

## Gas Heater GH0618

### Installation, Operation, Service and Maintenance Guide

The guarantee is considered in case of installation by a permissible agency of Energy company services.



GH 0618

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## **/ Dear client /**

This gas heater is equipped with high efficiency heating system. The heating system of this heater includes in-shot burner and heat exchanger which as result into transferring of the combustion heat to the air.

The control system of the heater is fully automated and is guaranteeing the security and safety operation of the system, based on the latest international standards.

## **/ Product Standards /**

- 1-The product specifications is based on EN1266 Standard.
- 2-All design, production, purchase, quality guarantee and after-the-sale services stages are based on ISO9001:2008 Standard from TUV NORD Credit source.
- 3-All production stages are under supervision of the quality unit of Energy Company.

## **/ General conditions and specification /**

- 1-The heater shall not be installed in the places with flammable air, with dust and corrosion gas pollution or in the moisture.
- 2-The distance of flammable materials and the system should be at least 50 cm and it should be placed in the distance of 20 cm with the nearest wall.
- 3-For true and correct operation of the heater, the distance between the fan and the wall shall be at least 30 cm.
- 4-Please prohibit from installing the heater on flammable materials.
- 5-This system is equipped with the vent pipe and its combustion products should be kept outside the environment.

**NOTICE!**

The heater is able to operate on hermetic style (to supply combustion air from outdoor) with a coaxial vent pipe and or separate type (with two separate vent pipes) which is installed based on the environmental conditions and there is the availability to supply combustion air from inside or outside environment

- 6- The heater should be installed on a pillar with suitable height from the land and the installation of the heater on wall pillar is permissible provided that the services and maintenance facilities are available.
- 7- The front of the heater should be open for 1 meter. No garment shall be installed against the heater.
- 8- The system is designed to work in the environments with the temperature of 0 to 35 degrees of centigrade. For higher temperatures, please contact sale engineering department of Energy Company in 61444.
  - The system shall not be installed in bedroom, bath, washroom or storage and/or to supply the combustion air from these places.
  - The distance between the heater and curtains and flammable materials shall not be less than 50 cm.
  - The system shall not be placed where it can be in the danger of mechanical or physical shocks, unless, there are some protecting pillars available. In the meantime, if the place is installed in villa area, to protect children some necessary arrangements, such as pillar, etc. should be observed so that the children cannot reach the fan. (If it was impossible to install the pillar with the height of 1.5 meters, necessary arrangements shall be observed to protect children from fan).
  - The vent on the wall for combustion air, shall be at least one meter far from each horizontal and vertical balances of the vent pipe.

- To supply combustion air from outdoors: ( only B type)

A) At least two permanent and non-blocking vents should be installed in upper and lower part, one with the maximum distance of 300 mm from the floor and another one with maximum distance of 300 mm from ceiling of the place of installation of the heater.

B) Size of each side of the entrance, should not be less than 80 mm.

C) If the air entrance is opened to the outdoors directly and without any channels, the area of the vents should be at least 121 square centimeters, which is equal a vent with the dimensions of 110×110 mm and the status of the vents should be based on paragraph A. Air entrances should supply an area; the free surface should be determined for 75% and for the wooden vents, the free surface should be 25%.

- No combustion air shall be supplied from illegal resources (the combustion air shall not be supplied from some places such as engine house, dangerous areas, and dust).

#### **NOTICE!**

If you are smelling the gas:

1-Please fasten the gas main valve.

2-Open the doors and windows.

3-Do not touch electricity switches and do not turn on the electrical appliances.

4-Do not use the interior telephone lines.

5-Call the gas company relief post or fire fighting organization.



## **/ Preparation for installation /**

- 1- Place of installation of the heater should be completely balanced.
- 2- If the system is installed on hermetic type, a special coaxial vent pipe for this heater or two separated vent pipes should be used. If the coaxial vent pipe is used, the air entrance pipe shall not be opened and it should be closed by air inlet cap and sealed.

### **/ Warning! /**

The heater should be installed and operated with an authorized Energy service representative, observing full safety regulations



- 3- Combustion products shall be transferred to the vent pipe with a true method with a minimum length of horizontal pipe and then should be transferred outside via the vent pipe.
- 4- vent pipe path should not be lower than vent pipe outdoor in any point.
- 5- Please, make sure that the vent pipe is not closed before installing the vent pipe.
- 6- Please make sure that the vent pipe is connected to the heater correctly and the vent pipe gases will not permeate to the environment.
- 7- Based on the amount of gas consumed by the system, based on the technical particulars table, it is necessary to predict a gas pipe, equipped with a valve, at the place of installation, based on the natural gas piping standards.
- 8- The required electricity is 220 V, 2 A, equipped with the suitable fuse.

**NOTICE!**

The system is equipped with a thermostat to control the environmental temperature which is attached with the heater equipments.

To operate and control the heater, please connect the thermostat to the heater by means of a cable prepared at the back of the heater

9- The thermostat should be located at the height of 1.5m of the floor in a place which is not open to the sunshine or cold weather.

## **/ Vent pipe installation conditions /**

The fantasy cement and metal caps on the roof with small side holes, are producing accidents and type H or standard round terminal should be used.

Never use aluminum pipe (flexible) for the heater and other gas burner systems; because, these kinds of pipes will be exited simply.

End of vent pipe should be equipped with the terminal and it should be at least 60 cm higher than the highest part of the building.

Before installation of the heater, please analyze the construction vent pipes from the viewpoint of open path, sealing, no seam and similar length in total path.



## **/ Different kinds of installation, operation and piping of heater vent pipe /**

### **/ Type 1: B22 /**

In this status, the air required for the combustion, is supplied from place of installation of the heater. vent pipe is used (size: 10 cm) for exit of the combustion products on system's vent pipe exit part, air entrance cap is lifted from the heater; so the entrance air filter net is being recognized.

To connect heater vent pipe to the vent output, the coaxial converter should be used. This part is directly connected to the heater vent output, and it should be fixed by screw after the assurance of its complete connection.

The vent pipe distance should be the smallest path to the output of place of installation and if it is possible, minimum horizontal length should be used at piping system. (according to the table 3)

#### **/ NOTICE! /**

At the end of vent pipe, standard terminal should be used and the vent pipe shall not be left without a terminal.



#### **/ NOTICE! /**

In this type combustion air entrance shall not be blocked.

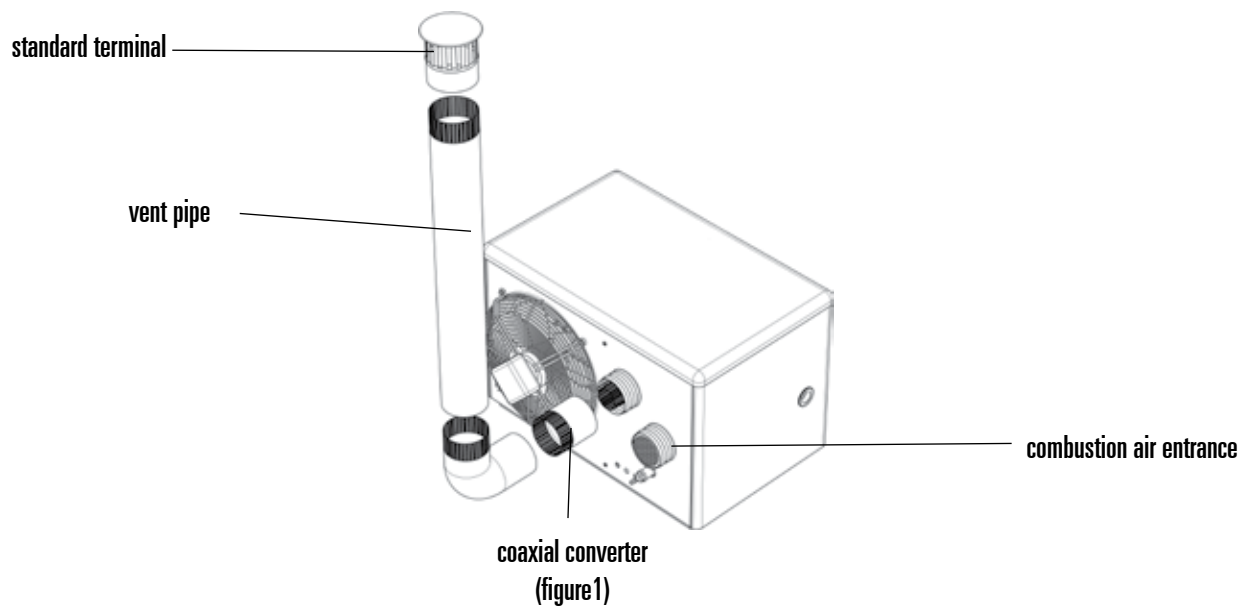


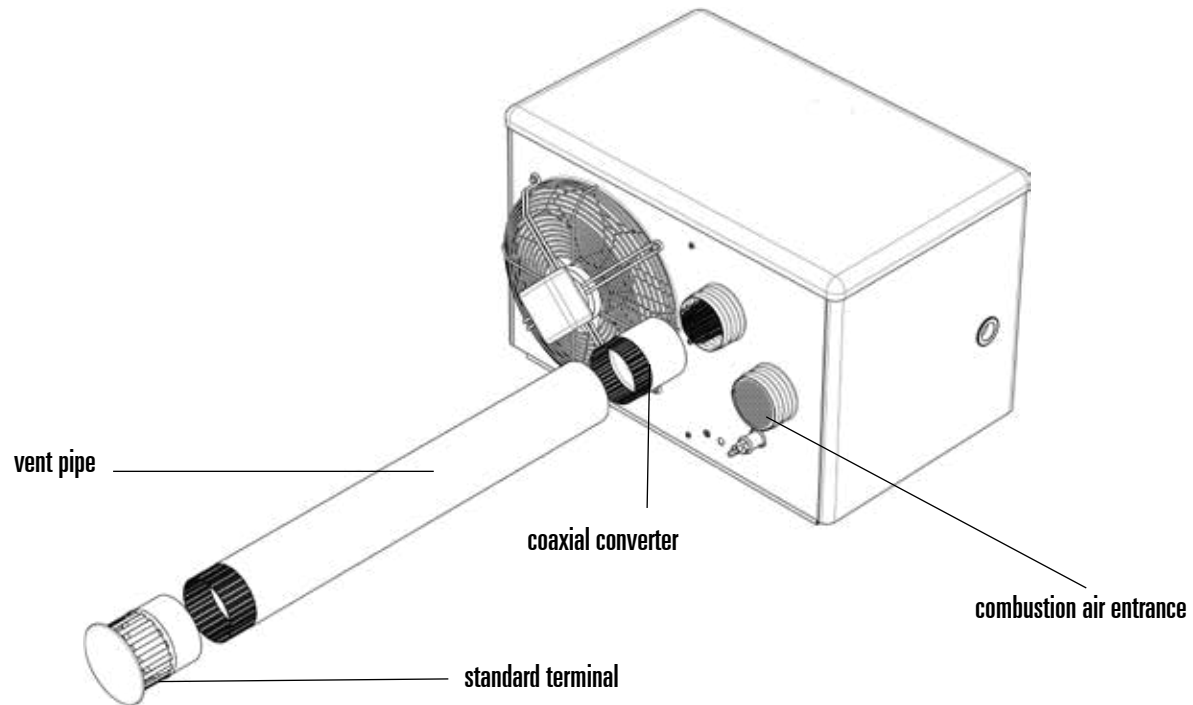
**NOTICE!**

Air supply vent at the place of installation of the heater, should be in the dimensions mentioned at general conditions.



Two kinds of type B22 piping in the horizontal and vertical vent pipes status (figure1,figure2)





(figure2)

## / Type 2: Hermetic (c12/c32/c52) /

In this types of installation of the heater, the air required for combustion is supplied from the environment, outside place of installation of the heater.

## / Coaxial vent pipe (c12) /

Coaxial vent pipe will establish the combustion air input and combustion products output. Length of the coaxial pipe is 1 meter at maximum and if the heater is installed in this condition, the coaxial vent pipe will be transferred by after-the-sale services department. (figure3)

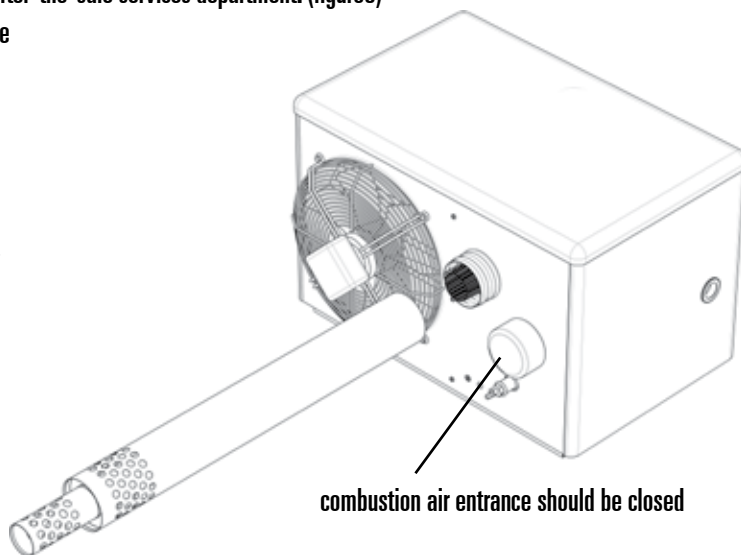
To connect coaxial vent pipe to the heater, suitable screw should be use

### / NOTICE! /

In c12 type, combustion air entrance should be closed.



(figure3)



## **/ separate pipes(c32/c52) /**

### **combustion product vent pipe:**

Single wall vent pipe ( size: 10 cm) should be used for output of combustion products. To connect vent pipe to the heater, coaxial converter should be used. It should be screwed after the certainty about its complete connection. (figure4)

vent pipe path should be the shortest path up to the place of installation output and if possible, the minimum length in the piping system should be used. (according to the table3)

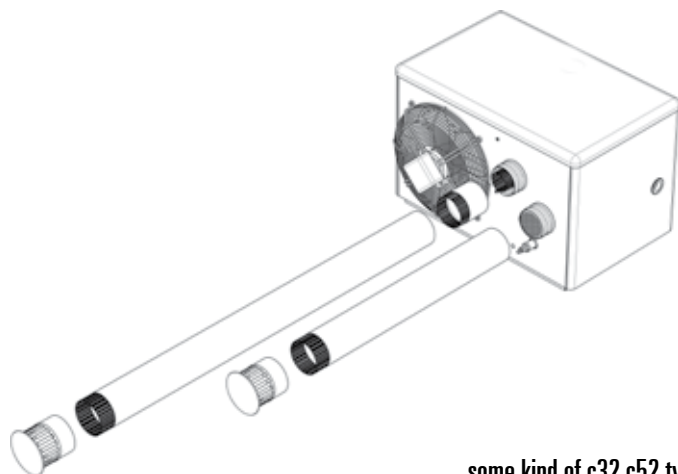
### **Combustion air entrance:**

Connect single wall vent pipe ( size: 10 cm) at entrance air pipe and screw it after you have made sure that it is completely installed and sealed. entrance air pipe path should be the shortest path up to the place of installation input. (according to the table3)

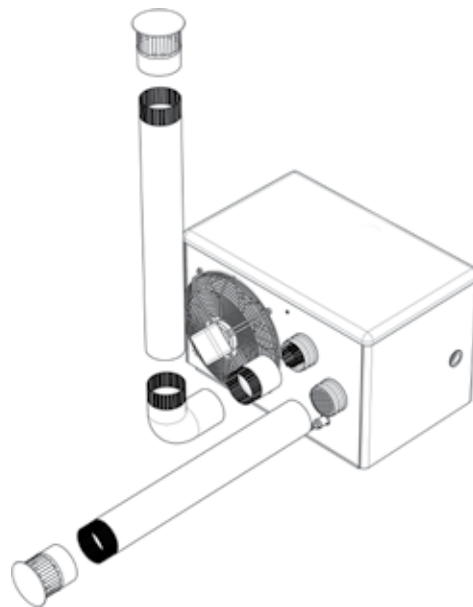
### **/ Warning! /**

Make sure that you have used standard terminal at the end of the vent pipe and entrance air pipes and never leave the pipes without the terminal.





some kind of c32,c52 types piping  
(figure4)



**NOTICE!**

If the vent pipe and air entrance pipe are arparallel, please make sure to install the vent pipe in the distance of 30 cm outer than air entrance pipe (as shown above).



## / Connection to natural gas piping /

### / Warning! /



The consuming fuel of this heater is natural gas.

It is prohibited to use liquid gas for operating the heater.

- 1- To connect heater to the gas piping system, a 3/8 inch hose which is prepared in the factory should be used.
- 2- One part of the hose and special fastening is attached with heater which should be used at the gas valve output.

### / Warning! /



Length of the hose to be connected to gas piping is 2 meters at maximum.

- 3- Please input the hose to the head and fasten it.
- 4- Open the gas valve and control the gas leakage with soap foam.

## **/ Pre purge/post purge /**

### **Pre purge:**

Before turning on the burner, pre purge operation is used for 37 seconds to clean the combustion case and heat exchanger.

### **Post purge:**

After turning the burner off, the post purge operation is carried out for cleaning the combustion case and the heat exchanger of any gas resulted for 17 seconds.

## **/ Heater ventilator /**

The heater fan has an automatic operation.

In both manual and automatic status (thermostatic), is going to be turned on 47 seconds after turning on the burner and turned off 80 seconds after turning off the burner.

## **/ Electrical connections /**

This heater is equipped with an electronic board which is installed inside the heater, one thermostat (remote control) which is attached to cable 2x0.5. By means of this thermostat (remote control) you can control the heater totally.



**/ Warning! /**

This heater shall not be operated or used without thermostat (remote control).  
This heater is only capable to be installed to the attached thermostat.  
Any connection of similar or different thermostat is prohibited.

A three-line cable equipped with plug, with the connection to land is considered for connection of the system to the outlet.

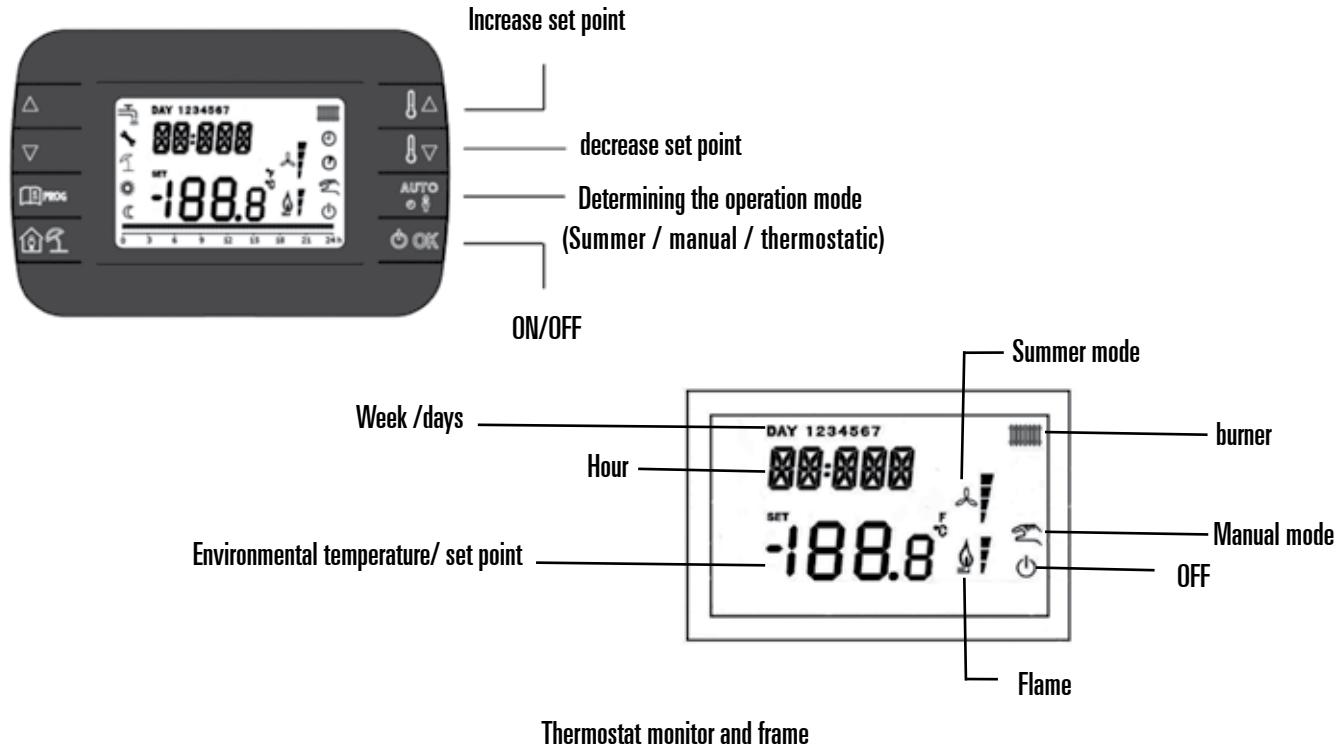
**/ Warning! /**

In order to protect from probable injuries to the system, it is necessary to wire the system based on the regulations of this instruction to control the wiring, before connection of the electricity

## **/ Thermostat Installation Regulations /**

- 1- This thermostat, in addition to the ability to measure the environmental temperature, is able to control the heater completely.
- 2- The thermostat should be placed on a flat wall in the same place with the heater.
- 3- A cable 2 x 0.5 is considered for connection of thermostat (remote control).
- 4- By means of a small screwdriver, push the thermostat door to the upside and open it.
- 5- Pull the terminal out of its place, fasten two cables in the terminal by a small screwdriver and locate the terminal at its own place carefully.
- 6- Based on the type of the wall on which the thermostat is located, you may extract the place of installation of two thermostat cable on plastic frame.
- 7- Install the thermostat back door by means of a screw and fastening available at thermostat package.
- 8- Push the thermostat on the back door to fix it.

# / Application of Keys and Signs on Thermostat Frame and Monitor /






## /Turning on the Thermostat /

The first time you are turning on the thermostat, you may set the hour, minutes and weekly days.

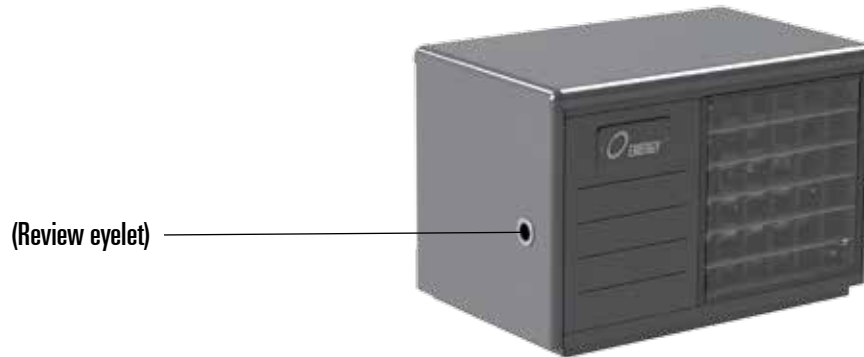
If you do not want to set the above-mentioned items, press the (OK) key several times and enter the main page of thermostat.

After you have turned the thermostat on, press the (Auto) key to determine the heater operation mode.

Description	monitor symbol	Heater operation status
Turn the heater on/off without considering the environmental temperature		Manual
Based on the temperature of the environment and set point heater will be turned on/off		Thermostatic
Only as the fan, you may turn the fan on/off. The burner is really turned off.		Summer

## / Review eyelet /

After the heater is being installed, the flame should be set based on the gas pressure of the place of installation. One gate is installed on the side door of the heater to review the flame. (figure5) By means of this gate, the quality of the flame is being assessed by the technician of Energy Co. and if necessary, after the opening of the exterior door (the door with review gate) and then the interior door, set the valve capacity based on the gas pressure.



(figure5)

Open up the screw lid of pressure design place and then, by a screwdriver press and rotate the pressure set screw opposite clockwise to decrease the pressure or connection and or rotate it clockwise to increase pressure and burner capacity.

**/ Warning! /**

Excessive increase of gas pressure may injure the heater.

**/ Warning! /****Cold vent pipe**

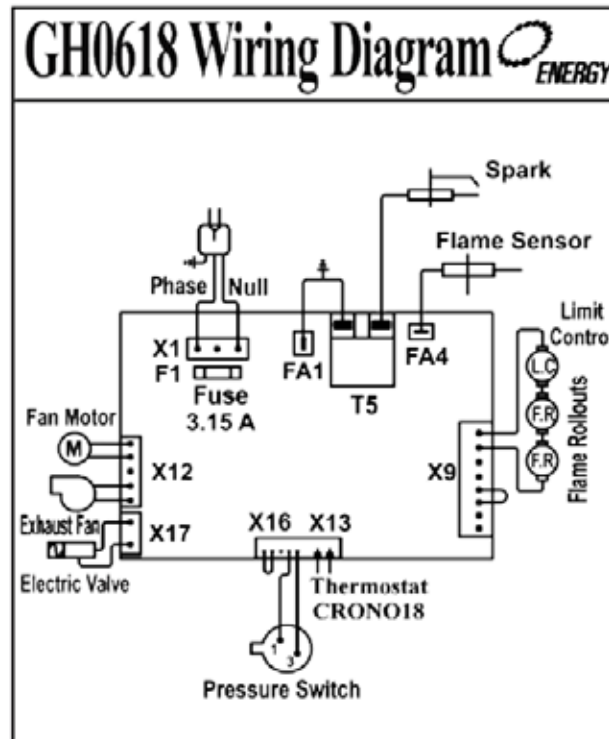
Touch the vent pipe with your finger. If it was cold, turn off the heater immediately and remove the trouble. The cold chimney is an alarm that shows that combustion products will not be transferred outside the environment.

**/ Limit control /**

To prevent from probable injuries to the heater, if the motor of fan is burnt or other problems appeared which had resulted in an increase in temperature of transformer body, an extra thermostat is being installed. Its operation will result into disconnection of gas and lock status.

In case of operation of limit control, before pressing the re-operation key of limit control , necessary studies for confirming the operation of fan, motor and burner shall be run and if there is any problem in the operation of the system, the after-the-services unit should be contacted.

## /Wiring diagram /



electricity wiring diagram

## / Maintenance /

Take action for servicing the heater at the beginning of each working season:

- 1-Control the electrical wiring, and gas piping path.
- 2-Clean the exterior part of the system from pollution, dust, oil and foreign materials.
- 3-Pull out the burner and clean the inshot burners, Orifice and fan curtains with a soft brush.
- 4-Clean up the thermal heat exchanger with a soft brush, after removal of the burner.

### / NOTICE! /



Clauses 3 and 4 should be carried out by an authorized technician of Energy Co.



## / Error codes /

Table 1

Description of errors	Heater operation	Error code
-Disconnection of Gas -Disconnection of Ion Bar -Disconnection of board earth	The heater is locked	E01
-Vent pipe is closed -Connection of switch pressure terminals before pre-purge	The heater is locked	E02
-Flame Return thermostat is disconnected -Limit control thermostat is disconnected	The heater is locked	E09

To remove the errors, after study and removal of the problem by the experienced technician of Energy Co., and or qualified technician, push the (OK) key twice, so, the thermostat will be turned back to normal mode With disconnection and connection of the main electricity of the heater, thermostat will turn back to the normal status.

## / Technical specifications /

**Table2**

energy source	natural gas(N.G)
Gas pressure(mbar)	18
Gas consumption (m3/h)	1.9
Orifice size(mm)	1.85
Orifice number	5
Length(cm)	76
Width(cm)	60
Height (cm)	52
Weight (kg)	45

## / Maximum horizontal vent lengths /

Table3

Type	vent pipe					air entrance pipe				
	size (cm)	elbow quantity				size (cm)	elbow quantity			
		maximum lengths (m)					maximum lengths (m)			
B22	10	1	2	3	4	--	-	-	-	-
		4	2	1	0.5	--	-	-	-	-
C12	10-6	-	-	-	-	--	-	-	-	-
		-	-	-	-	--	-	-	-	-
C32/C52	10	1	2	3	4	10	1	2	3	4
		4	2	1	0.5		4	2	1	0.5



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STD 712/1