

AGE ELECTRIC HEATING UNIT



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Please read this instruction manual carefully before beginning any work.

I. CONTACTS



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II. ORIGINAL INSTRUCTION MANUAL

ELECTRIC HEATING UNITS **AGE size 1 ÷ 6**

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1. INTENDED USE

AGE heating units with axial fans are intended for heating both living spaces and floor areas. Intended use:

- » basic heating and reheating for large rooms, used temporarily (e.g. production floors, arenas, exhibition halls, storerooms, churches, conference rooms, garages);
- » heating rooms on building sites, heating and drying, winter season works;
- » protection against freezing, prevention of low temperatures and losses in rooms with freezing hazard (e.g. greenhouses, beverage storerooms).

2. DESIGNATIONS

Electric heating and ventilation unit

AGE- -

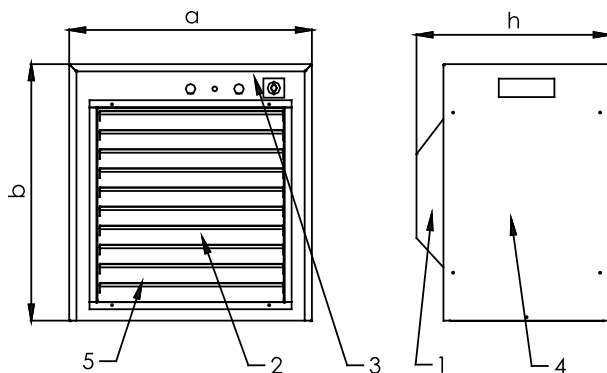
Size	1; 2; 3; 4; 5; 6
Heater power	3, 6, 9, 12, 18, 27 kW

3. DEVICE DESCRIPTION

AGE unit series include 6 sizes (Fig. 1).

The unit features:

- » **axial fan (1);**
- » **heating system (2)** heating elements with rolled aluminium radiator in a self clamping sieve. Leads of connected heaters with rigid bridges and cables included with the control elements. I, II, and III row heating systems available.
- » **control unit (3)** fan switching, power setting with: switch (standard - manual) or temperature regulator (automatic - optional) depending on room air temperature. The control system features an additional thermostat for heating elements preventing exceeding heater threshold values;
- » **housing with handles and feet (4);**
- » **outlet grille (5);**



Rys. 1 Unit design

4. TECHNICAL DATA

A group connection of heaters allows selection of power setting. The units are available with the following power settings:

- » single stage: AGE-1 [3kW];
- » two stages AGE-2 [3, 6 kW], AGE-3 [3, 9 kW];
- » three stages AGE-4 [6, 9, 12 kW], AGE-5 [6, 12, 18 kW], AGE-6 [9, 18, 27 kW].

Basic technical data and dimensions (Table I).

Unit size	a [mm]	b [mm]	h [mm]	L _{min} [mm]	U heater [V]	I heater [A]	I heater [kW]	Air flow [m ³ /h]	n [rpm]	P fan [W]	U fan [V]	Weight [kg]
AGE-1-3	502	300	245	100	400	4,5	3	450	1300	32	230	13
AGE-2-6	502	365	245	125	400	9	6	850	1300	46	230	16
AGE-3-9	502	465	255	150	400	13	9	1450	1300	64	230	19
AGE-4-12	502	465	255	150	400	17	12	1450	1300	64	230	21
AGE-5-18	502	515	325	160	400	27	18	2100	1400	120	230	28
AGE-6-27	502	575	375	180	400	39	27	2900	1400	200	230	34

L_{min} – minimum unit distance from the wall.

Units are fitted with 10 mm high feet.

Unit thermal power and air temperature increase (Table II).

Unit size	Heater stage					
	I		II		III	
	P [kW]	Δt [°C]	P [kW]	Δt [°C]	P [kW]	Δt [°C]
AGE-1-3	3	19	-	-	-	-
AGE-2-6	3	10	6	21	-	-
AGE-3-9	6	12	9	18	-	-
AGE-4-12	6	12	9	18	12	24
AGE-5-18	6	8	12	17	18	25
AGE-6-27	9	9	18	18	27	25

Operating noise level

Unit size	Noise [dB(A)] from 1 m
AGE-1-3	51
AGE-2-6	53
AGE-3-9	61
AGE-4-12	61
AGE-5-18	61
AGE-6-27	63

5. TRANSPORT

The units are delivered ready to use with a protective film packaging. The packaging is suitable for any type of transport provided that the units are protected against precipitation and impurities.



Inspect the packages delivered by the forwarding companies (marking on the packaging).

Notify the forwarding company immediately in case of any transport damages. Missing parts and transport damages can only be claimed from the transport insurance, if the damage is acknowledged by the forwarding company.

6. SAFETY RECOMMENDATIONS



Use the electric unit in compliance with this User Manual.



Commissioning, installation, connection, inspections and repairs shall be carried out by an authorised electrician.



Disconnect power supply before any repairs or maintenance works.



Protect the unit against moisture and do not use wet cloths for cleaning.



Use the device in working order only, disconnect power supply in case of any faults.



Check the electrical system before connecting the heating unit.



The unit must be earthed.



The unit is connected to the electrical system with residual device and protective terminal (earth).



The thermostat preventing overheating must be connected in the heating unit control system.



Do not switch on the unit without the fan running.



Potential free state is obtained by disconnecting the power supply cable from the socket.

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

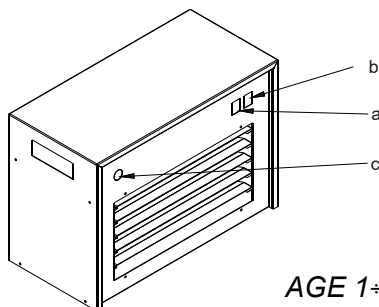
Important note! Any installation or use of the fan not in accordance with the instruction manual may cause the fan damage and voids the warranty.

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, probability of injury and damage to health when using the device is unavoidable. This probability 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 dependant 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.

7. INSTALLATION

AGE units (sizes 1 to 6) are installed on walls or structural columns in the distance between the unit and the fan air inlet equal to $0.5 \times$ fan diameter L_{min} (Table I). Fig. 2 and 3 shows layout and functions of control elements.



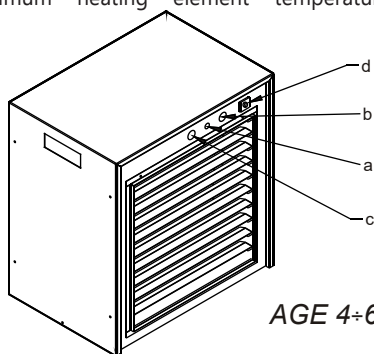
AGE 1+3

Fig. 2. Layout and functions of control elements.

a - control button: Fan I - on, O - off,

a - control button: O - heating unit off, position 1 or 2 heating stage selection,

c - button (red): maximum heating element temperature threshold alarm reset;



AGE 4+6

Fig. 3. Layout and functions of control elements.

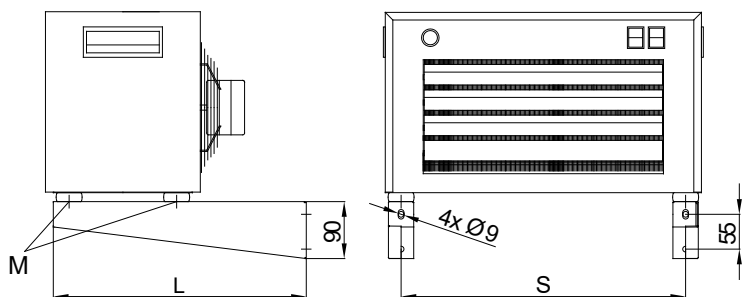
a - lamp: fan operation, lights with (START) (b) pressed,

b - button - START (green): fan ON,

c - button - STOP (red): unit OFF,

d - switch: position 0 - heating OFF, position 1, 2 or 3 - heating stage selection,

The units can be mounted on the wall using the mounting set which includes left-handed and right-handed brackets. It is available as an accessory for the AGE unit heaters.



Mounting set for AGE unit heaters			
Unit heater size	Bracket	L	S
AGE-1-3	WS-AGE-1,2	400	450
AGE-2-6			
AGE-3-9	WS-AGE-3,4	430	
AGE-4-12			
AGE-5-18	WS-AGE-5,6	550	440
AGE-6-27			

M - unscrew the bolts and screw them back through the brackets.

8. ELECTRICAL INSTALLATION



Electric unit electrical system and wiring must be carried out in accordance with current standards and regulations.



Unit may only be connected by a certified electrician familiar with this User Manual.



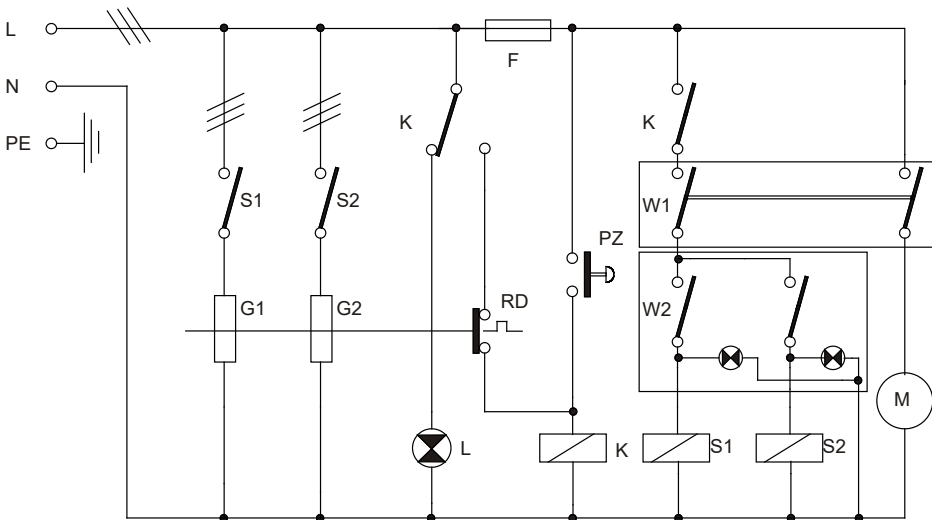
Before installation, make sure the mains voltage and frequency correspond to the values specified on a data plate. Otherwise DO NOT connect the unit.

The electric units are supplied with (3~400V/50Hz) by the main switchgear with a main switch, residual device and a protective terminal (earth). Allow for the disconnecting switch (distance between the contacts of all poles >3 mm) directly by the unit. The cross-sections of power cable depend on the unit power and terminal types in accordance with power supplier requirements. Power cable is terminated with a plug for sockets with earth pin.



Connect the unit in accordance with the wiring diagrams in the operation and installation manual.

Fig. 4 and 5 show example wiring and control diagrams.



LIST OF COMPONENTS:

K - relay

W2 - heating power switch: W2.6; 16A/250V

Rd - thermal safety device

L - LED

S1,S2 - heating element contactors

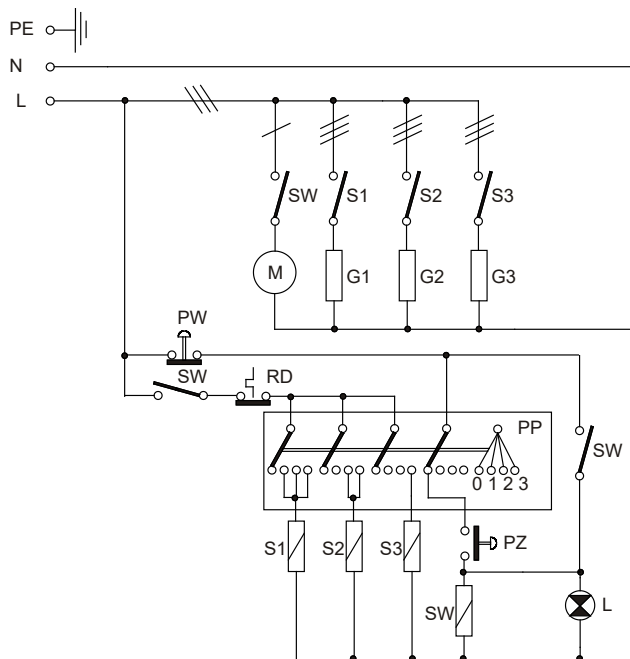
W1 - switch: W34.2; 16A/250V

PZ - control button: FT22; 380V/1.6A

M - motor

G1,G2 - heating elements: 1000W,2000W/230V

Fig. 4 Wiring diagram AGE 1-3, AGE 2-6, AGE 3-9



LIST OF COMPONENTS:

PZ,PW - control button: FT22; 380V/1.6A

Rd - thermal safety device

S1,S2,S3,SW - heating element contactors

G1,G2,G3 - heating elements: 1000W,2000W/230V

L- LED

M - motor

PP - power mode selector

Fig. 5 Wiring diagram AGE 4-12, AGE 5-18, AGE 6-27

9. AUTOMATICS

The heating unit is fitted with a THERMOSTAT of the heater element limiting and monitoring outlet air temperature in case of air flow disturbances (e.g. fan failure). Thermostat temperature setting range is 0°C to 100°C with constant hysteresis of 3°C. Monitoring temperature is factory set at 80°C, and limit temperature is always higher by 20°C than the preset temperature.

The units may also be fitted with the following components:

1. ROOM THERMOSTAT (ON-OFF) with temperature setting dial (size AGE-1, AGE-2, AGE-3), maintaining preset room temperature.

2. TEMPERATURE CONTROLLER (two-stage) - room temperature control and adjustment. (Sizes AGE-4 and higher).

3. TIMER: programming heating unit operation time.

An additional wiring diagram is included with the optional equipment.

10. DEVICE COMMISSIONING

Read the User Manual;

1. Check additional safety devices;
2. Check supply voltage with the data plate;
3. Plug the power supply cable to the socket with earth plug;
4. Switch on the heating unit power supply.

Next steps depend on AGE unit size:

AGE-1, AGE-2, AGE-3 units:

Before start-up:

- » set (b) to 0.
- » press (a); fan ON.
- » press (b) to switch on the heating unit; button will light.

After use:

- » press (b) to switch off the heater;
- » press (a) to switch off the unit.

In case of voltage decay or other interferences:

- » press (c)
- » restart the unit

AGE-4, AGE-5, AGE-6 units:

Before start-up:

- » set (d) to 0;
- » press (b) (green); green lamp will light and the fan is ON;
- » use switch (d) to switch on the heating elements 1, 2 or 3, yellow lamp will light

After use:

- » use switch (d) to switch off the heating elements, position 0;
- » press (c) (red) to switch off the unit.

11. REPAIRS, MAINTENANCE AND DECOMMISSIONING



Disconnect power supply before any repairs or maintenance works.

Depending on air quality, at least once a year check the heater for impurities. Clean with compressed air, if needed.



The impurities reduce air output and heating power.

After the decommissioning utilise in a special waste disposal plant.

12. TROUBLESHOOTING

Unit does not start:

- » no power supply, safety device activated;
- » insufficient or reduced air flow (fan failure, heater dirty).

Low temperature at unit output:

- » low voltage (system overload);
- » heater dirty (clean the heater, see repair and maintenance section);
- » check heating power switch for maximum setting.

If the failure still persists, contact Juwent service department or a qualified fitter.

Description of malfunction	Possible causes of malfunction	Measures of prevention/removal
excessive unit noise	incorrect distance from wall or ceiling	maintain required distance
	incorrect power supply parameters	use with correct mains and device parameters
	air outlet limited with outlet grille shutters	keep the outlet grille shutters open at high speed obrotowej wentylatora
	fan vibrations, rubbing between impeller and enclosure	check installation of fan and other components
	fan misaligned at the support plate	
fan not working	incorrect connections	check and correct: 1) connections as per diagrams 2) terminal connections 3) mains parameters
	incorrect power supply parameters (less than three phases for three-phase motors)	
	fan motor failure	
	fan control elements failure	

13. INFORMATION

As to all issues concerning the electric heating units contact JUWENT Production Plant or our Representatives

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

TYPE OF UNIT:	
FACTORY NUMBER:	
YEAR OF PRODUCTION:	

IV. UNIT STARTUP REPORT

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

V. INSPECTION AND MAINTENANCE DOCUMENT

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

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

VI. SERVICE NOTIFICATION

Date:

Notification type WARRANTY POST-WARRANTY PAID

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

Description of defect:

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

JUWENT Company accepts notifications filled legibly and completely.

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

Date of warranty issue

Order No.

(company's stamp)

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