



Private Enterprise “Tekhnika “ATOM”



Technical datasheet

INDUSTRIAL AIR HEATING UNIT
FAN HEATERS
“ATOM”
AHU-10, 15, 20, 40

SEVERODONETSK 2015

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1. DESTINATION

1.1. Fan heaters with water heat exchangers (air heating units) AHU, hereinafter referred to as fan heater, are designed for heating of offices, storehouses, administrative and industrial buildings which are equipped with hot-water heating system.

2. BASIC DELIVERY KIT

1 Fan heater.....	1 pc.
2 Passport.....	1 pc.
3 Power supply.....	1 pc.
4 Three-speed thermoregulator.....	1 pc.
5 Mounting bracket.....	1 pc.

3. SERVICE CONDITIONS

- 3.1. The requirements to air in the room in which the fan heater is operated:
- Environmental air temperature in room without movement of water in the heat exchanger must be from 0 °C to 40°C;
 - Relative humidity must be no more than 80% at a temperature of 20 °C;
 - Content of dust and other impurities must be no more than 10 mg/m³;
 - It is prohibited the presence in air of aggressive substances to carbon steels, aluminum, copper (acids, alkalis), smear or fibrous substances (pitches, technical fibers and so forth) in air.
- 3.2. Water for filling the heating system must be drinking quality.
- 3.3. Fan heaters are designed for indoor work. Engineering company determines explosion safety and fire safety of these buildings. This company takes into account technical characteristics of the product which are include in issues 3-5 of this Technical Datasheet.

4. TECHNICAL CHARACTERISTICS

Table 1

Technical characteristics of fan heaters

Parameter	Unit	AHU-10	AHU-15	AHU-20	AHU-40
Heat output (95/80/0)	kW	11,1	18,3	26,3	47,2
Air consumption	m ³ /h	1000	2000	2600	5200
Water consumption	l/h	600	900	1200	2400
Air discharge temperature	°C	50			
Heat carrier pressure (no more than)	bar	3			
Water temperature (no more than)	°C	130			
Heat carrier connection		DIN 3/4"			
Size*:	mm	350*	350*	520*	700*
		414*	570*	570*	700*
		170	220	220	290
Max fan power	W	110	145	220	400
Source voltage	V	220			
Weight	kg	12	16	23	36

* - Without protruding nozzles and mounting

Thermal characteristics are presented at an air discharge temperature - 0,0 °C and maximum air consumption. The characteristics for another parameters are presented on website: <http://www.teploventilyatory.com/AVO.pdf>

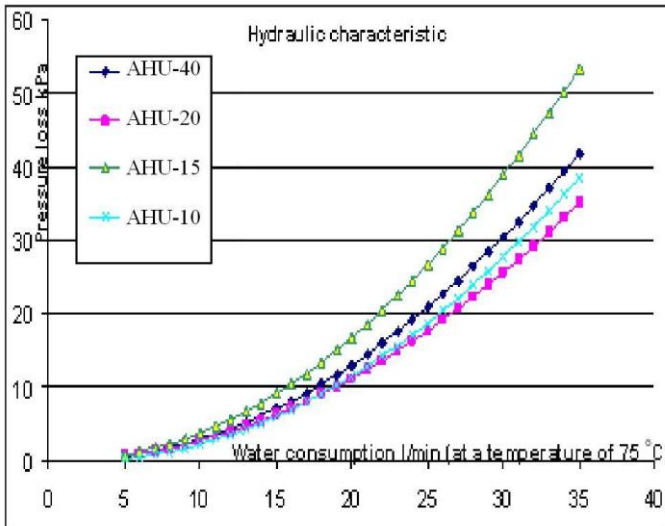


Figure. 1 Hydraulic characteristics

4.1. Precious metals are absent.

4.2. Operating pressure of water in the heat exchanger is to 3 bar.

- 4.3. The maximum operating temperature of the heat carrier is 130°C.
- 4.4. Connection to a single-phase network 220V / 50Hz.

5. EQUIPMENT AND OPERATION

- 5.1. Fan heater has a solid frame which is made from galvanized sheet steel which is coated with a high-quality polymer covering, axial fan and water heat exchanger. The heat exchanger is made of copper (or aluminum) pipes with shell lamellar aluminum ribs. The heat exchanger is a non-separable unit.
- 5.2. Heat carrier is piped into the heat exchanger and it is drained from the heat exchanger through nozzles which protrude from the frame.
- 5.3. Axial fan provides the necessary air consumption. Air is sucked out of the room through the rear grille, heated in a heat exchanger and it is conducted to the room through rotating shutters.
- 5.4. There is necessary to provide emptying nozzles with valves for emptying of heat carrier with subsequent air blowing to avoid defrosting of heat exchanger in case of emergency stop of hot water supply in winter.

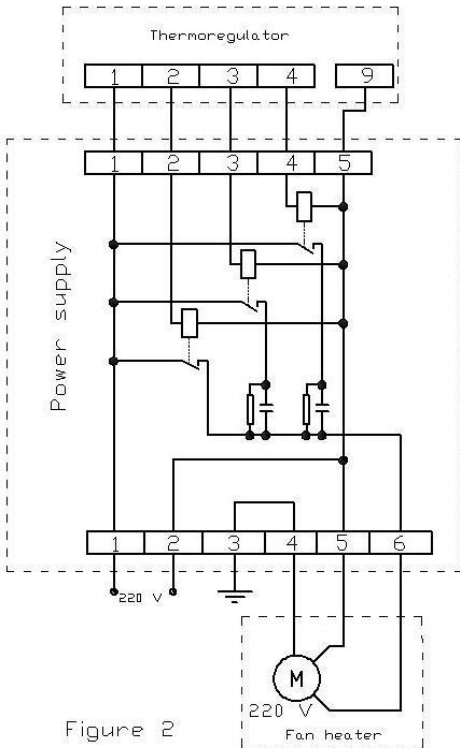


Figure 2

Figure 2 - Fan heater electric circuit

5.5. Fan heater electric circuit is presented in Figure 2.

5.6. The management of fan heater is carried out by multi-rate thermoregulator which automatically changes fan rotation speed up to reaching predetermined temperature. Management is carried out in accordance with the instructions on the appropriate device.

5.7. The elements of automatic control (limit switches, flow controller of heat carrier etc.) are not included in the basic kit. But these elements can be included into the kit at the customer's request.

5.8. The producer can introduce structural changes in the fan heater which are not reflected in the present passport. These changes do not make worse quality and reliability of the fan heater.

6. SAFETY PRECAUTIONS

6.1. During exploitation of the fan heaters it is necessary to keep the rules for technical operation of Consumer's Electrical Installations and Inter-Industry Rules on Occupational Health and Safety (Safety Rules) for the Operation of Electrical Installations (POT RM 016-2001).

6.2. Specially trained staff should be carried out service works of fan heaters.

6.3. It is prohibited to use fan heater without ground connection and to use neutral conductor for ground connection.

6.4. It is prohibited to carry out service works during work of fan heater, under a strain or under pressure of heat carrier.

6.5. Installation and maintenance of fan heaters have to be carried out in compliance with the requirements of rules for technical operation of heat-recovery equipments and heat networks.

7. REQUIREMENTS FOR INSTALLATION AND CONNECTIONS

7.1. During installation, mounting and putting into operation it is necessary to keep the rules for technical operation of Consumer's Electrical Installations and Interindustry labor safety rules (Safety Rules) for the Operation of Electrical Installations (POT RM 016-2001), Safety Rules for Operation of heat-recovery equipments and heat networks and SNiP 41-01-2003.

7.2. Solely specially trained staff can be admitted to installation and mounting of fan heaters.

7.3. Heaters are mounted vertically to the wall with a help of mounting bracket which is included in delivery kit (Figure 3).

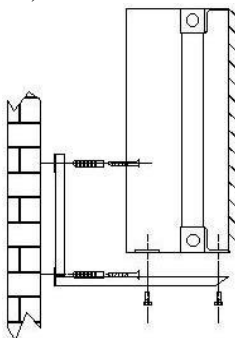


Figure 3 – fan heaters mounting

7.4. It should be remembered that the choice of heater parameters is dependent on many features of the room. Heating and ventilating designer specialist should give recommendations about choice and installation of fan heaters

Designer specialist must solve the questions about connection fan heater to the heat network (diagram, pressure difference, heat carrier temperature) with allowance for maximum valid parameters of the goods:

- pressure no more than 3 bar,
- temperature no more than 130 °C.

7.5. Connection of fan heater with heat network must be with a help of temperature-compensated feed pipes which would prevent the transmission of movement with a linear expansion of the supply line.

If you want to connect fan heater to heat network you need to hold orifice of fan heater by wrench and preventing efforts to the collector device.

7.6. On the supply line installation of water filter is **obligatory** during the connection of fan heater to the heating system. For the most efficient work of the fan heater it must be connected to the second (in the direction of air) line of heat exchanger, and in the opposite direction it must be connected to the first line.

7.7. The connection to the network is carried out in accordance with the operational code for electrical installations.

7.8. It is prohibited to use fan heater without ground connection.

7.9. The connection of multi-rate thermoregulator and fan heater to power supply is made in accordance with electric circuit.

7.10. The connection of power supply to a single-phase network 220V / 50Hz, thermoregulator and fan heater is allowed by cable 2x1,5MM².

8. FAN HEATER WORK CONTROL

8.1. The fan heater requires technical service in accordance with Table. 2

Table. 2

List of works for technical service

Scope of work and methods of their implementation	Technical requirements	Instruments, devices
Monthly technical service		
Check connections to thermo-delivery system	The absence of water leaks	Wrenches, welding
Recurring technical service (twice a month or more, depending on the dustiness)		
Air blowing of heat-release surface of heat exchanger	The surface must be free of dust and other impurities	Compressed air
Lift off the back cover of the fan heater and shake large rubbish		
Seasonal technical service (twice a year)		
Flushing the inner surface of the heat exchanger	The surface must be free of mechanical impurities	10% solution of NaOH

8.2. It is necessary to check monthly the electrical connections of fan heater to explore weakening, burning, oxidation.

Weakening must be debugged, burning and oxidation must be scrap bright.

8.3. It is necessary periodically clean the water filter.

8.4. Fan heater integrity is determined by exterior check (the absence of noise and vibrations during operation of the fan).

9. TROUBLESHOOTING

Troubleshooting is presented in Table. 3.

Table. 3

The nature of the break and its external manifestation	Probable reason	Elimination method
The fan does not turn on	There is no mains voltage	Check the voltage on phases
	Cable break	Check cable. Substitute for damaged cable
	Automatic short circuit protection is disabled	Check electric circuit for potential short circuit
Insufficient air heating during the pass through the fan heater (the temperature difference is less than specified temperature in Table 1)	Low water consumption because of insufficient pressure difference in direct and return pipes. (the water difference is more than 20°C)	It is necessary to increase the difference of pressures between inlet and outlet in the machine
		Put the circulation pump
	Low water consumption because of heavy pollution of the water path of the heat exchanger	Look “Seasonal service” Table 2
	Contamination of the outer surface of the heat exchanger	

10. TRANSPORTATION AND STORAGE

10.1. Fan heaters are packed in corrugated containers. In the manufacturer's packaging fan heaters can be transported by all types of roofed transport at observance of certain conditions:

- 1) The temperature must be from - 50 °C to + 50 °C;
- 2) Monthly average relative humidity must be 80% at a temperature of 20 °C;
- 3) Elimination of possibilities of bumps and movements inside the vehicle.

10.2. Fan heaters should be stored in the manufacturer's packaging in the room with temperature from -50°C to + 50°C and with monthly average relative humidity 80% at a temperature of 20 °C

11. UTILISATION

11.1. After the date of completion of exploitation the utilisation of the fan heater does not require special safety measures and does not pose hazard to human life, health and environment.

12. WARRANTY BOND

12.1. Producer guarantees a reliable and trouble-free work of a fan heater during 12 months from the date of sale under keeping rules of transportation, storage, installation and exploitation.

12.2. If the product breaks down within the warranty period then the producer accepts the claim under the condition that the customer gives technically well-founded statement specifying the nature of the break, intention of premise, exploitation conditions and completed certificate of installation.

12.3. The warranty of the product will be invalid if the customer at his discretion makes changes in electric circuit, breaks permissible standards of exploitation.

12.4. Warranty and post-warranty repair of the fan heater are carried out on the manufacturing plant.

Warranty and post-warranty repair are carried out on the address:

*Ukraine. Lugansk region, town Severodonetsk, Lenina street, 11 office.
Telephone number: +38 050-529-55-18, +38 067-813-94-59, 0645-700-811*