INSTALLATION AND OPERATION MANUAL

INDUSTRIAL WARM AIR HEATERS

of IH/HR type

ECO CALORIA Sp. z o.o.
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Thank you for choosing a product of **ECO CALORIA Sp. z o.o.!!!**
We are glad to have you as our customers, we believe that you will be satisfied with the use of our heaters. Following the manual and caring out of installation and maintenance by qualified staff ensures proper and safe operation of the device. Not following the manufacturer's recommendations will void the device's warranty

Foreword

1.1 GENERAL WARNINGS

The manual is a vital, integral part of the product and must be handed over to the user.

Read the warnings contained herein as they provide important information on how to install, use and maintain the unit safely.

Keep the manual safe for future reference.

The unit must be installed in compliance with the regulations in force, following the Manufacturer's instructions, by professionally qualified personnel. By professionally qualified personnel we mean persons with specific technical competence in working with heat system components and, more specifically, Servicing Centers authorized by the Manufacturer.

Incorrect installation may result in injury to people and animals and damage to property, for which the Manufacturer is not responsible.

Once you have removed all packaging, check contents for damage.

If in any doubt, do not use the equipment, and get in touch with the supplier.

Packaging must not be left within reach of children as it is a potential source of danger.

Before commencing cleaning or maintenance work of any kind, wait for the unit to cool down, disconnect it from the power mains using the system's master switch and cut off supplies to the unit with the relevant shutoff devices fitted.

Never obstruct the intake grille protecting the fan or the heater's outlet for any reason. This can result in irreparable damage to the unit and endanger people, animals and property.

If the unit breaks down and/or malfunctions, turn it off and refrain from attempting repairs or other work yourself.

Call in professionally qualified personnel only for the job.

If products need repairing, this must be performed only by a Servicing Center authorized by the Manufacturer, using Original Spare Parts only.

Failure to comply with the above instructions may compromise the unit's safety.

It is essential to have professionally qualified personnel carry out periodic maintenance following the Manufacturer's instructions if the unit is to work properly and efficiently.

If you decide not to use the unit, all parts that may constitute a potential source of danger must be rendered harmless.

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1.2 General features and operating modes

The warm air heaters of the range **IH/HR** can be matched to a gas burner, natural gas (G20), or LPG (G30/G31) or a diesel burner. These heaters can be used to heat industrial and commercial buildings of big and medium dimensions and for industrial heating process such as spraying systems, drying process, etc.

As optional it is available a complete range of options which offers to the customer a complete and flexible solution in order to comply the requirements of each installation.

Due to expedition reasons, these warm air heaters can be delivered in the following conditions:

- ventilation section already assembled in our factory
- heat exchanger section delivered in kit to be assembled at the moment of the installation. The customer will receive the heat exchanger and additionally all the cover panels covering the heat exchanger section
- the electrical control panel is delivered separately inside a cartoon box protection
- as option, on inquiry, the customer will receive also a kit of cables necessary to connect the electrical control panel to the motor/s, thermostats, burner, etc.

In the standard configuration, the electrical control panel of the heater has 230V-1Ph-50Hz auxiliary circuit with:

- General switch
- Heating/Ventilation/Off Selector (A)
- Working lamp (B)
- Presence temsion Lamp (C)

In the terminal board of the electrical control panel there is the predisposition

Regular working – heating conditions (winter)

During the regular working of the heater, with selector (A) in position heating, the burner receives electrical supply immediately (in case of presence of a room thermostat, it is necessary that the contact of that one is closed to permit this). The burner, after its proper safety tests obliged by the control box, starts to burn.

The internal temperature of the heat exchanger goes-up and just the fan thermostat reaches a temperature of 40°C, the fan can start to move hot air.

The stop of the burner can be produced for the following reasons:

- due to the opening of the contact of the regulation thermostat (internal safety device of the heater) when the temperature reached in correspondence of this thermostat is 85°C. The rearm is automatic and just the temperature goes down and the contact closes, the burner starts again to burn.
- due to the opening of the contact of the room thermostat (in case of presence of a room thermostat). In this case the working of the fan continues for some other minutes and after stops, due to the opening of the contact of the fan thermostat. The regular working can start again only when the temperature inside the building goes down and the room thermostat requires again the heating.

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Regular working – ventilation conditions (summer)

To permit the working in ventilation conditions, it is necessary to put the selector in position Ventilation. The fan/s starts immediately to move and, in this case, it can stop only if the selector is put in position off. On inquiry it is possible to order a different kind of electrical control panel, the type A control panel (it is an option in our Price-list) and this can be supplied at the place of the standard one.

Digital Thermoregulator complete of an air temperature sensor (to be put with its sensible part inside an air duct, in the inlet or outlet) useful to control the working of a two stages burner
In this case the working of the heater will be controlled by the thermoregulator and the working of the burner, at the first or second stage, depends only to the two set-poitnts introduced into the thermoregulator.

For example to control a temperature of 20°C inside a building it is possible to put the air temperature sensor directly in ambience and to set a first set point at 16°C and the second set-point at 20°C.
For temperature inside the room under the first set-point the burner will work at the maximum power.
Just the temperature inside the room reaches the first set-point the burner will start to work at the lower power.

If the internal temperature reaches the second set-point, the burner will stop.
Attention! For safety of the heat exchanger the regulation of the first stage of the burner cannot be lower of the 65% of the value maximum possible power of the heater. Lower regulation can produce the working of the heater in condensation conditions, and this would produce a short life for the heat exchanger.

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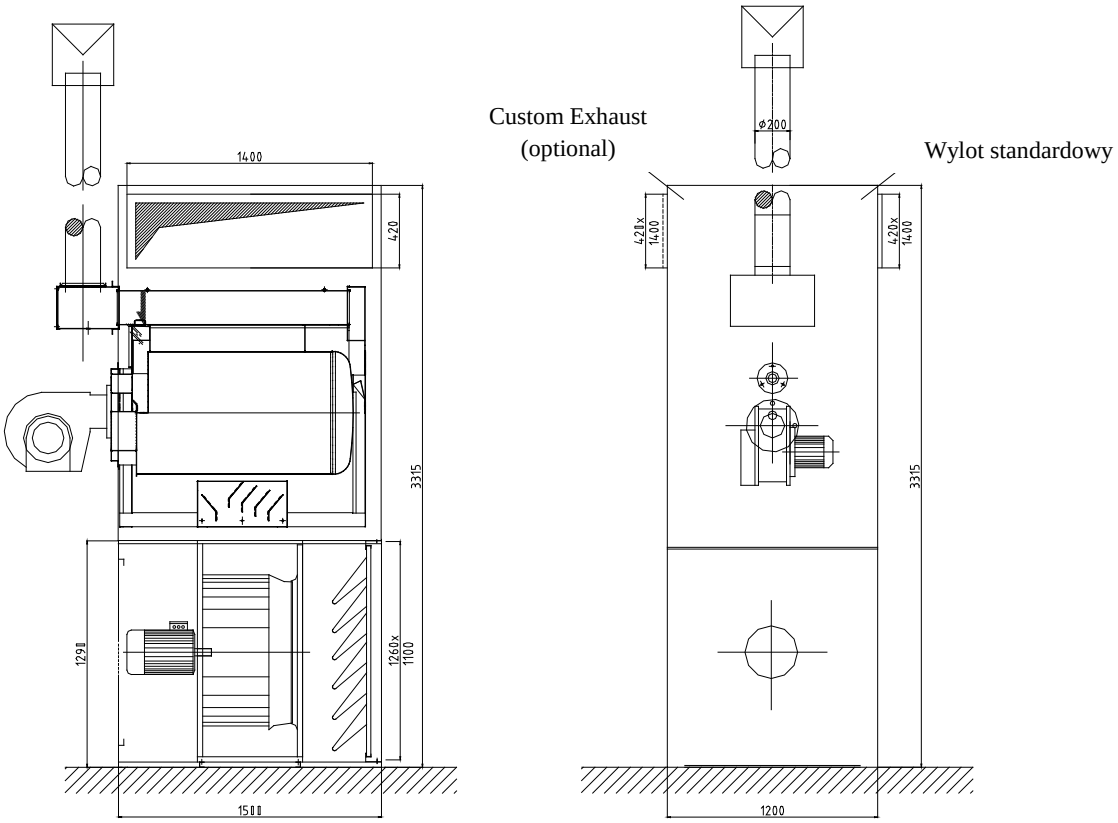
1.3 Technical data and dimensions
1.3.1 ECOair heater of IH / HR 100 type



Technical data:

		IH/HR 100.1	IH/HR 100.2
Thermal Power input min-max	**kW**	87,2 ÷ 150,0	110,4 ÷ 150,0
Thermal Power output min-max	**kW**	78,5 ÷ 136,5	99,4 ÷ 136,5
Drop Pressure Combustion Chamberlania	**mbar**	1,0 ÷ 1,4	1,2 ÷ 1,4
Electrical Power Motor	**KW**	1x4,0	1x5,5
Electrical Supply	**V/Hz**	400/50	400/50
Airflow min	**m^3/h**	12 500	16 000
Net static Pressure max	**m^3/h**	15 000	19 000
Net Static Pressure min	**Pa**	400	500
Minimalne ciśnienie statyczne	**Pa**	150	200
Dt AIR (min-max) (at the min Power)	**°C**	15,0 ÷ 18,0	15,0 ÷ 17,8
Dt AIR (min-max) (at the max Power)	**°C**	26,0 ÷ 31,3	20,6 ÷ 24,5
Total weight (vent.Unit+Heat Exch.Unit)	**kg**	736	751

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