Water flow rate	1,279	1,169	1,061	l/h

Fan heater type 4 at minimum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	23.3	21.3	19.4	kW
	20,050	18,350	16,650	Kcal/h
Air flow rate	1,350			m ³ /h
Sound pressure level (1)	43			dB(A)
Air outlet temperature	65	67	68	°C
Water side head loss	5	5	4	kPa
Water flow rate	1,032	943	856	l/h

TECHNICAL DATA OF HEATING

TYPES 5 AND 6 WATER DIFFERENCE 90-70°C

Fan heater type 5 at maximum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	44.0	40.2	36.5	kW
	37,800	34,600	31,350	Kcal/h
Air flow rate	3,900			m ³ /h
Sound pressure level (1)	53			dB(A)
Air outlet temperature	48	51	53	°C
Water side head loss	9	7	6	kPa
Water flow rate	1,945	1,778	1,613	l/h

Fan heater type 5 at medium fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	36.6	33.4	30.3	kW
	31,450	28,750	26,100	Kcal/h
Air flow rate	2,650			m ³ /h
Sound pressure level (1)	49			dB(A)
Air outlet temperature	55	58	60	°C
Water side head loss	6	5	4	kPa
Water flow rate	1,617	1,478	1,341	l/h

Fan heater type 5 at minimum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	30.3	27.7	25.1	kW
	26,050	23,800	21,600	Kcal/h
Air flow rate	1850			m ³ /h
Sound pressure level (1)	43			dB(A)
Air outlet temperature	62	64	66	°C
Water side head loss	4	4	3	kPa
Water flow rate	1,339	1,224	1,110	l/h

Fan heater type 6 at maximum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	54.0	49.4	44.8	kW
	46,450	42,450	38,550	Kcal/h
Air flow rate	4,900			m ³ /h
Sound pressure level (1)	53			dB(A)
Air outlet temperature	47	50	53	°C
Water side head loss	10	9	7	kPa
Water flow rate	2,388	2,184	1,982	l/h

Fan heater type 6 at medium fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	43.5	39.8	36.2	kW
	37,450	34,250	31,100	Kcal/h
Air flow rate	3,150			m ³ /h
Sound pressure level (1)	49			dB(A)
Air outlet temperature	56	58	60	°C
Water side head loss	7	6	5	kPa
Water flow rate	1,926	1,761	1,598	l/h

Fan heater type 6 at minimum fan speed with water 90 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	36.0	32.9	29.9	kW
	31,000	28,300	25,700	Kcal/h
Air flow rate	2,200			m ³ /h
Sound pressure level (1)	47			dB(A)
Air outlet temperature	63	64	66	°C
Water side head loss	5	4	4	kPa
Water flow rate	1,593	1,456	1,321	l/h

TECHNICAL DATA OF HEATING

TYPES 1 AND 2 WATER DIFFERENCE 85-70°C

Fan heater type 1 at maximum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	17.3	15.8	14.3	kW
	14,900	13,600	12,300	Kcal/h
Air flow rate	1,550			m ³ /h
Sound pressure level (1)	50			DB(A)
Air outlet temperature	47	50	53	°C
Water side head loss	20	17	14	kPa
Water flow rate	1020	931	842	l/h

Fan heater type 1 at medium fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	14.9	13.5	12.3	kW
	12,800	11,650	10,550	Kcal/h
Air flow rate	1,150			M ³ /h
Sound pressure level (1)	47			DB(A)
Air outlet temperature	53	55	58	°C
Water side head loss	15	13	11	kPa
Water flow rate	875	798	722	l/h

Fan heater type 1 at minimum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	12.6	11.5	10.3	kW
	10,800	9,850	8,900	Kcal/h
Air flow rate	850			m ³ /h
Sound pressure level (1)	41			Db(A)
Air outlet temperature	59	61	62	°C
Water side head loss	11	10	8	kPa
Water flow rate	741	675	611	l/h

Fan heater type 2 at maximum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	23.8	21.7	19.7	kW
	20,450	18,650	16,900	Kcal/h
Air flow rate	2,300			m ³ /h
Sound pressure level (1)	51			dB(A)
Air outlet temperature	45	48	51	°C
Water side head loss	20	17	14	kPa
Water flow rate	1,401	1,278	1,156	l/h

Fan heater type 2 at medium fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	21.6	19.7	17.8	kW
	18,600	16,950	15,350	Kcal/h
Air flow rate	1,850			m ³ /h
Sound pressure level (1)	47			dB(A)
Air outlet temperature	49	52	54	°C
Water side head loss	16	14	12	kPa
Water flow rate	1,271	1,159	1,049	l/h

Fan heater type 2 at minimum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	19.8	18.1	16.3	kW
	17,050	15,550	14,050	Kcal/h
Air flow rate	1,550			m ³ /h
Sound pressure level (1)	45			dB(A)
Air outlet temperature	52	55	57	°C
Water side head loss	14	12	10	kPa
Water flow rate	1,168	1,065	963	l/h

TECHNICAL DATA OF HEATING

TYPES 3 AND 4 WATER DIFFERENCE 85-70°C

Fan heater type 3 at maximum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	28.5	26.0	23.5	kW
	24,550	22,400	20,250	Kcal/h
Air flow rate	2,550			m ³ /h
Sound pressure level (1)	52			dB(A)
Air outlet temperature	47	50	53	°C
Water side head loss	17	15	13	kPa
Water flow rate	1,680	1,532	1,386	l/h

Fan heater type 3 at medium fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	24.5	22.4	20.2	kW
	21,100	19,250	17,400	Kcal/h
Air flow rate	1,900			m ³ /h
Sound pressure level (1)	50			dB(A)
Air outlet temperature	53	55	58	°C
Water side head loss	13	11	10	kPa
Water flow rate	1,446	1,318	1,192	l/h

Fan heater type 3 at minimum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	21.3	19.4	17.6	kW
	18,350	16,700	15,100	Kcal/h
Air flow rate	1,450			m ³ /h
Sound pressure level (1)	43			dB(A)
Air outlet temperature	58	60	62	°C
Water side head loss	11	9	7	kPa
Water flow rate	1,255	1,144	1,035	l/h

Fan heater type 4 at maximum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	36.4	33.2	30.0	kW
	31,300	28,550	25,800	Kcal/h
Air flow rate	3400			m ³ /h
Sound pressure level (1)	53			dB(A)
Air outlet temperature	46	49	52	°C
Water side head loss	19	16	14	kPa
Water flow rate	2,141	1,953	1,767	l/h

Fan heater type 4 at medium fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	27.9	25.5	23.0	kW
	24,000	21,900	19,800	Kcal/h
Air flow rate	2000			m ³ /h
Sound pressure level (1)	49			dB(A)
Air outlet temperature	56	58	60	°C
Water side head loss	12	10	9	kPa
Water flow rate	1,644	1,499	1,356	l/h

Fan heater type 4 at minimum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	22.4	20.5	18.5	kW
	19,300	17,600	15,900	Kcal/h
Air flow rate	1,350			m ³ /h
Sound pressure level (1)	43			dB(A)
Air outlet temperature	65	65	66	°C
Water side head loss	8	7	6	kPa
Water flow rate	1,322	1,205	1,089	l/h

TECHNICAL DATA OF HEATING

TYPES 5 AND 6 WATER DIFFERENCE 85-70°C

Fan heater type 5 at maximum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	42.7	39.0	35.2	kW
	36,750	33,500	30,300	Kcal/h
Air flow rate	3,900			m ³ /h
Sound pressure level (1)	53			dB(A)
Air outlet temperature	47	50	52	°C
Water side head loss	13	11	10	kPa
Water flow rate	2,514	2,292	2,073	l/h

Fan heater type 5 at medium fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	35.4	32.3	29.2	kW
	30,450	27,750	25,100	Kcal/h
Air flow rate	2,650			m ³ /h
Sound pressure level (1)	49			dB(A)
Air outlet temperature	54	56	58	°C
Water side head loss	10	8	7	kPa
Water flow rate	2,084	1,900	1,718	l/h

Fan heater type 5 at minimum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	29.2	26.6	24.1	kW
	25,100	22,900	20,700	Kcal/h
Air flow rate	1850			m ³ /h
Sound pressure level (1)	43			dB(A)
Air outlet temperature	61	62	64	°C
Water side head loss	7	6	5	kPa
Water flow rate	1,720	1,567	1,417	l/h

Fan heater type 6 at maximum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	52.4	47.8	43.3	kW
	45,100	41,150	37,200	Kcal/h
Air flow rate	4,900			m ³ /h
Sound pressure level (1)	53			dB(A)
Air outlet temperature	46	49	52	°C
Water side head loss	16	14	12	kPa
Water flow rate	3,086	2,815	2,547	l/h

Fan heater type 6 at medium fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	42.2	38.4	34.8	kW
	36,250	33,050	29,900	Kcal/h
Air flow rate	3,150			m ³ /h
Sound pressure level (1)	49			dB(A)
Air outlet temperature	54	56	59	°C
Water side head loss	11	9	8	kPa
Water flow rate	2,481	2,262	2,046	l/h

Fan heater type 6 at minimum fan speed with water 85 – 70 °C

Air intake temperature	15	20	25	°C
Thermal power	34.8	31.6	28.6	kW
	29,900	27,200	24,600	Kcal/h
Air flow rate	2,200			m ³ /h
Sound pressure level (1)	47			dB(A)
Air outlet temperature	61	63	64	°C
Water side head loss	8	7	6	kPa
Water flow rate	2,045	1,863	1,685	l/h

TECHNICAL DATA OF HEATING

TYPES 1 AND 2 WATER DIFFERENCE 50-40°C

Fan heater type 1 at maximum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	7.9	6.4	4.9	kW
	6,800	5,500	4,200	Kcal/h
Air flow rate	1,550			m ³ /h
Sound pressure level (1)	50			DB(A)
Air outlet temperature	30	32	34	°C
Water side head loss	12	8	5	kPa
Water flow rate	684	557	424	l/h

Fan heater type 1 at medium fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	6.8	5.5	4.1	kW
	5,850	4,750	3,550	Kcal/h
Air flow rate	1,150			M ³ /h
Sound pressure level (1)	47			DB(A)
Air outlet temperature	32	34	36	°C
Water side head loss	9	6	4	kPa
Water flow rate	590	481	358	l/h

Fan heater type 1 at minimum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	5.8	4.7	3.4	kW
	5,000	4,000	2,950	Kcal/h
Air flow rate	850			m ³ /h
Sound pressure level (1)	41			Db(A)
Air outlet temperature	35	37	37	°C
Water side head loss	7	5	3	kPa
Water flow rate	502	403	299	l/h

Fan heater type 2 at maximum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	10.8	8.8	6.7	kW
	9,300	7,550	5,750	Kcal/h
Air flow rate	2,300			m ³ /h
Sound pressure level (1)	51			dB(A)
Air outlet temperature	29	31	34	°C
Water side head loss	11	8	5	kPa
Water flow rate	937	762	582	l/h

Fan heater type 2 at medium fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	9.8	8.0	6.0	kW
	8,450	6,900	5,150	Kcal/h
Air flow rate	1,850			m ³ /h
Sound pressure level (1)	47			dB(A)
Air outlet temperature	31	33	35	°C
Water side head loss	10	7	4	kPa
Water flow rate	853	694	521	l/h

Fan heater type 2 at minimum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	9.1	7.4	5.5	kW
	7,800	6,350	4,700	Kcal/h
Air flow rate	1,550			m ³ /h
Sound pressure level (1)	45			dB(A)
Air outlet temperature	32	34	36	°C
Water side head loss	8	6	3	kPa
Water flow rate	785	640	474	l/h

TECHNICAL DATA OF HEATING

TYPES 3 AND 4 WATER DIFFERENCE 50-40°C

Fan heater type 3 at maximum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	13.0	10.6	8.0	kW
	11,150	9,100	6,900	Kcal/h
Air flow rate	2,550			m ³ /h
Sound pressure level (1)	52			dB(A)
Air outlet temperature	30	32	34	°C
Water side head loss	10	7	4	kPa
Water flow rate	1,126	916	695	l/h

Fan heater type 3 at medium fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	11.2	9.1	6.7	kW
	9,650	7,850	5,800	Kcal/h
Air flow rate	1,900			m ³ /h
Sound pressure level (1)	50			dB(A)
Air outlet temperature	32	34	36	°C
Water side head loss	8	5	3	kPa
Water flow rate	974	794	587	l/h

Fan heater type 3 at minimum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	9.8	7.9	5.8	kW
	8,400	6,800	5,000	Kcal/h
Air flow rate	1,450			m ³ /h
Sound pressure level (1)	43			dB(A)
Air outlet temperature	35	36	37	°C
Water side head loss	6	4	2	kPa
Water flow rate	850	683	503	l/h

Fan heater type 4 at maximum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	16.6	13.5	10.3	kW
	14,250	11,600	8,900	Kcal/h
Air flow rate	3400			m ³ /h
Sound pressure level (1)	53			dB(A)
Air outlet temperature	29	32	34	°C
Water side head loss	11	8	5	kPa
Water flow rate	1,435	1,168	899	l/h

Fan heater type 4 at medium fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	12.8	10.5	7.7	kW
	11,050	9,000	6,600	Kcal/h
Air flow rate	2000			m ³ /h
Sound pressure level (1)	49			dB(A)
Air outlet temperature	34	36	37	°C
Water side head loss	7	5	3	kPa
Water flow rate	1,113	905	668	l/h

Fan heater type 4 at minimum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	10.3	8.3	6.1	kW
	8,900	7,100	5,250	Kcal/h
Air flow rate	1,350			m ³ /h
Sound pressure level (1)	43			dB(A)
Air outlet temperature	37	38	39	°C
Water side head loss	5	3	2	kPa
Water flow rate	899	714	528	l/h

TECHNICAL DATA OF HEATING

TYPES 5 AND 6 WATER DIFFERENCE 50-40°C

Fan heater type 5 at maximum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	19.4	15.8	11.7	kW
	16,650	13,550	10,050	Kcal/h
Air flow rate	3,900			m ³ /h
Sound pressure level (1)	53			dB(A)
Air outlet temperature	30	32	34	°C
Water side head loss	8	5	3	kPa
Water flow rate	1,678	1,364	1,012	l/h

Fan heater type 5 at medium fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	16.2	13.0	9.4	kW
	13,900	11,150	8,100	Kcal/h
Air flow rate	2,650			m ³ /h
Sound pressure level (1)	49			dB(A)
Air outlet temperature	33	35	36	°C
Water side head loss	6	4	2	kPa
Water flow rate	1,401	1,125	816	l/h

Fan heater type 5 at minimum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	13.3	10.5	7.7	kW
	11,450	9,000	6,600	Kcal/h
Air flow rate	1850			m ³ /h
Sound pressure level (1)	43			dB(A)
Air outlet temperature	36	37	37	°C
Water side head loss	4	3	2	kPa
Water flow rate	1,156	910	662	l/h

Fan heater type 6 at maximum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	23.8	19.4	14.7	kW
	20,500	16,650	12,650	Kcal/h
Air flow rate	4,900			m ³ /h
Sound pressure level (1)	53			dB(A)
Air outlet temperature	29	32	34	°C
Water side head loss	9	6	4	kPa
Water flow rate	2,065	1,679	1,277	l/h

Fan heater type 6 at medium fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	19.3	15.7	11.5	kW
	16,600	13,500	9,850	Kcal/h
Air flow rate	3,150			m ³ /h
Sound pressure level (1)	49			dB(A)
Air outlet temperature	33	35	36	°C
Water side head loss	6	4	3	kPa
Water flow rate	1,672	1,359	994	l/h

Fan heater type 6 at minimum fan speed with water 50 – 40 °C

Air intake temperature	15	20	25	°C
Thermal power	16.0	12.7	9.2	kW
	13,750	10,900	7,950	Kcal/h
Air flow rate	2,200			m ³ /h
Sound pressure level (1)	47			dB(A)
Air outlet temperature	36	37	38	°C
Water side head loss	5	3	2	kPa
Water flow rate	1,388	1,099	803	l/h

- (1) Data refers to following conditions:
 - Area unobstructed
 Unit installed on wall 3 m above ground with sound pressure measured frontally.

TECHNICAL DATA OF COOLING RH% = 60%

TYPES 1 - 2 - 3 WATER DIFFERENCE 7-12°C

Fan heater type 1 at medium fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	4.6	7.7	11.4	kW
	sensitive	3.2	4.2	5	kW
Air flow rate		1150			m ³ /h
Sound pressure level (1)		47			dB(A)
Air outlet temperature		16	18.5	21	°C
Water side head loss		25	63	123	kPa
Water flow rate		791	1332	1953	l/h

Fan heater type 1 at minimum fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	3.9	6.5	9.52	kW
	sensitive	2.6	3.4	4.1	kW
Air flow rate		850			m ³ /h
Sound pressure level (1)		41			dB(A)
Air outlet temperature		15.5	17.3	19.5	°C
Water side head loss		18.4	46	90.5	kPa
Water flow rate		662	1114	1636	l/h

Fan heater type 2 at medium fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	6.7	11.3	16.6	kW
	sensitive	4.8	6.2	7.4	kW
Air flow rate		1850			m ³ /h
Sound pressure level (1)		47			dB(A)
Air outlet temperature		17	19.5	22	°C
Water side head loss		27	68	133	kPa
Water flow rate		1155	1947	2850	l/h

Fan heater type 2 at minimum fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	6	10.3	15	kW
	sensitive	4.3	5.5	6.7	kW
Air flow rate		1550			m ³ /h
Sound pressure level (1)		45			dB(A)
Air outlet temperature		16.4	19	21	°C
Water side head loss		23	57.5	113	kPa
Water flow rate		1048	1766	2590	l/h

Fan heater type 3 at medium fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	7.6	12.8	18.8	kW
	sensitive	5.3	6.9	8.2	kW
Air flow rate		1900			m ³ /h
Sound pressure level (1)		50			dB(A)
Air outlet temperature		16	18.5	21	°C
Water side head loss		22	55	108	kPa
Water flow rate		1305	2200	3224	l/h

Fan heater type 3 at minimum fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	6.5	10.9	16	kW
	sensitive	4.4	5.7	6.9	kW
Air flow rate		1450			m ³ /h
Sound pressure level (1)		43			dB(A)
Air outlet temperature		15.6	17.5	19.6	°C
Water side head loss		16.6	41.5	81.6	kPa
Water flow rate		1114	1876	2755	l/h

TECHNICAL DATA OF COOLING RH% = 60%

TYPES 4 - 5 - 6 WATER DIFFERENCE 7-12 °C

Fan heater type 4 at medium fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	8.6	14.5	21.2	kW
	sensitive	5.9	7.6	9.2	kW
Air flow rate		2000			m ³ /h
Sound pressure level (1)		49			dB(A)
Air outlet temperature		16	18	20	°C
Water side head loss		20	49	95.7	kPa
Water flow rate		1479	2485	3643	l/h

Fan heater type 4 at minimum fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	6.7	11.3	16.6	kW
	sensitive	4.4	5.8	7.1	kW
Air flow rate		1350			m ³ /h
Sound pressure level (1)		43			dB(A)
Air outlet temperature		15	16.5	18.1	°C
Water side head loss		13	31.6	62	kPa
Water flow rate		1158	1941	2852	l/h

Fan heater type 5 at medium fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	10.7	18.2	26.7	kW
	sensitive	7.5	9.7	11.7	kW
Air flow rate		2650			m ³ /h
Sound pressure level (1)		49			dB(A)
Air outlet temperature		16.2	18	20.7	°C
Water side head loss		15	38.4	75.7	kPa
Water flow rate		1847	3126	4598	l/h

Fan heater type 5 at minimum fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	8.7	14.6	21.6	kW
	sensitive	5.8	7.6	9.3	kW
Air flow rate		1850			m ³ /h
Sound pressure level (1)		43			dB(A)
Air outlet temperature		15.2	17	19	°C
Water side head loss		10.4	26	52	kPa
Water flow rate		1488	2514	3705	l/h

Fan heater type 6 at medium fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	12.9	21.8	32	kW
	sensitive	9	11.6	14	kW
Air flow rate		3150			m ³ /h
Sound pressure level (1)		49			dB(A)
Air outlet temperature		16	18	21	°C
Water side head loss		18	44	87	kPa
Water flow rate		2225	3749	5502	l/h

Fan heater type 6 at minimum fan speed with water 7 – 12 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	10.4	17.5	25.8	kW
	sensitive	6.9	9.1	11	kW
Air flow rate		2200			m ³ /h
Sound pressure level (1)		47			dB(A)
Air outlet temperature		15	17	19	°C
Water side head loss		12	30	59	kPa
Water flow rate		1791	3014	4433	l/h

TECHNICAL DATA OF COOLING RH% = 60%

TYPES 1 - 2 - 3 WATER DIFFERENCE 11-15°C

Fan heater type 1 at medium fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	2.9	6	9.6	kW
	sensitive	2.6	3.6	4.5	kW
Air flow rate		1150			m ³ /h
Sound pressure level (1)		47			dB(A)
Air outlet temperature		18	20	22.5	°C
Water side head loss		16	59	133	kPa
Water flow rate		619	1293	2065	l/h

Fan heater type 1 at minimum fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	2.4	5	8	kW
	sensitive	2	2.9	3.6	kW
Air flow rate		850			m ³ /h
Sound pressure level (1)		41			dB(A)
Air outlet temperature		17.4	19.2	21	°C
Water side head loss		12	43	98	kPa
Water flow rate		521	1083	1732	l/h

Fan heater type 2 at medium fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	4.2	8.8	14	kW
	sensitive	4	5.4	6.6	kW
Air flow rate		1850			m ³ /h
Sound pressure level (1)		47			dB(A)
Air outlet temperature		18.5	21	23.5	°C
Water side head loss		17	63	144	kPa
Water flow rate		900	1889	3013	l/h

Fan heater type 2 at minimum fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	3.8	8	12.8	kW
	sensitive	3.5	4.8	6	kW
Air flow rate		1550			m ³ /h
Sound pressure level (1)		45			dB(A)
Air outlet temperature		18	20	23	°C
Water side head loss		14.5	53	121	kPa
Water flow rate		818	1715	2740	l/h

Fan heater type 3 at medium fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	4.8	9.9	15.9	kW
	sensitive	4.3	5.9	7.3	kW
Air flow rate		1900			m ³ /h
Sound pressure level (1)		50			dB(A)
Air outlet temperature		18	20	23	°C
Water side head loss		14	51	116	kPa
Water flow rate		1021	2135	3411	l/h

Fan heater type 3 at minimum fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	4.1	8.5	13.6	kW
	sensitive	3.5	4.9	6.1	kW
Air flow rate		1450			m ³ /h
Sound pressure level (1)		43			dB(A)
Air outlet temperature		17.4	19.3	21.4	°C
Water side head loss		10.6	39	88.1	kPa
Water flow rate		875	1823	2915	l/h

TECHNICAL DATA OF COOLING RH% = 60%

TYPES 4 - 5 - 6 WATER DIFFERENCE 11-15°C

Fan heater type 4 at medium fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	5.4	11.2	18	kW
	sensitive	4.7	6.5	8.2	kW
Air flow rate		2000			m ³ /h
Sound pressure level (1)		49			dB(A)
Air outlet temperature		17.6	19.6	22	°C
Water side head loss		12.5	45	103	kPa
Water flow rate		1161	2416	3856	l/h

Fan heater type 4 at minimum fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	4.3	8.8	14	kW
	sensitive	3.5	4.9	6.2	kW
Air flow rate		1350			m ³ /h
Sound pressure level (1)		43			dB(A)
Air outlet temperature		17	18.5	20	°C
Water side head loss		8	29.5	67	kPa
Water flow rate		917	1893	3025	l/h

Fan heater type 5 at medium fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	6.7	14.1	22.6	kW
	sensitive	6	8.4	10.4	kW
Air flow rate		2650			m ³ /h
Sound pressure level (1)		49			dB(A)
Air outlet temperature		18	20	22	°C
Water side head loss		9.6	35.6	82	kPa
Water flow rate		1441	3035	4865	l/h

Fan heater type 5 at minimum fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	5.4	11.4	18.3	kW
	sensitive	4.6	6.5	8.2	kW
Air flow rate		1850			m ³ /h
Sound pressure level (1)		43			dB(A)
Air outlet temperature		17	19	21	°C
Water side head loss		6.6	24	56	kPa
Water flow rate		1169	2447	3926	l/h

Fan heater type 6 at medium fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	8.1	17	27	kW
	sensitive	7.2	10	12.4	kW
Air flow rate		3150			m ³ /h
Sound pressure level (1)		49			dB(A)
Air outlet temperature		18	20	22	°C
Water side head loss		11	41	93.5	kPa
Water flow rate		1741	3641	5821	l/h

Fan heater type 6 at minimum fan speed with water 11 – 15 °C

Air intake temperature		25	30	35	°C
Total cooling	capacity	6.6	13.6	21.9	kW
	sensitive	5.5	7.7	9.8	kW
Air flow rate		2200			m ³ /h
Sound pressure level (1)		47			dB(A)
Air outlet temperature		17	19	21	°C
Water side head loss		7.7	28	64	kPa
Water flow rate		1411	2935	4697	l/h

- (1) Data refers to following conditions:
 - Area unobstructed
 Unit installed on wall 3 m above ground with sound pressure measured frontally.

ACCESSORIES

For the accessories, see the catalogue.

To install the accessories, follow the instructions included in the relevant package.

POSITIONING

The location for the unit must be determined by the system designer or a competent person and it must take into account the technical requirements and the standards and regulations in force; generally, special permissions need to be obtained. (e.g.: regulations concerning zoning, architecture, fires, environmental pollution, noise emission, etc.)

It is therefore advisable, before installing the unit, to request and obtain the necessary permissions.

For proper installation always observe the following minimum requisites:

- position the unit on a dry level surface capable of sustaining its weight;
- respect the distances in order to allow for a correct flow of air and normal cleaning and maintenance operations;
- position the unit in a place that makes water and electrical connections convenient;
- be close to an electric socket;

It is also necessary to make sure that:

- The temperature range for use is between -15 and +40 °C.

It is forbidden to install it:

- in places where there are aggressive atmospheres;
- in narrow places where the noise created by the generator could be amplified by reverb or resonance;
- in corners where there is a deposit of dust, leaves and anything that may reduce the efficiency of the unit by blocking the air passage.



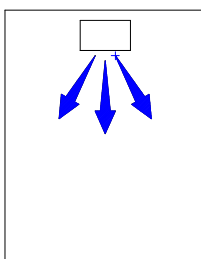
WARNING!!!

The unit is normally installed on a shelf in a higher position as shown in the following figures. In this case **make sure that the shelves are attached to a suitable structure by means of suitable fixing elements.**

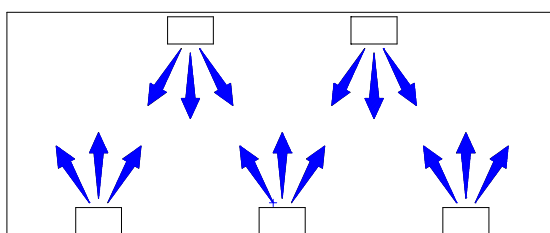
The unit features a helical fan and it is therefore suitable to be connected to ducts with important load losses. For special requirements, consult the Manufacturer.

EXAMPLE OF POSITIONING

- **Example of installation in a small room:**



- **Example of installation in a large room/area:**

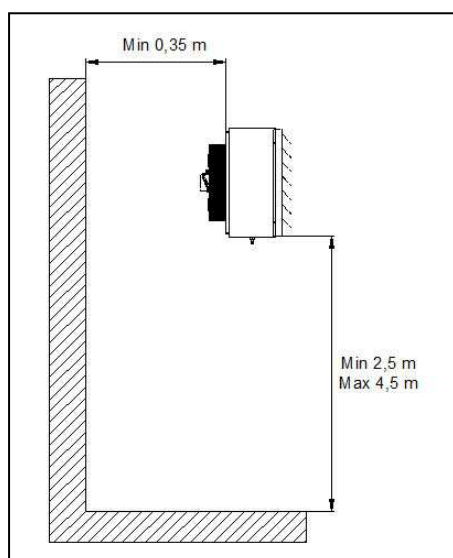


Select the appropriate model on the basis of performance data for average fan speed.



Do not install outside and in places with an aggressive environment

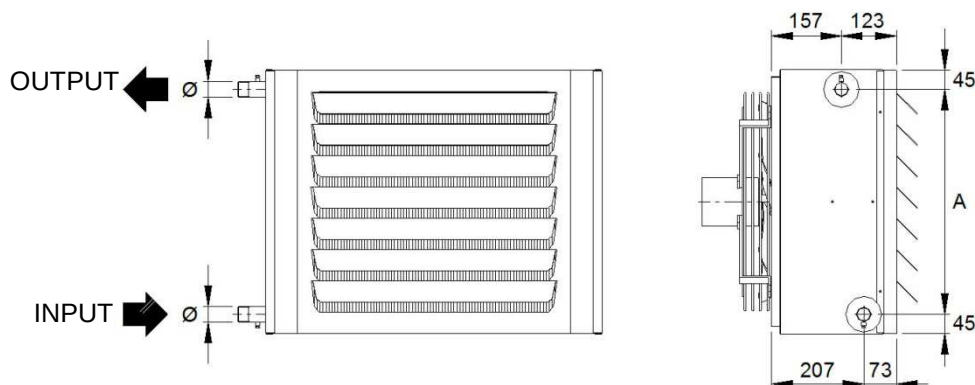
Example of vertical installation



To allow for proper air flow and therefore the correct operation of the unit, it is essential that there is no obstacle near the outlet nozzle side panel.

WATER COPLING DIMENSIONS

The unit is assembled in the factory with the water connection couplings on the left (as seen from the air outflow grating).



Water fitting dimensions

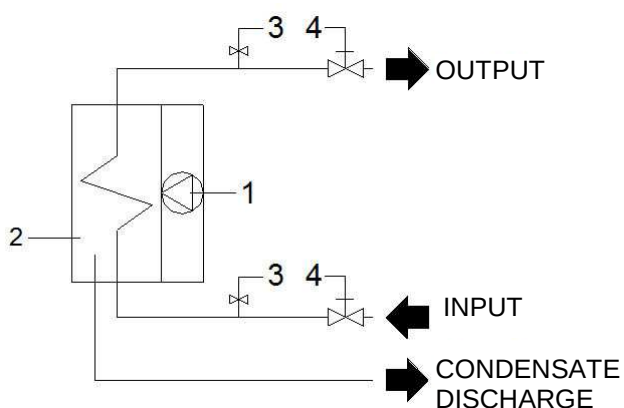
	Unit	TYPE					
		1	2	3	4	5	6
A	mm	300	350	400	450	500	550
Ø male	Inches	1	1	1	1	1	1 ^{1/4}
outer Ø hose connector	mm	14					



WARNING!!!

For optimum performance it is essential that water inlet-outlet directions always be observed as indicated by the adhesive label.

WATER CIRCUIT DIAGRAM



DESCRIPTION:

- 1 Helical fan(s)
- 2 Water-air exchanger
- 3 Manual air bleed
- 4 Spherical check valve (not supplied)



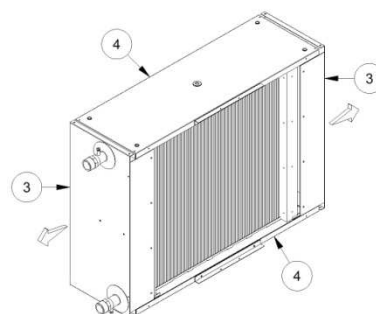
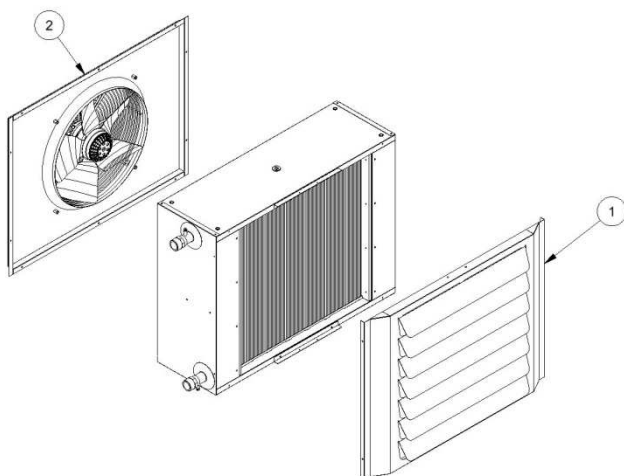
WARNING!!!

Install a drain valve at the lowest point in the water circuit to empty the system when necessary.

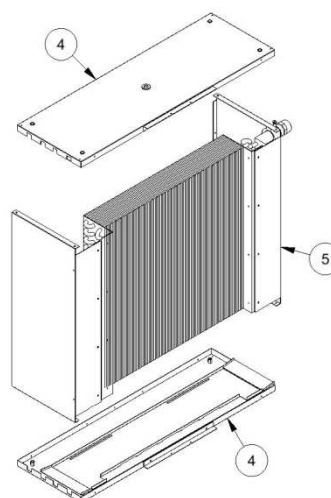
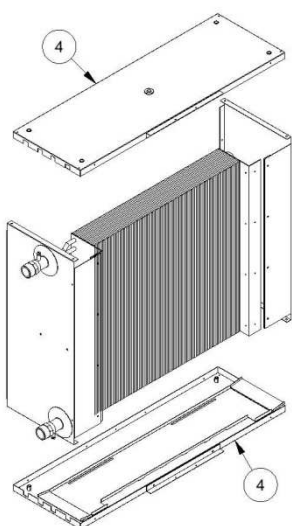
INVERTING THE WATER CONNECTIONS

To switch the water connections from one side to the other proceed as follows:

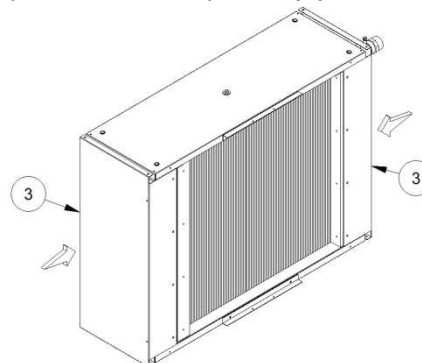
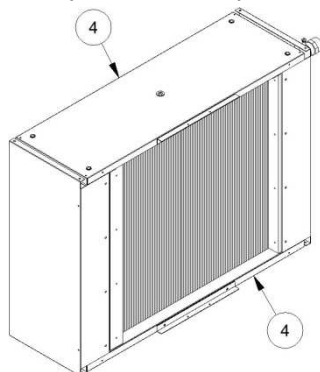
1. Remove the supply panel (1) and the fan-holding panel (2);
2. Loosen the lateral panels (3) and separate them of the distance required to remove the top and bottom panels (4);



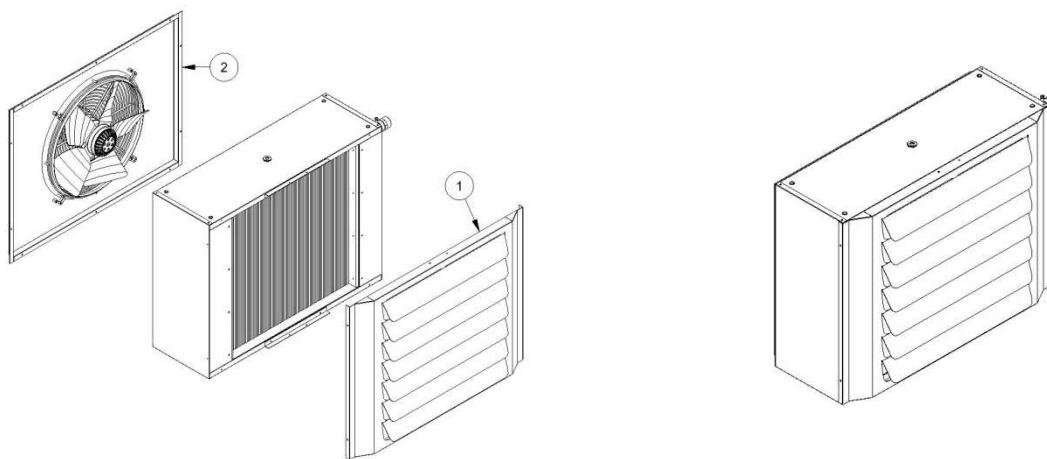
3. Remove the top and bottom panels (4);
4. Rotate the exchanger with the lateral panels 180° (5);



5. Replace the top and bottom panels (4);
6. Replace the lateral panels (3);



7. Replace the supply panel (1) and the fan-holding panel (2);



WARNING!!!

For optimum performance it is essential that water inlet-outlet directions always be observed as indicated by the adhesive label.

The operation must be performed before installing the connections.

WATER CONNECTIONS



The selection and installation of water system components is the responsibility of the installer. The installer must observe correct working practices and the legislation in force at all times.

In systems filled with anti-freeze the use of water disconnectors is compulsory.

Where the heater is supplied with special or recycled water it must first be treated accordingly. Observe the reference values in the table.

REFERENCE VALUES

PH	6 – 8
Electrical conductivity	less than 200mV/cm (25°C)
Chlorine ions	less than 50 ppm
Sulphuric acid ions	less than 50 ppm
Total iron	less than 0.3 ppm

Alkalinity M	less than 50 ppm
Total hardness	less than 50 ppm
Sulphur ions	none
Ammonia ions	none
Silicon ions	less than 30 ppm

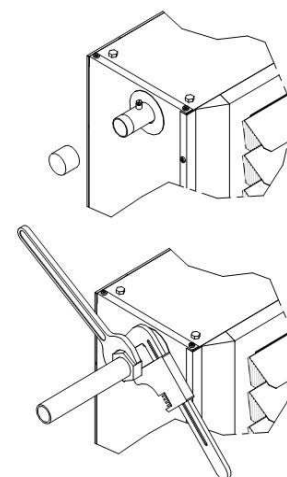
TO CONNECT UP TO THE WATER SUPPLY:

- Remove the plastic plugs from the water connection fittings;
- Connect the system according to the hydraulic diagram shown in the dedicated chapter.



To prevent damage to the unit secure the heater water fittings by using the wrench – counterwrench method.

To seal the threads use hemp and green paste. Using Teflon is inadvisable where anti-freeze is used.



ELECTRICAL CONNECTIONS

The fan heater leaves the factory fully wired and need only:

- be connected to the mains;
- be connected to a control device (where applicable).



WARNINGS:

- Install upstream of the unit a differential magneto thermal circuit breaker suitably sized according to the regulations in force.
- Always connect the earthing system, taking care to leave the earth wire slightly longer than the other wires, so that, in case of accidental pulling, the latter is the last one to be removed.
- Get qualified personnel to check that the section of the cables and the electrical system are suitable for the maximum power absorbed by the unit indicated on the information plate.
- Respect polarity in the connection of the power supply (phase - neutral).
- The unit must be connected to an efficient earthing system. The manufacturer shall not be held responsible for any damage caused by failure to earth the appliance.
- The electrical cables must be positioned so as not to come into contact with hot and/or cold surfaces, or with sharp edges.
- In accordance with the Standards regarding the installation of electrical components, a device that ensures disconnection from the mains with an opening distance between contacts that guarantees complete disconnection in overvoltage conditions III (Standard EN 60335-1) must be included.
- Water or gas pipes should not be used as earth connection of the machine.
- It is compulsory to use systems that, in the event of a fan heater breakdown, isolate the faulty unit only without compromising the routine operation of any other units making up the overall system.

Wire sizing table:

Type	Voltage Power supply (V ph Hz)	Max power absorbed (W)	Max current absorbed (A)	Fuse of Line (1) (A)	Section of conductors of Line (2) (mm ²)	Section of earth cable (2) (mm ²)
1	230V ~ 50Hz	74	0.34	1	1.5	1.5
2	230V ~ 50Hz	86	0.38	1	1.5	1.5
3	230V ~ 50Hz	120	0.55	1	1.5	1.5
4	230V ~ 50Hz	130	0.60	1	1.5	1.5
5	230V ~ 50Hz	200	0.90	2	1.5	1.5
6	230V ~ 50Hz	220	0.95	2	1.5	1.5

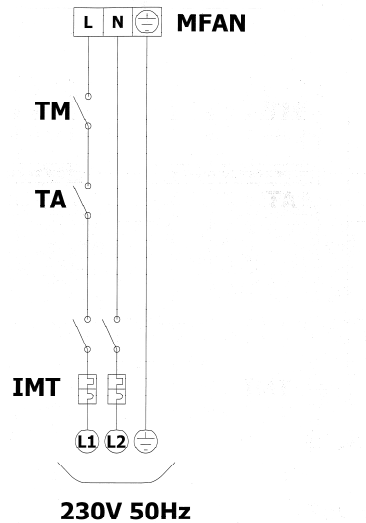
(1) Not supplied

(2) Wire cross-section ensures a voltage drop of less than 5% for a length of 30 m

ELECTRICAL CONNECTION DIAGRAM FOR HEATING ONLY

(single phase supply 230V ~ 50Hz)

In the event that you wish to use the heaters AZN-F and/or AZN/FX for heating only, and only at the highest fan speed, it is possible to make the following electrical connection.



DESCRIPTION:

MFAN	Connections terminal
230V 50Hz	Single-phase electrical supply 230V ~ 50Hz
TM (1)	Minimum thermostat
TA (1)	Room thermostat
IMT (1)	Pole switch circuit breaker

(1) Not included: to be installed by the customer.



WARNING!!!

If you wish to use the heaters AZN-F and/or AZN/FX also for cooling, take care to install the 'variable speed switch SUMMER/WINTER' by following the instructions contained in the package of the same.

ACCESSORIES ELECTRIC WIRING SCHEME

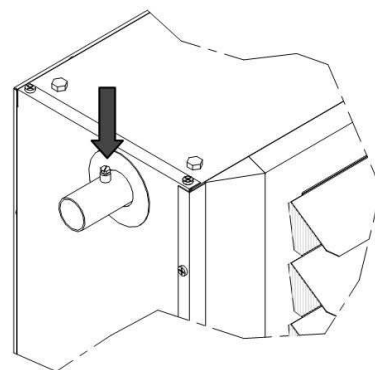
For the eventual electric wiring of accessories, you have to refer to the instructions included in to the package of the accessories.

FILLING – EMPTYING THE UNIT

FILLING:

Before starting filling:

- position the main switch to OFF.
- check that the water system drain valve is closed;
- open the upper manual bleed valve.
- start filling by slowly opening the water system filling valve external to the heater unit;
- when water begins flowing out of the bleed valve close the latter and continue filling until correct system pressure is reached;
- repeat the procedure after the heater has been running a few hours and periodically check pressure;
- check that there are no leaks.



WARNING!!!

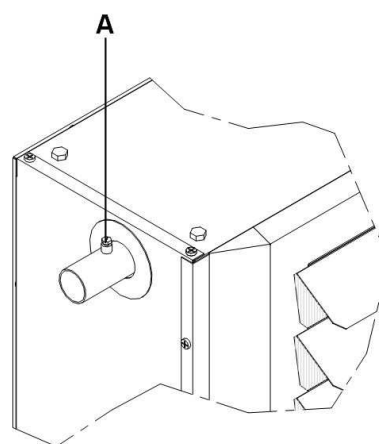


If there is a risk of sub-zero temperatures mix some anti-freeze into the water in manufacturer-recommended quantities.

EMPTYING:

Before starting emptying:

- position the main switch to OFF.
- check that the water system drain valve is closed;
- open the manual bleed valves (A).
- open the system drain valve and drain all the water;
- close the manual bleed valves and remove any trace of water from the system with the aid of compressed air.



WARNING!!!



If the system contains anti-freeze the water must be collected and, where possible, re-used. Do not dump as with normal water, because the anti-freeze is a pollutant.

PREPARING FOR START-UP

Before starting and testing the fan heater check that:

- the heater unit is positioned correctly;
- the check valves are open;
- water and electrical connections have been made correctly;
- water pressure (unit cold) is as required;
- any air has been bled from the system;
- the fins are open.

FIN ADJUSTMENT

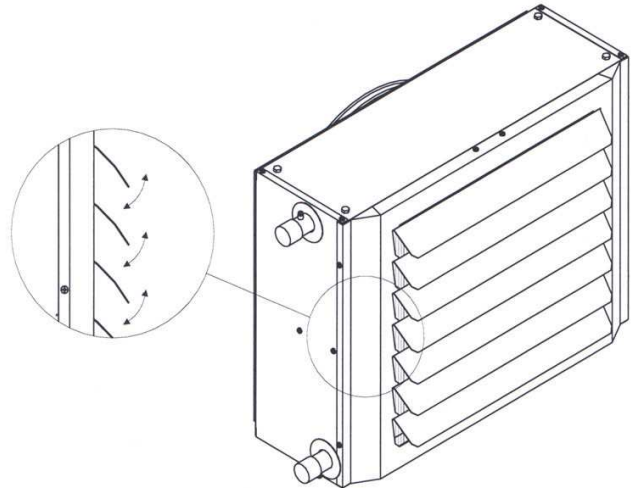
When the packaging is opened, the horizontal flow directional fins are almost completely closed. **The horizontal fins must be adjusted during installation** so as to create an airflow suitable for the room/area being heated. Such airflow must not disturb the persons occupying such room/area. The fins can be individually adjusted manually.



Do not close the horizontal fins completely.

Adjust the flow directing fins by grabbing them on the extremity.

Use suitable protective equipment.



FIRST-TIME START-UP

ACTIVATING THE HEATING FUNCTION:

- Position the main switch to ON.;
- Set fan speed as desired (where speed selector switch is installed);
- Set room thermostat to desired temperature (higher than current room temperature);
- At this point both the water circulator and the heater fan start simultaneously. To prevent an initial outflow of unpleasant cold air it is possible to delay fan start-up with the aid of a minimum thermostat (not supplied as accessory). This thermostat also delays fan shutdown so as to disperse all the heat accumulated in the exchanger into the room/area to be heated;
- once the temperature set on the room thermostat has been reached the heater will shut down. When the temperature drops back down below this setting the fan heater restarts automatically;

DEACTIVATING THE HEATING FUNCTION:

- Set the room thermostat to "anti-freeze" and wait for the fan heater to shut down;
- Turn the main switch to OFF.

ACTIVATING THE COOLING FUNCTION:

- Place the switch on "summer"
- Place the variable speed switch on one of the 2 available positions;
- Set room thermostat to the desired temperature (higher than current room temperature);
- At this point both the water circulator and the heater fan start simultaneously. To prevent an initial outflow of unpleasant warm air it is possible to delay fan start-up with the aid of a minimum thermostat (not supplied as accessory). This thermostat also delays fan shutdown so as to disperse all the cold accumulated in the exchanger;
- once the temperature set on the room thermostat has been reached the heater will shut down. When the temperature drops back down below this setting the fan heater restarts automatically;

DEACTIVATING THE COOLING FUNCTION:

- Set the room thermostat to full scale (e.g. 30°C) and wait for the unit to shut down;
- Turn the main switch to OFF.

CHECKS DURING AND AFTER FIRST-TIME START-UP

Once the fan heater has been started check that it shuts down on reaching the required temperature and then restarts again when the room cools down (adjust the room thermostat settings if necessary).

With the fan heater running:

- check that the fan(s) rotates the right way;
- check that fan(s) operates at the various speeds (where fan speed control switch is installed);
- check that electrical absorption is less than indicated in the TECHNICAL DATA chapter;
- check that there are no water leaks;
- check that the fins are not too close together and that there is no obstruction to airflow.

If the fan heater passes all these checks it may be restarted.

SWITCHING OFF FOR LONG PERIODS

If the fan heater is expected to remain idle for a lengthy period proceed as follows:

- deactivate the fan heater by acting on the room thermostat;
- turn the main switch to OFF;
- close the water check valves.



WARNING!!!

If there is a risk of sub-zero temperatures and the system water does not contain an anti-freeze liquid you must drain the system.

MAINTENANCE

Periodic maintenance is essential for the safety, efficiency and long-term performance of the unit.

Before doing any maintenance work:

- cut the power by turning the main switch to OFF;
- close the water check valves.

The annual maintenance schedule to be observed by the Authorised Technical Service or maintenance technician is as follows:

Check	Frequency
Check there is no air in circuit	annually
Check voltage	annually
Check absorption	annually
Check electrical connections	annually
Check water couplings	annually
Clean outer cover	annually
Cleaning the helical fan	annually
Cleaning the finned coil	annually
Tightening screws and bolts	annually
Cleaning the condensate collection container	annually
Condense discharge	annually



WARNING!!!

For installation in particular environments the periodical maintenance has been carried out every 6 months.

After maintenance operations, the original conditions must be restored.

CHECKING THERE IS NO AIR IN THE WATER CIRCUIT

Loosen the manual bleed valves and check that there is no air.

Checking voltage

Using a voltmeter check that the power supply is as indicated on the technical data plaque (tolerance $\pm 10\%$).

Checking absorption

Using an ammeter check that the electrical current of each phase is less than that indicated on the technical data plaque.

Checking electrical connections

Disassemble the electrical connections box and check that all the terminal grips are tightened properly.

Checking condition of WATER couplings

Check for leaks along the entire circuit.

Checking the pressure of the system

Regularly check the pressure of the system, so as to allow the unit to operate in optimal conditions.
Do not exceed the maximum working pressure limit indicated in chapter TECHNICAL DATA.

CLEANING THE EXTERNAL PANELS

This cleaning should only be carried out with damp cloths with soap and water. For stubborn stains, moisten the cloth with a mixture of 50% water and 50% denaturated alcohol or specific products. After cleaning, dry the surfaces carefully.

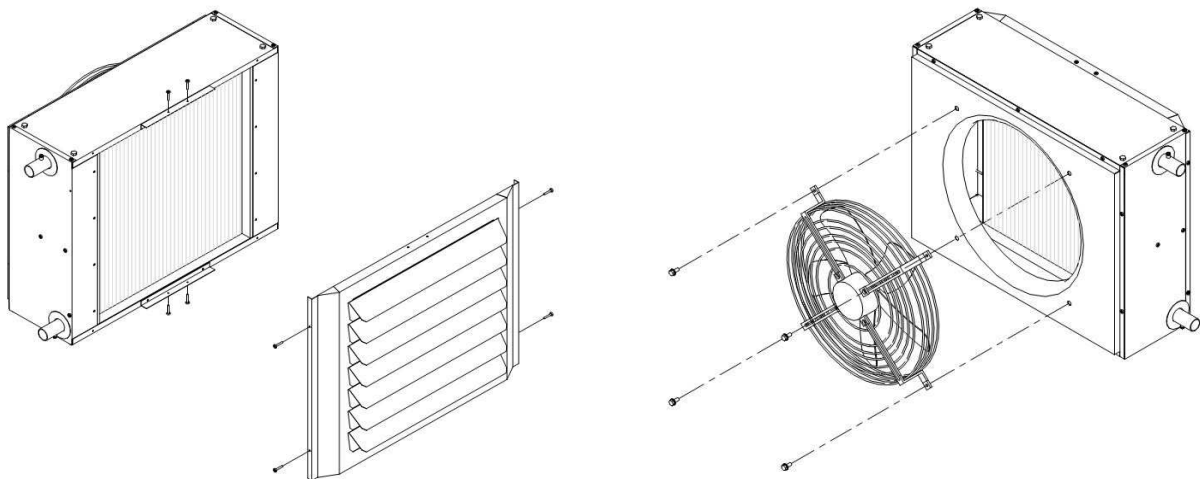
Do not use sponges soaked in abrasive products or powder detergents.

Cleaning the helical fan

Remove any dust and/or foreign objects that may have deposited on the fan and/or grating with compressed air.

Cleaning the air-water heat exchanger

Remove the air outflow grating. Then clean off any dust that may have deposited on the exchanger fins with the aid of compressed air.



CLEANING THE CONDENSATE DRAIN SYSTEM

Clean the condensate drain and make sure that it is not blocked, so that the condensate flows without obstructions.

CLEANING THE CONDENSATE COLLECTION CONTAINER

Clean the container for the collection of the condensate: make sure that the surfaces are free from limescale so that the condensate can be properly carried to the hose connection.

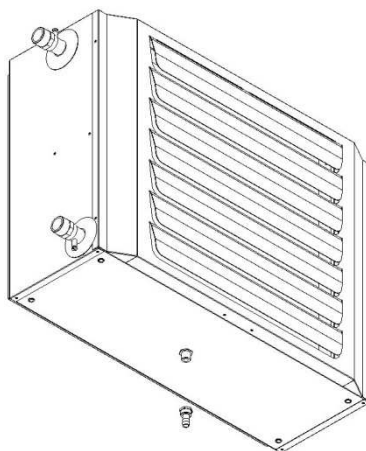
TIGHTENING SCREWS AND BOLTS

Make sure that the screws and bolts are properly tightened,

CONDENSATE DISCHARGE

For transportation, the hose connection is disassembled, and comes with the unit.

Condensate drain assembly diagram (supplied):



The threaded coupling must be sealed with suitable straps and/or adhesives.



GENERAL WARNINGS CONCERNING THE CONDENSATE DRAIN

For information purposes, here are some requirements:

- the condensate disposal system must be dimensioned and constructed so as to allow for the correct flow of waste liquid, without leakages;
- all the condensate drain pipes should be connected independently, avoiding their convoy;
- The system should have a proper gradient. It is forbidden to install pipes that are levelled and/or not inclined;
- in case of connection to the sewage system, a suitable syphon or equivalent device designed to prevent the return of fumes from the sewer system must be installed;
- the system must be made so as to prevent the liquid contained from freezing in all operating conditions;
- For the connection of the unit to the drain, use piping with an inner diameter of 14 mm;
- The total weight of the condensate drain system must not weigh on the equipment, and must be suitably and separately mounted;
- The configuration of the condensate drain system must facilitate the removal of the inspection panels;
- The condensate drain system must be easily disassembled to perform inspection and/or maintenance operations;

TROUBLESHOOTING

PROBLEM		CAUSE		SOLUTION
THE FAN DOES NOT START	⇒	No power	⇒	Check unit is powered
		↓		
		Main switch turned to OFF	⇒	Turn to ON
		↓		
		Room thermostat faulty	⇒	Check room thermostat
		↓		
		Fan faulty	⇒	Check fan motor
POOR HEATING EFFICIENCY		↓		
		Condenser faulty	⇒	Check condenser
		↓		
		Overload cut-out tripped	⇒	Check absorption
	⇒	Heat exchanger dirty	⇒	Clean exchanger
		↓		
		Airflow obstructed	⇒	Remove obstruction
NOISE OR VIBRATION		↓		
		Improper room temp. setting	⇒	Check regulation
		↓		
		Wrong water temperature	⇒	Check water temperature
		↓		
		Air in water circuit	⇒	Bleed air from system
		↓		
LOSS OF CONDENSATE WATER		Fan faulty	⇒	Check fan motor
		↓		
		Fan rotation inverted	⇒	Check direction of fan rotation
	⇒	Contact between metal parts	⇒	Inspect for contact
		↓		
		Screws loose	⇒	Tighten
		↓		
		Fan improperly balanced	⇒	Replace
		↓		
		Fan dirty	⇒	Clean
	⇒	Condensate collection container not levelled correctly	⇒	Make sure that the container is positioned correctly
		↓		
		Hose connection blocked	⇒	Clean hose connection
		↓		
		Piping blocked	⇒	Clean piping
		↓		
		Manoeuvring error	⇒	Activate the variable speed drive correctly with the summer/winter switch

NOTES

[illegible]



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Since the Company is constantly involved in the continuous improvement of all its production, the aesthetic and dimensional features, technical data, equipment and accessories, may be subject to change.