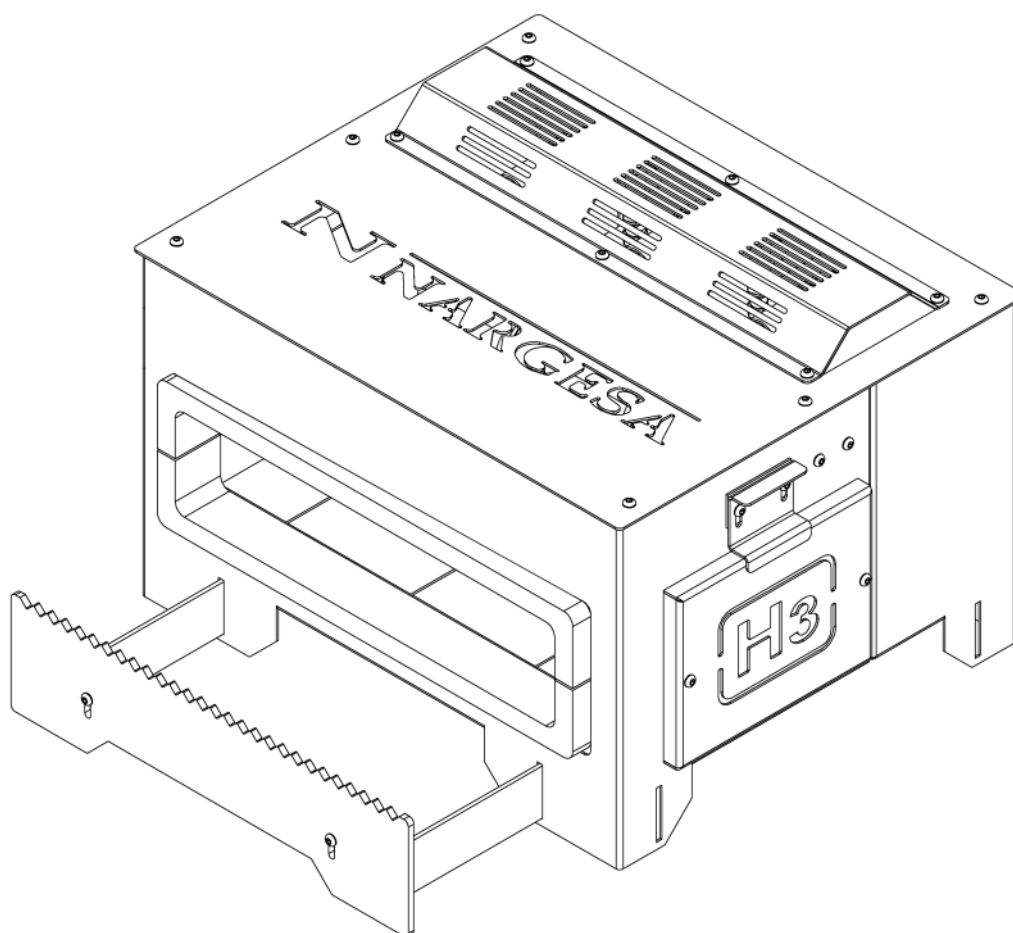


# **GAS FORGE**

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## **H3**

NS: 2021-180



## **INSTRUCTIONS BOOK**

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**PRADA NARGESA, S.L**

Ctra. de Garrigàs a Sant Miquel s/n · 17476 Palau de Santa Eulàlia (Girona) Spain  
Tel. +34 972568085 · [nargesa@nargesa.com](mailto:nargesa@nargesa.com) · [www.nargesa.com](http://www.nargesa.com)

## **NARGESA CLIENTS**

Prada Nargesa has more than 8.000 customers around the world. Some of our clients, those who offer service to third parties with the Nargesa machinery in their workshops, have been pleased to be part of this network that aims to connect them with possible future clients. In this way, all those people or companies that have a need for any part or tool that can be manufactured by using the Nargesa range of machinery, will be able to find a solution in their area to be able to satisfy their production requirements by hiring their services.



**We have more than 8.500 customers in 150 different countries around the world**

Discover its location on the interactive map on our website!

### **DO YOU WANT TO PARTICIPATE?**

Send an email to [nargesa@nargesa.com](mailto:nargesa@nargesa.com), include the following information and we will add you to this list.

We want to encourage all those who haven't participated yet in this great comercial network!

1. Company name
2. CIF/Tax Code
3. City
4. Country
5. Machine or machines

## **PRADA NARGESA**

Prada Nargesa S.L. is a family business founded in 1970 located near Barcelona, Spain, with more than 50 years of experience in the sector of manufacturing of industrial machinery, and more than 10.000m<sup>2</sup> of facilities. Nargesa is a symbol of quality, reliability, warranty and innovation.

Our whole range of machines and accessories is manufactured entirely in Nargesa. We have a constant stock of 400 machines, and we have more than 16.800 machines sold all over the world.



### **OUR RANGE OF MACHINERY**

Ironworker Machines

Ring Roller Bender and Pipe Bender

Non-mandrel Tube and Pipe Bender

Twisting / Scroll Bending Machines

Horizontal Press Brakes

End Wrought Iron Machines

Gas Forges

Iron Embossing Machines

Hydraulic Shear Machines

Hydraulic Press Brakes

Presses for Locks

Broaching Machines

Power Hammers

## **CERTIFICATES**

Prada Nargesa has several certifications that backup both, the design and manufacturing processes, as well as the journey through exporting our products around the world and the quality of the manufacturing components we use for our machines. These facts turn into real advantages for our customers:



### **AUTHORIZED EXPORTER**

- Faster customs procedures
- Reduction of tariff documentation
- Tariff preferences according to geographical location



### **INNOVATIVE SME**

- Development in innovation, design and manufacturing technologies
- Certification and audit of efficiency in product and service
- Ability to foresee customer needs



### **R+D+I MANAGEMENT**

- Manufacturing based on the R+D+I process
- Technological surveillance system

## **SUCCESS STORIES**

At Prada Nargesa we believe that the testimony of our clients is our best guarantee, and that is why we like to expose some of the success stories that we have witnessed around the world:



Discover its location on the interactive map on our website!

### **DO YOU WANT TO PARTICIPATE?**

Send an email to [nargesa@nargesa.com](mailto:nargesa@nargesa.com) including the following information and we will add you to our website

Company name

Testimonial name

Post in the Company

Country

Descriptive text

Photography with the machine

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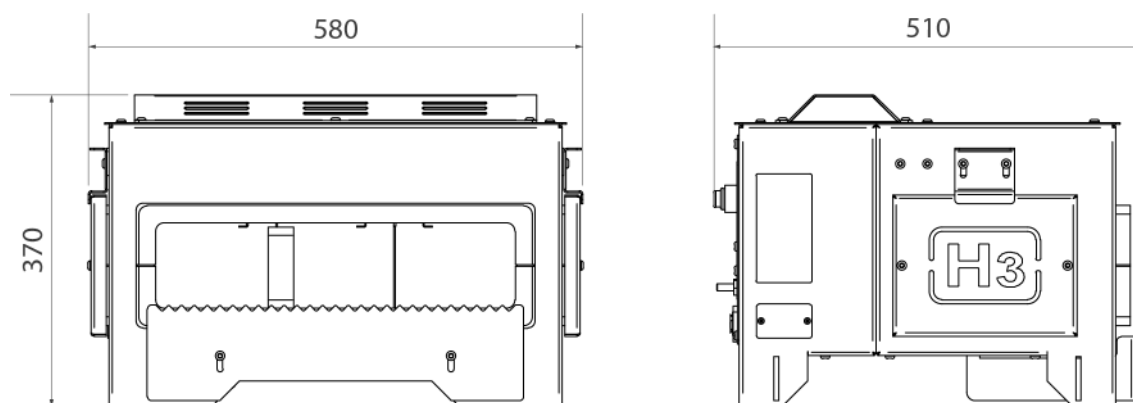
## TECHNICAL ANNEX

## 1. MACHINE INFORMATION

### 1.1. Identification of the machine

|              |         |
|--------------|---------|
| <b>Brand</b> | NARGESA |
| <b>Type</b>  | Furnace |
| <b>Model</b> | H3      |

### 1.2. Dimensions



*Picture 1. External dimensions of the Furnace H3*

### 1.3. Machine description.

The H3 Furnace is an oven designed to heat metal profiles of different thicknesses and shapes. The furnace H3 allows us to heat parts up to a temperature of 1300°C.

The oven is composed of three elements (supplied by Nargesa): the oven, the **Gas hose** and the **Pressure regulator**. This type of installation will never be modified, in No Case.

The oven is equipped with three **Burners** for propane gas (LPG), independent.

The ignition of the oven is electronic.

The ovens designed and manufactured in Nargesa comply with the regulations in force in Spain, concerning to the Regulation of appliances that use gas as fuel RD919 / 2006.

## 1.4. Fuel to be used with this foerge

**COMPOSITION AND INFORMATION: PROPANE GAS G.L.P.**

|                 |                                         |
|-----------------|-----------------------------------------|
| Chemical nature | Blend of Hydrocarbones                  |
| Synonyms        | Gas de cocina - Gas licuado de petróleo |
| Ingredients     | Propane<br>Butane<br>Ethane<br>Penthane |

**IDENTIFICATION OF HAZARDS****Main hazards**

|                               |                               |
|-------------------------------|-------------------------------|
| Physical and chemical hazards | Flammable gas                 |
| Specific hazards              | Suffocating and flammable gas |

**Product effects**

|                                 |                                 |
|---------------------------------|---------------------------------|
| Adverse effects on human health | Suffocating product             |
| Major Synthoms                  | Inhalation may cause dizziness. |

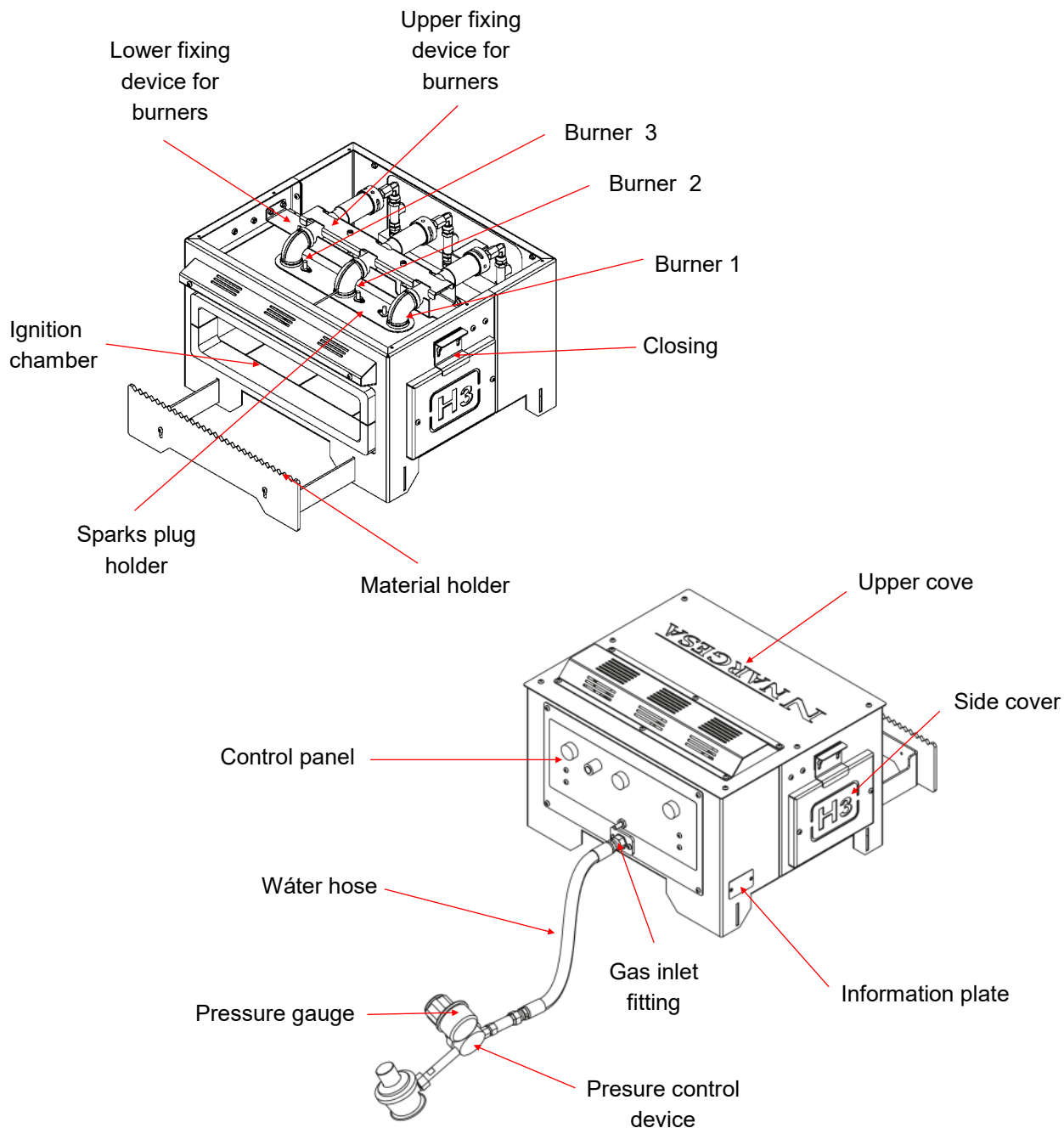
**MEASURES TO FIGHT FIRES**

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Proper fire extinction means               | Water mist, chemical dust and carbón dioxide (CO2).                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Specific hazards                           | It could be lit with heat, sparks or flsmess. Steams could travel up to the ignition source and return like flames. Keep out of container tanks.                                                                                                                                                                                                                                                                                                                                           |
| Special methods                            | Remove containers from the fire zone, if this could be a riskless fact. Spray with wáter mist the containers exposed to fire. This devide should be remotely controlled, and so after the fire extinction. Fight the fire aains the wind direction, whenever it is posible. Do not extinguish fire before stopping the leak. In case the fire is intense in loaded areas, use hoses with holders to be used remotedly. Then if thi could not be done, just leave the área and let it burn. |
| Special Protection to fight against fires. | In closed places, use complete protection against fire and autonomous equipment to protect the respiratory tract.                                                                                                                                                                                                                                                                                                                                                                          |

**WARNING!**

**Consult your supplier's gas safety data card, before its use.  
Strictly follow your supplier's safety protocols.**

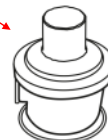
## 1.5. Identificación de los elementos



The **Adapter** for the gas bottle is NOT provided along with the furnace because of the major differences according to each country.

The Adapter must be equipped with a male thread 21,8 left.

Adapter

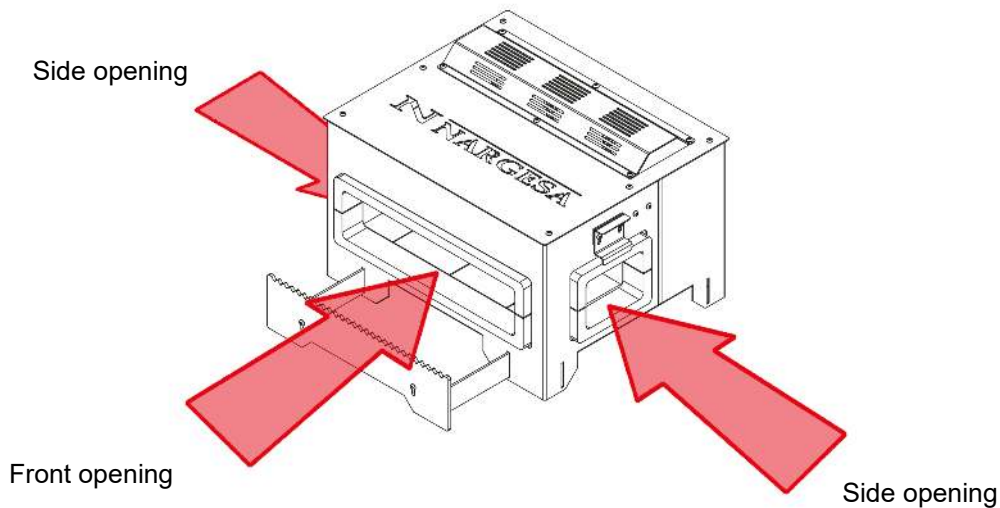


## **1.6. Description of elements**

### **1.6.1. Openings**

The furnace has three openings:

- The front opening is the one usually used, since it is the widest.
- Side openings are used to heat longer bars. If we want to heat a larger length of bar we will open only a lateral opening. If we want to heat an intermediate part of the bar we will open the two lateral openings of the oven so that the bar can pass through the inside of the oven and thus be able to heat the desired part

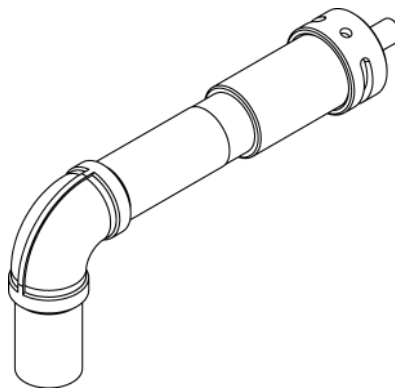


*Picture 2. Furnace openings*

### **1.6.2. Burners**

The burners of Nargesa's Furnaces has been manufactured by Nargesa and designed exclusively to be used on the furnaces H1, H2 and H3.

- Type of burner: Atmospheric
- Maximum supply pressure: 1,5 Bar
- Fuel: Propane gas GLP
- Power: 4 Kw



*Picture 3. Furnace burner*

### 1.6.3. Thermocouple

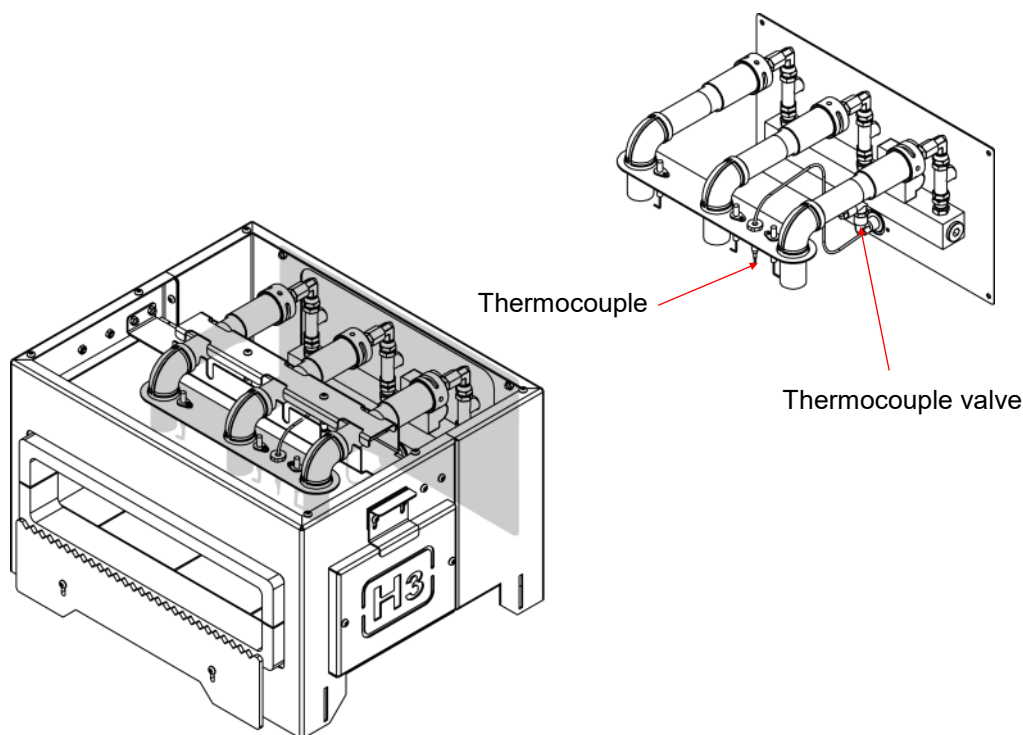
The thermocouple is the sensor to measure the temperature. It consists of two different metals, joined at one end. When the union of the two metals is heated or cooled, it produces a voltage proportional to the temperature which causes the safety valve to open or close.

The thermocouple safety valve consists of two parts: The valve and the thermocouple

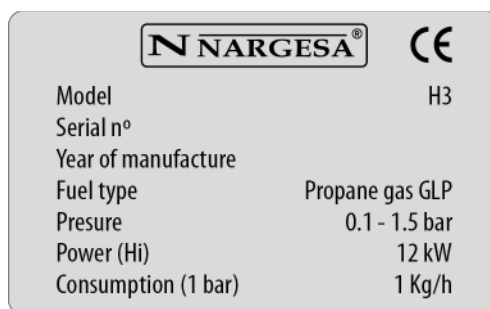
The valve is equipped with the **Thermocouple pushbutton** for ignition of the furnace.

In the process of ignition of the furnace we press this button to allow the passage of gas. When the thermocouple gets enough temperature, we will release this pushbutton and the gas will continue to pass through the valve. This valve will remain open while the oven is in operation and the thermocouple will keep the working temperature.

Once the oven is switched off, and in a time interval of less than 2 minutes, the thermocouple cools and stops acting on the closing safety valve, thus preventing the passage of gas



Picture 4. Thermocouple set



Picture 5. Information plate

### 1.7. Main features

|                                  |                   |
|----------------------------------|-------------------|
| Dimensions of combustion chamber | 464x240x100 mm    |
| Maximum temperature              | 1300 °C           |
| Nr of burners                    | 3                 |
| Type of fuel                     | Propane gas (GLP) |
| Adjustable working pressure      | 0.1-1.5 bar       |
| Power (Hi)                       | 12 kW             |
| Gas intake as 1 per bar          | 1 Kg/h            |
| External dimensions              | 510x580x370 mm    |
| Weight                           | 53 Kg             |

## 2. TRANSPORT AND STORAGE

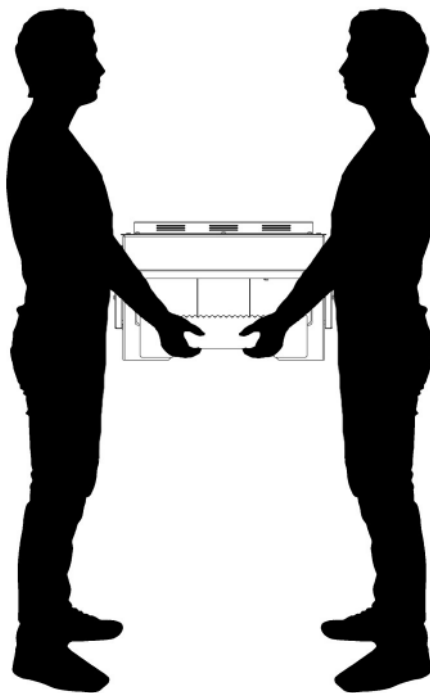
### 2.1. Transport

Carrying of the furnace must be done by two people, holding it by the lower side of it and lifting it with both hands.

Do not transport the furnace in any other way since it could be damaged.

#### **WARNING:**

In order to move the gadget it is necessary that all burners are OFF and wait 24 hours to make sure the isolating material is at room temperature.



*Picture 6. Transport of the machine*

### 2.2. Storage conditions

The furnace cannot be stored in a place that does not meet the following requirements:

- Humidity between 30% and 95%
- Temperature from -25 to 55°C or 75°C for periods not exceeding 24 hours 24h (keep in mind these temperatures are for storage conditions)
- Do not pile machines or any other objects on top of it.
- Do not dismantle for storing

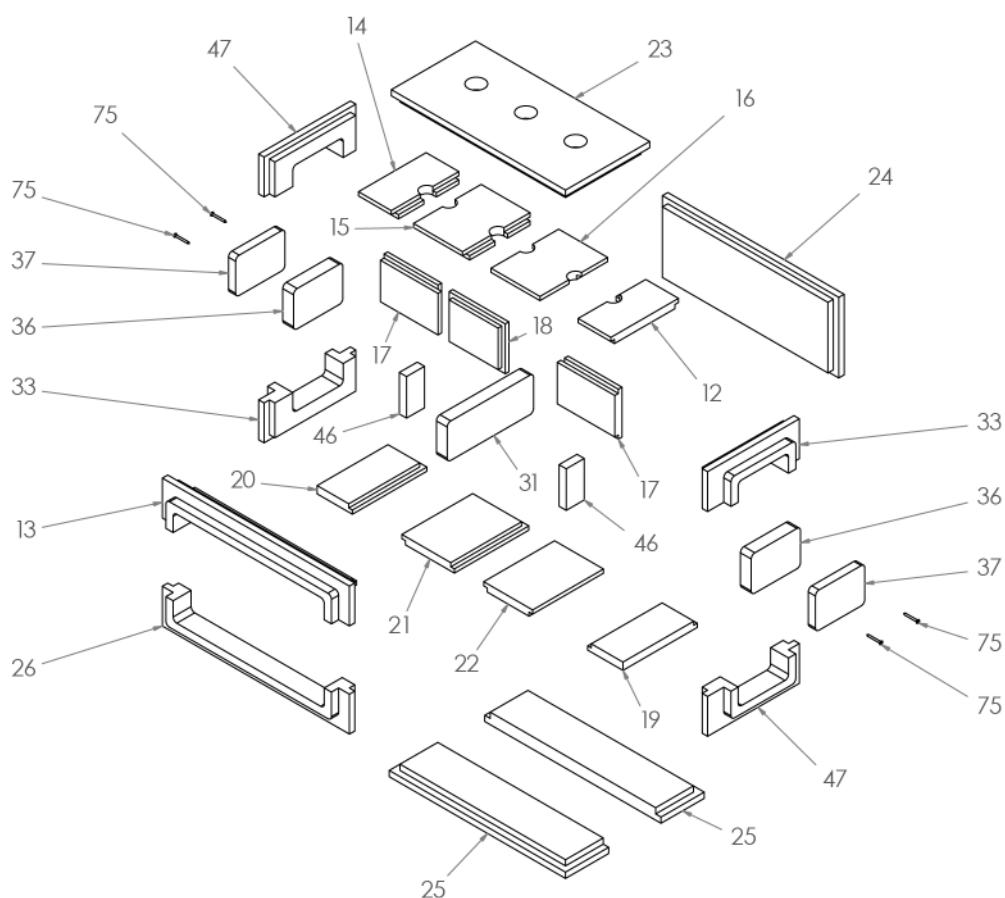
### 3. MAINTENANCE

#### 3.1. General Maintenance

- It is recommended to keep the **Combustion chamber** clean, as far as possible, to ensure proper operation and thus prolong the useful life of the insulating material.
- It is recommended to check the status of the thermocouple, the ignition device, the gas valve, the regulator and the non-return valve. If any of these elements suffers any type of deterioration, contact the Nargesa technical service.
- It is required the replacement of the thermocouple, the ignition device, the gas valve, the regulator and the non-return valve every 5 years.
- It is recommended to replace the insulating material every 2000 hours of operation.

#### WARNING:

To proceed with the maintenance of the oven it is necessary to turn off the **Burners** and wait 24 hours to ensure that all the components are at ambient temperature.



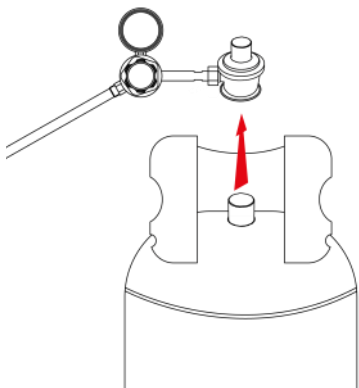
### 3.2. Change of the insulating material of the oven

To remove the insulating material from the oven we will follow the following instructions:

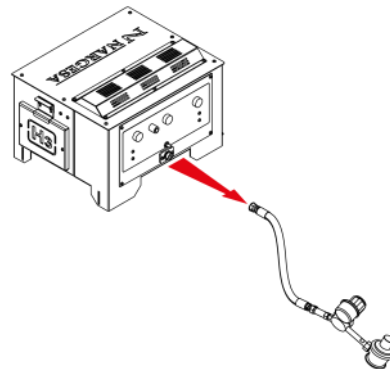
**WARNING:**

To proceed with the change of insulating material it is necessary to turn off the **Burners** and wait 24 hours to ensure that the insulating material is at room temperature

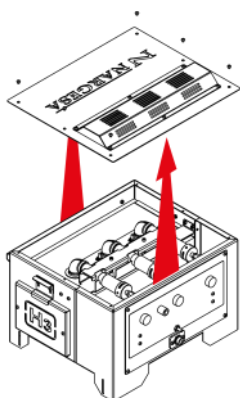
1. Disconnect the gas bottle from the oven.



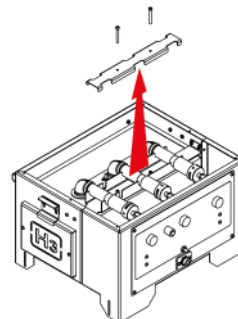
2. Disconnect the **Gas hose** from the **Inlet fitting**



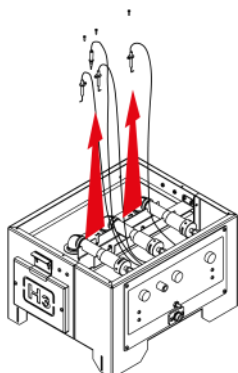
3. Remove the **Upper cover** by unscrewing the six bolts.



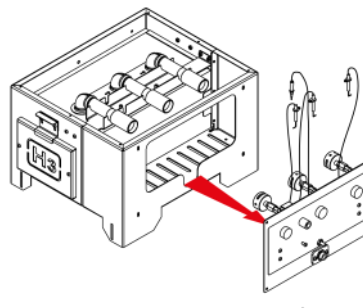
4. Remove the **Upper setting** of the burners



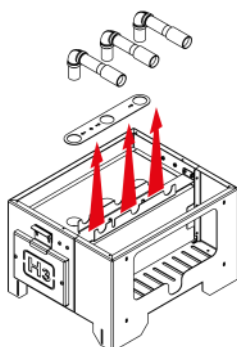
5. Remove the thermocouple and the spark plugs by pull away the three bolts



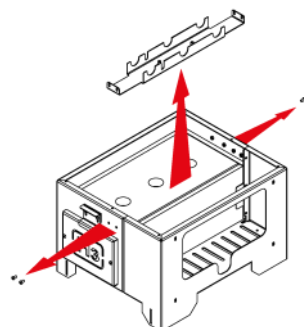
6. Take off the 4 bolts and nuts that hold the **Control Panel**. Remove the **Control panel**, the thermocouple and the spark plugs



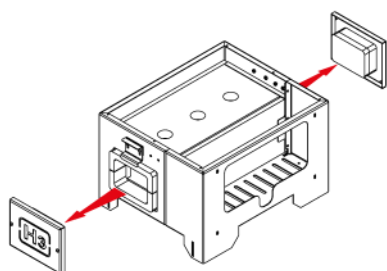
7. Remove the two **Burners** and the **Spark plugs holders**



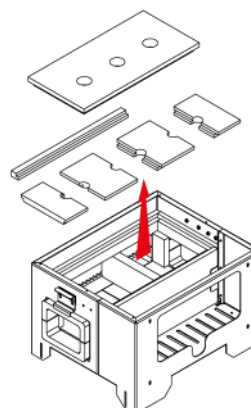
8. Dismantle the **Lower fixing of the burners** by unscrewing the four bolts and the four nuts that hold it.



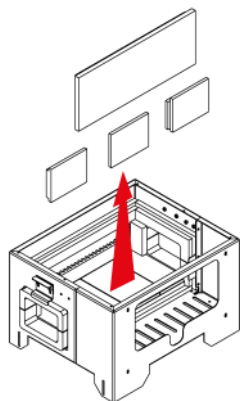
9. Remove the **Side doors** following the instructions on Section 5.5



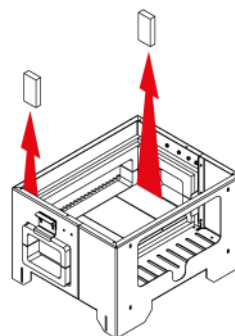
10. Take off the insulation upper plates.



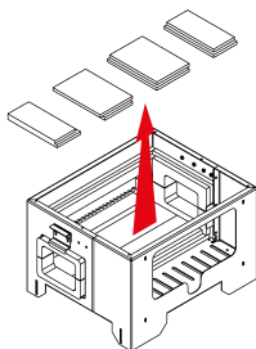
11. Remove the rear insulation panels



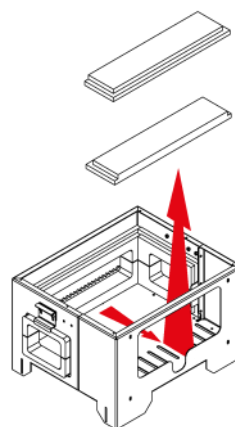
12. Remove the front holders of the upper plate



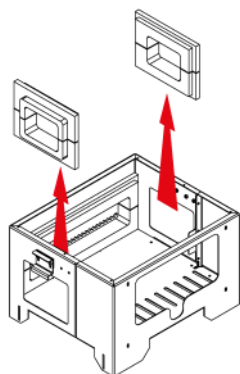
13. Remove the lower insulation



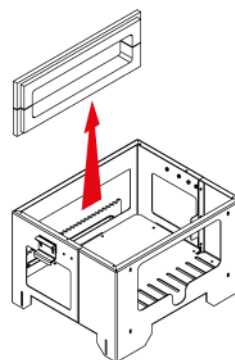
14. Slide the lower insulation towards the back part of the furnace and remove them by the upper side.



15. Remove the side insulations

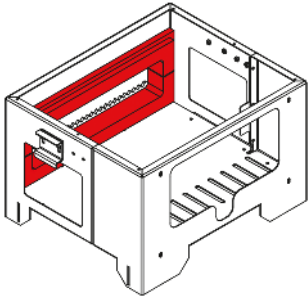


16. Remove the front insulations

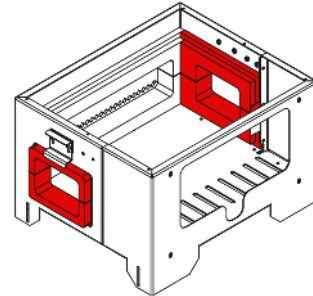


We will use this process in reverse order to do the placement of the insulation:

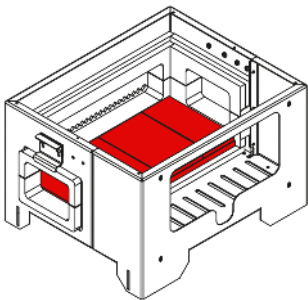
1. Place the front insulation



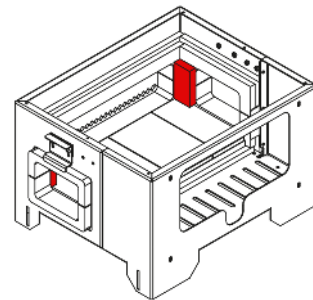
2. Place the side insulation



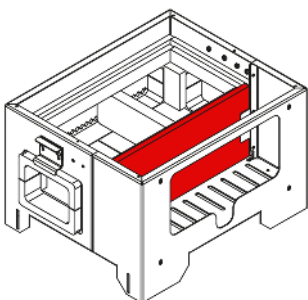
3. Place the lower insulation by the upper/ rear side of the furnace and slide them towards the front part.



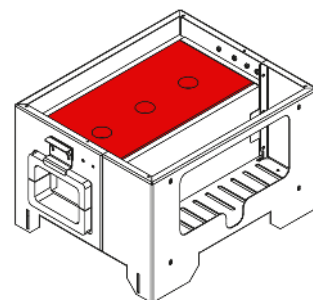
4. Place the front holders of the upper plate



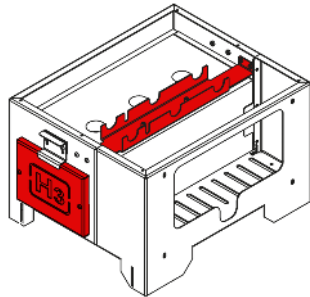
5. Place the rear insulation



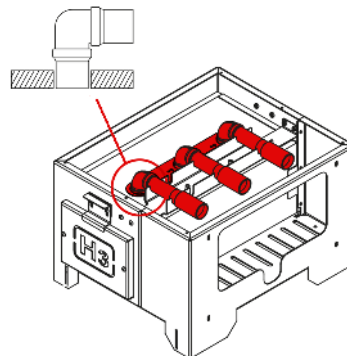
6. Put the insulation upper plates



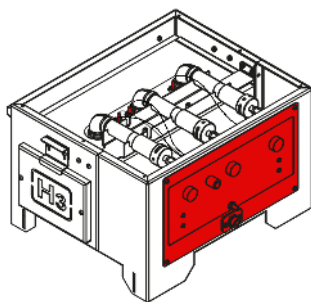
7. Place the **Side doors**. Assemble the **Lower fastener of the burners** by tightening the four screws and the four nuts that hold it



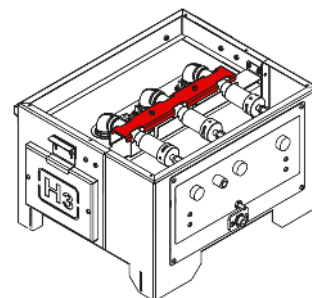
8. Place the **Spark plug holder** and the three **burners** adjusting the **Lower burner fixer** so that the end of the **Burner** is aligned with the



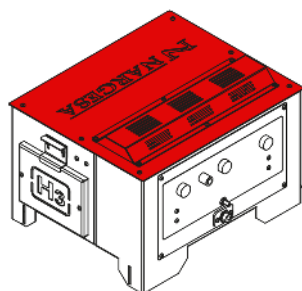
9. Place the **Control panel**, the thermocouple and the spark plugs by fixing the bolts and nuts.



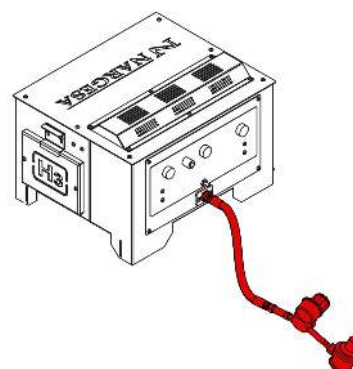
10. Mount the **Upper fixer of the burners**



11. Place the **Upper cover** by fixing the 6 bolts

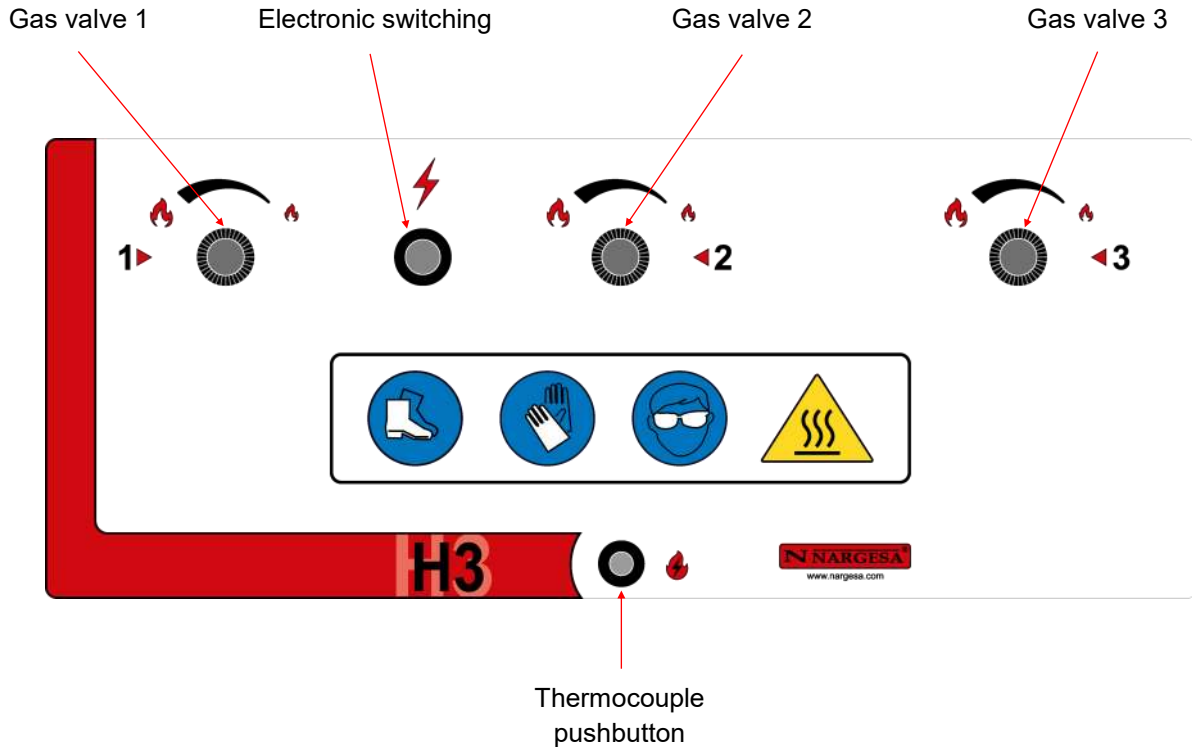


12. Connect the **Gas Hose** to the **Inlet racor**



#### 4. HANDLING MANUAL

We have a **Control panel** which will allow us to control the performance of the furnace H3 and which will enable us to maintain complete control of the machine in a simple and intuitive way.



##### 4.1. Gas valve

The **Control panel** has got three valve for the opening of the gas entrance to the **Burners**. These valves are marked with numbers 1, 2 and 3 the operator controls them in order to obtain more on less gas flow.

##### 4.2. Pushbuttons

There are two pushbuttons in the **Control panel**:

- The pushbutton for **Electronic switching** is the one that activates the spark plug and generates the spark to light up the **Burner**.
- The **Thermocouple pushbutton** is the one that opens the valve the get the thermocouple activated. This valve opens the path to the **Gas valves (1, 2, 3)**

##### 4.3. Pressure regulator and manometer

The **Pressure regulator** allows us to control the working pressure between 0,1 and 1,5 bar, Nargesa suggests to work at a pressure from 0,2 to 1 bar. The **Manometer** will indicate the pressure value on the furnace circuit.

## 5. INSTALLATION AND SET UP

### 5.1. Machine location

The aim is to locate the furnace properly to avoid having to move it; otherwise, the user must follow the guidelines described in the transport section (nº2). It should be placed on a smooth and levelled surface to avoid any movement of it during the positioning of the profiles.

### 5.2. Dimensions y work area

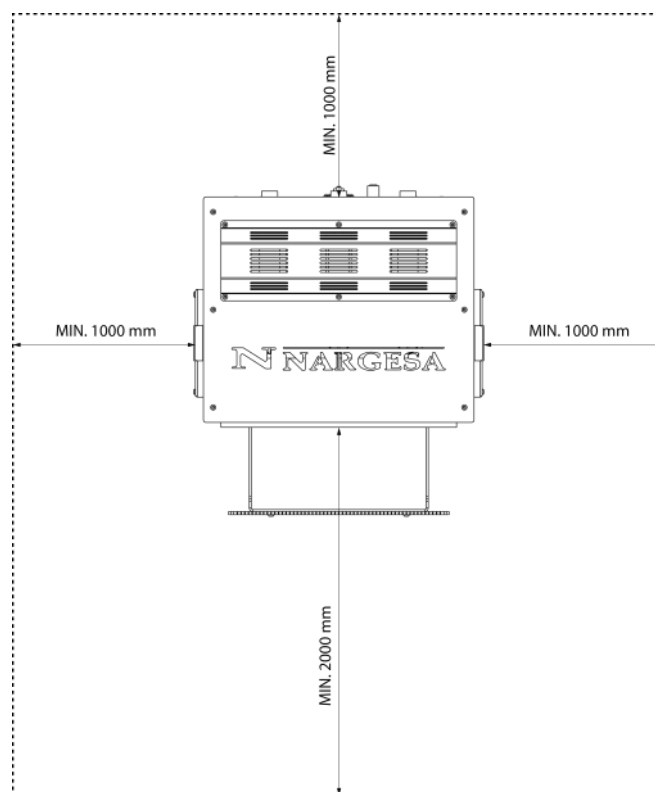
When the furnace is placed, its dimensions, the safety zone, the work area of the operator and the possible lengths of the workpiece will be taken into account.

Safety zone: We will place the furnace in a zone free of elements and objects, following the indications of the following figure.

The oven will be installed in accordance with the regulations in force and will be used only in sufficiently ventilated places.

The oven can be used by a single operator, which must be work frontally or laterally to the machine to be able to handle the piece safely.

Before starting the heating of the pieces, with the **Burners** off, the operator will adjust the **material support**, adapting it to the material profile and its length, as indicated in section 5.6.



Picture 8. Safety zone

### 5.3. Admissible outside conditions

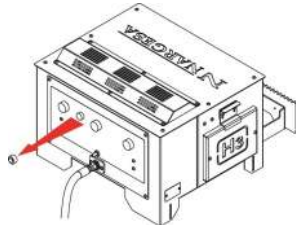
- Normal temperatura between +5 and +40°C without exceeding an average temperature of +35°C during 24h.
- Relative humidity between 30% and 95% without condensation.

### 5.4. Setting up

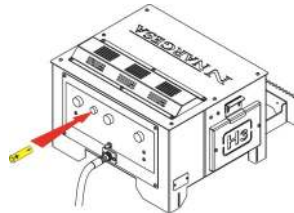
Before putting the furnace into operation:

- Inserting the automatic ignition battery.

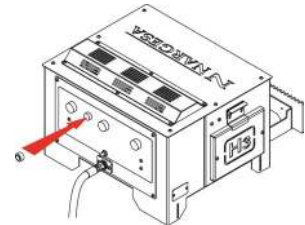
1. Unscrew the Automatic ignition button ( ⚡ ) located on the control panel.



2. Insert the battery into the hole so that its positive end is on the outside.



3. Tap tight the Automatic ignition button.



- Connect the **Pressure regulator** to an **Adapter** for the gas cylinder. This adapter is not supplied with the furnace , as this element is different in each country.
- Verify that the maximum gas inlet pressure is less than 25 bars.
- Connect the Adapter to a LPG propane gas cylinder

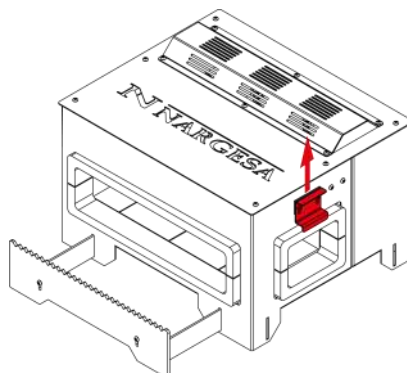
The **Pressure Regulator** and **Gas Hose** supplied by Nargesa will always be used

### 5.5. Openings

There are two side openings to work with longer materials.

To remove the **Doors**, move the **Lock up** and pull the **Door** out of position. Leave the Closure in its original position.

To place the **Side door**, move the **Latch upwards** and place the **Door** in the lateral opening, press until it stops and lower the **Latch** to its original position.



### WARNING:

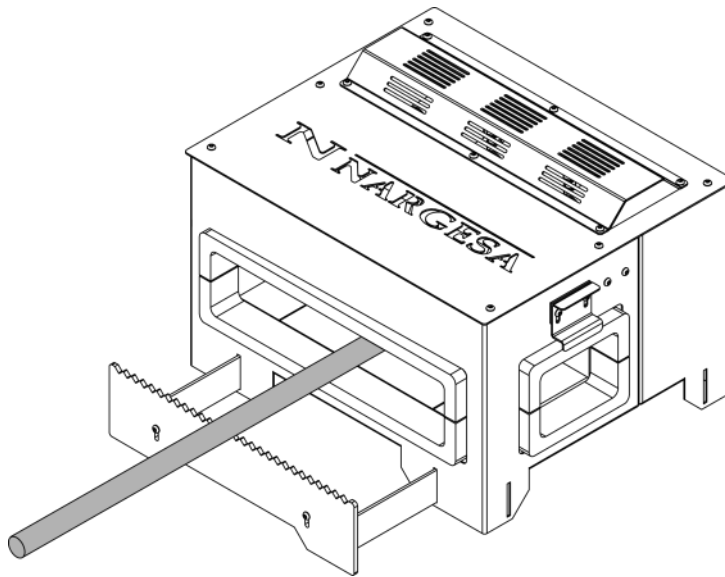
To manipulate the **Side doors** it is necessary to turn off the **Burners** and wait 24 hours to make sure that the insulating material is at room temperature

### 5.6. Adjustment of the material support position

The oven is equipped with a **Material holder**, this support serves to hold the material while warming up.

The support point of the material can be regulated by moving the support. The point of support must be adjusted according to the length of the material. For material lengths bigger than 800mm, use an external support.

The **Material holder** can be placed in any of the three **Openings**.



*Picture 9. Support of material*

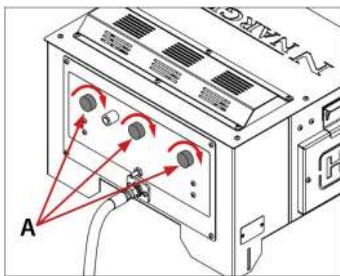
### 5.7. First set up of furnace

For the first start-up of Nargesa gas furnaces, the automatic ignition provided is not used. We will use an external device to light the burner flame. For example a long lighter or a blowtorch.

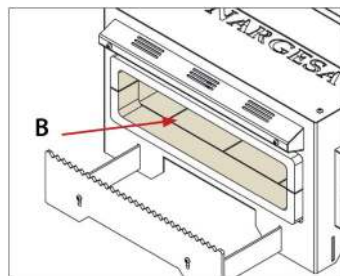
**\* The Adapter (C) for the gas bottle is not supplied with this furnace, since each country uses different adapters. The Adapter will have to be equipped with a left 21.8 male thread. (L)**

To proceed to the propane furnace ignition we will follow the following steps:

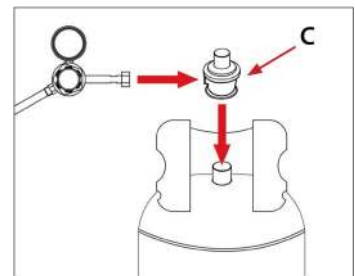
1. Check that the **Gas Valves (A)** are completely closed.



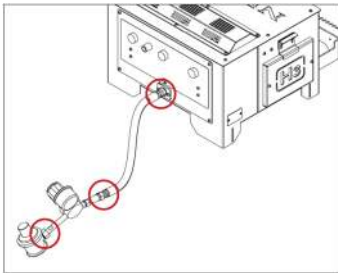
2. Check that the **combustion chamber (B)** is cleared off from any element.



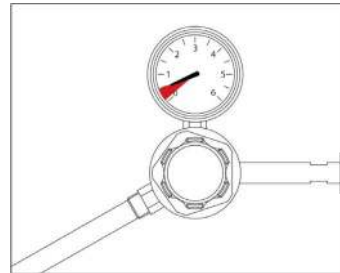
3. Connect the pressure regulator to the **\*Adapter (C)**, and this to the gas bottle.



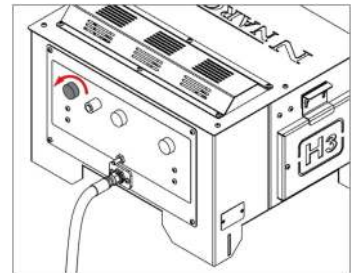
4. Verify that all gas connections between the bottle and the oven are connected correctly and that there are no leaks.



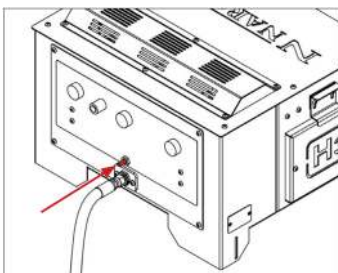
5. Check that the working pressure of the gas is between 0.2 and 0.5 bar.



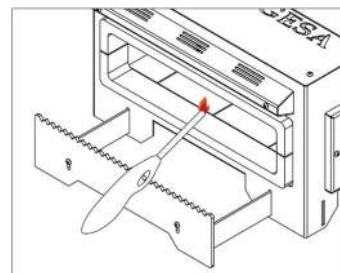
6. Open Gas Valve 1, a few degrees.



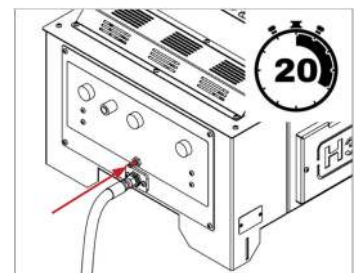
7. Press the **thermocouple button (4)**



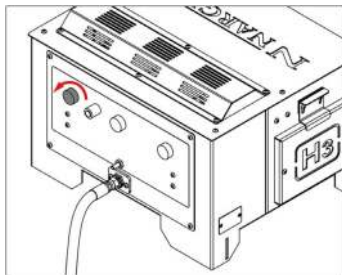
8. Turn on the gas that comes out of the burner. **Important:** never put your hands in the combustion chamber to ignite the gas.



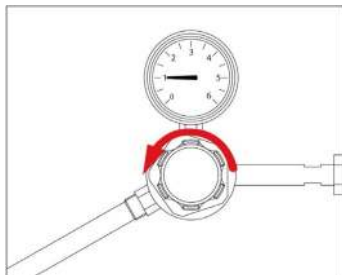
9. When the burner ignites, wait 20 seconds and stop pressing the Thermocouple button.



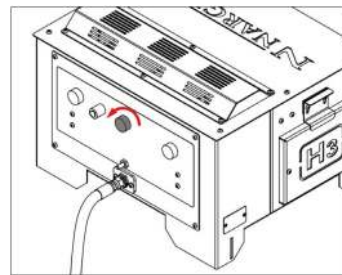
10. Open Gas Valve 1 progressively to the maximum.



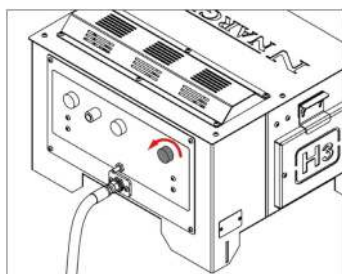
11. Increase the gas pressure progressively up to 1 bar.



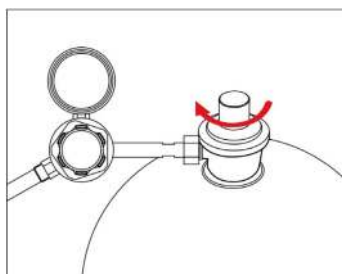
12. Open Gas Valve 2 progressively to the maximum. If the model is H2.



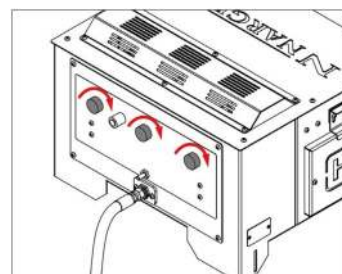
13. Open Gas Valve 3 progressively to the maximum. If the model is H2.



14. After 30 minutes, stop the furnace by closing the gas supply of the Adapter until the flame goes out.



15. Close the gas valves.



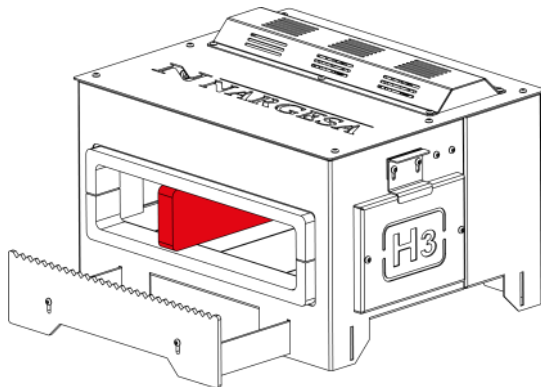
### 5.7. Lighting up the furnace

To proceed with the ignition of the furnace, we'll follow the steps below:

1. Make sure all gas valves are completely closed.
2. Make sure the **Combustión chamber** is empty and free from any other element.
3. Connect the **Adaptor** to the gas bottle.
4. Verify that all gas connections between the bottle and the furnace are correctly connected and that there is no leak.
5. Checkup that the gas work pressure is between 0,1 and 1,5 bars. (Pressure recommended by Nargesa: 0,2 to 1 bar).
6. Open the **Gas valve 1**, a few degrees.
7. Press the **Thermocouple pushbutton** and the **Electronic ignition pushbutton**.
8. When the Burner lits up, reléase the **Electronic ignition button**.
9. Wait 20 seconds and reléase the **Thermocouple pushbutton**.
10. Open the **Gas valve 1** progressively 'til its limit.
11. Progressively increase the gas pressure up to 1 bar. (Pressure recommended by Nargesa: 1 bar).

If you want to work with both burners, once **Burner 1** is turned on:

1. Press the **electronic ignition button**
2. Open the **gas valve 2** progressively up to the maximum.
3. When the burner is ignited, release the **electronic ignition button**
4. Press the **electronic ignition button**
5. Open the **gas valve 3** progressively up to the maximum.
6. When the burner is ignited, release the **electronic ignition button**



If you want to work with a single burner, it is advisable to place the insulating separator in the middle of the **Combustion chamber**. In this way, the space is divided and the calorific power of the burner is concentrated.

### 5.8. Shutdown the Furnace

To proceed with the shutdown of the furnace:

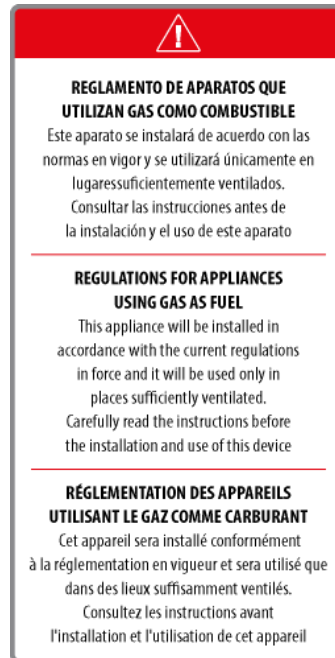
1. Turn the **Gas valve 3** clockwise until it is completely closed.
2. Turn the **Gas valve 2** clockwise until it is completely closed.
3. Turn the **Gas valve 1** clockwise until it is completely closed.
4. Disconnect the Adapter from the gas bottle.

## 6. POSSIBLE BREAKDOWNS

| BREAKDOWN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | CAUSE                                                             | SOLUTION                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| The furnace might not ignite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Unproper gas connections                                          | To connect correctly the gas plug and make sure that the <b>Adaptor</b> of the gas bottle is properly fit. See section 5.4 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The <b>Manometer</b> of the Pressure <b>Regulator</b> shows 0     | Open the <b>Pressure regulator</b> and the flow of the <b>Adaptor</b> in the gas bottle                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Gas valve 1</b> is closed                                      | Open <b>Gas Valve 1</b> <i>just some degrees</i> .                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Gas Valve 1</b> is way too open                                | Close a <b>Gas Valve 1</b> <i>a few degrees</i>                                                                            |
| Electronic switching does not generate the ignition spark                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | The spar plug is touching <b>Burner 1</b>                         | Place the spark plug 4mm away from the <b>Burner 1</b>                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The spark plug is more tan 4mm away from <b>Burner 1</b>          | Place the spark plug 4mm from <b>Burner 1</b>                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Inner battery has been exhausted<br>e ha agotado la pila interior | Change the inner battery (AA, 1,5v)                                                                                        |
| The flame turns to be turbulent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Excesss of fuel in the blend of air and gas.                      | Reduce the amount of fuel by closing gradually the <b>Gas Valve 1</b> .                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                   | Reduce the job pressure                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The gas injector is stuck or dirty                                | Replace the injector                                                                                                       |
| The flame turns orange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Lack of fuel in the bland of air and fuel.                        | Increase the amount of fuel by opening the <b>Gas Valve 1</b> gradually.                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The gas injector is stuck or dirty                                | Replace the injector                                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The air inlet is dirty                                            | Clean up the furnace air inlet.                                                                                            |
| The flame goes out of the combustion chamber                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Excessive gas pressure                                            | Reduce the gas pressure                                                                                                    |
| <p><b>If the problem goes on, please contact our technical assistance in Nargesa</b></p> <p>  +34 972568085             +34 620446827             sat2@nargesa.com             sat2.nargesa         </p> |                                                                   |                                                                                                                            |

## 7. WARNINGS

The H3 furnace is designed so that the operator can adjust the machine and heat the necessary parts with total safety. Any modification of the machine will alter the security that it offers, breaching the certificate of conformity and being able to generate irreparable personal and material damages. Carefully read the **Warning label** on the left side of the furnace.



### 7.1. Waste hazards

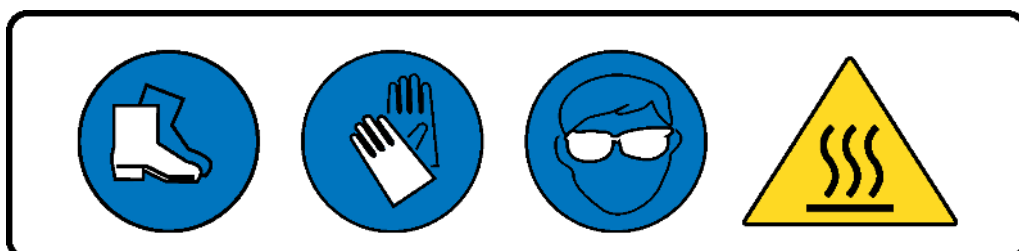
During the heating of materials some danger situations might occur, which need to be analyzed and prevented.

- Be careful while introducing and removing material in the machine, in order to prevent any burnt or injury.
- Firmly hold the piece to be inserted or removed to avoid unwanted movements due to the weight of the piece.
- Hold the material by the cold end, never by the hot zone
- Maintain a safe distance between the machine and the operator

### 7.2. Protection elements for the operator

Like elements of personal protection, it is mandatory:

- Utilizar gafas y botas de protección homologadas
- To wear thermal gloves for handling the machine and all along the heating processes.
- To wear homologated and approved protective goggles and shoes.



## **Tecnichal Annex**

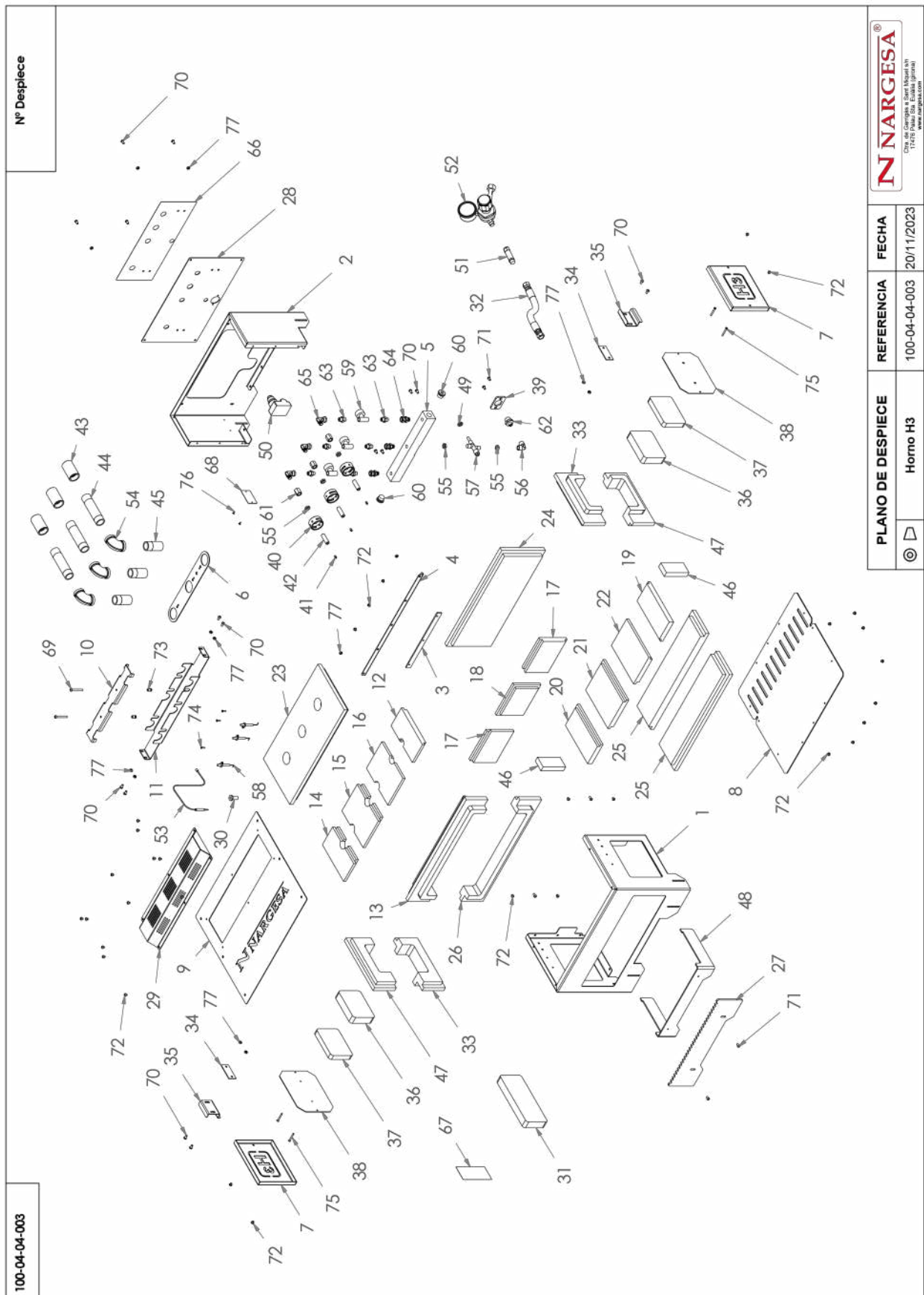
### **Furnace H3**

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List of parts

Gas layout

List of parts



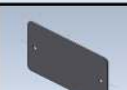
| Elemento | Miniatura | Nº de pieza     | Descripción                      | CTDAD |
|----------|-----------|-----------------|----------------------------------|-------|
| 1        |           | 120-04-04-00057 | Carenado Frontal                 | 1     |
| 2        |           | 120-04-04-00002 | Carenado Posterior               | 1     |
| 3        |           | 120-04-04-00060 | Chapa angulo refuerzo            | 1     |
| 4        |           | 120-04-04-00059 | Angulo refuerzo                  | 1     |
| 5        |           | 120-04-04-00029 | Colector De Gas                  | 1     |
| 6        |           | 120-04-04-00056 | Soporte Bujías                   | 1     |
| 7        |           | 120-04-04-00032 | Puerta Lateral                   | 2     |
| 8        |           | 120-04-04-00003 | Chapa Base                       | 1     |
| 9        |           | 120-04-04-00004 | Tapa Superior                    | 1     |
| 10       |           | 120-04-04-00020 | Tapa Superior Quemadores         | 1     |
| 11       |           | 120-04-04-00019 | Chapa Soporte Quemadores         | 1     |
| 12       |           | 120-04-04-00053 | Aislante Superior 20 4           | 1     |
| 13       |           | 120-04-04-00058 | Aislante Frontal 80 con Refuerzo | 1     |

| Elemento | Miniatura                                                                           | Nº de pieza     | Descripción             | CTDAD |
|----------|-------------------------------------------------------------------------------------|-----------------|-------------------------|-------|
| 14       |    | 120-04-04-00052 | Aislante Superior 20 3  | 1     |
| 15       |    | 120-04-04-00051 | Aislante Superior 20 2  | 1     |
| 16       |    | 120-04-04-00050 | Aislante Superior 20 1  | 1     |
| 17       |    | 120-04-04-00049 | Aislante Posterior 20 2 | 2     |
| 18       |    | 120-04-04-00048 | Aislante Posterior 20 1 | 1     |
| 19       |   | 120-04-04-00047 | Aislante Inferior 20 4  | 1     |
| 20       |  | 120-04-04-00046 | Aislante Inferior 20 3  | 1     |
| 21       |  | 120-04-04-00045 | Aislante Inferior 20 2  | 1     |
| 22       |  | 120-04-04-00044 | Aislante Inferior 20 1  | 1     |
| 23       |  | 120-04-04-00018 | Aislante Superior 30    | 1     |
| 24       |  | 120-04-04-00017 | Aislante Posterior 30   | 1     |
| 25       |  | 120-04-04-00012 | Aislante Inferior 30    | 2     |
| 26       |  | 120-04-04-00010 | Aislante Frontal 30     | 1     |

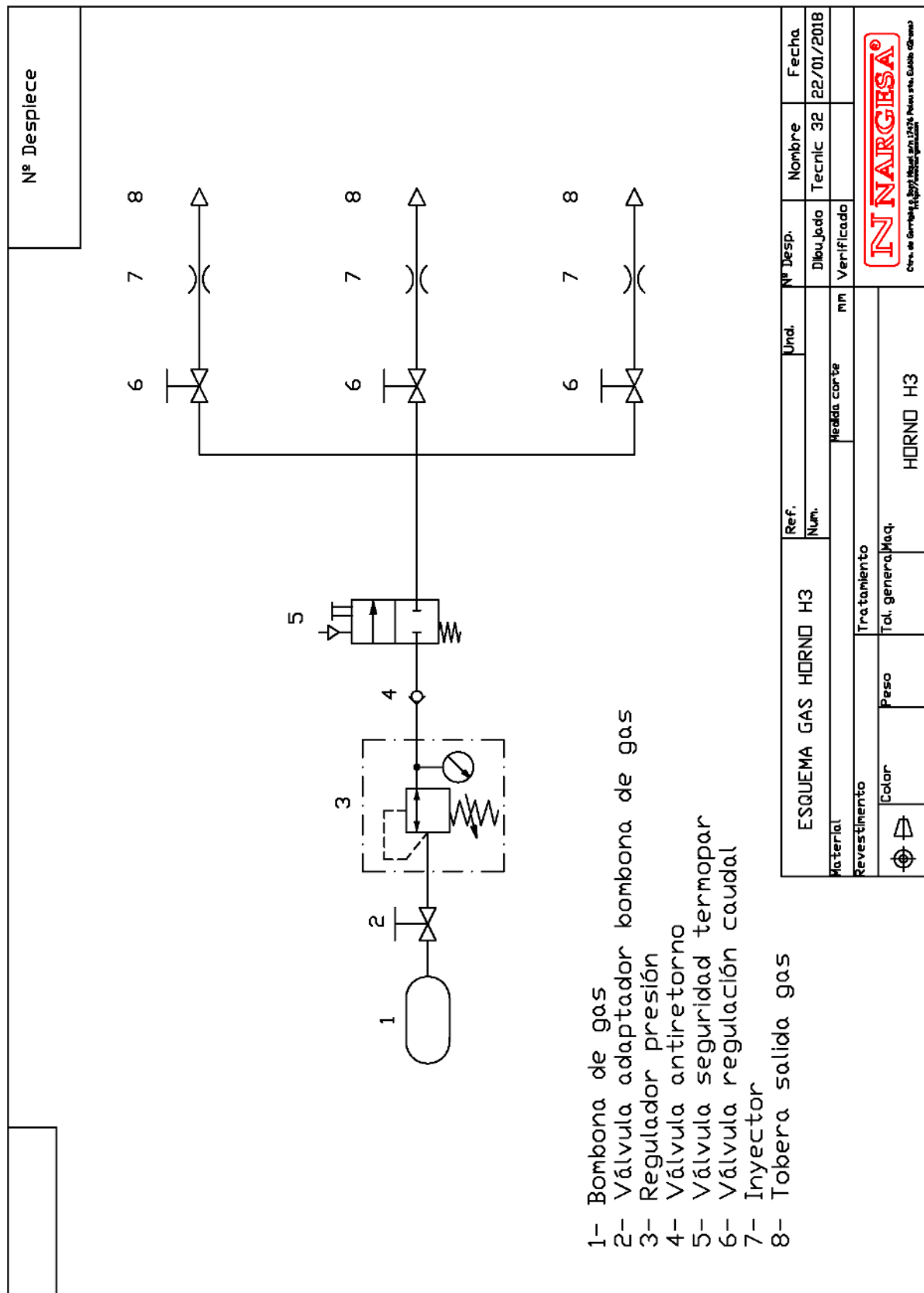
| Elemento | Miniatura                                                                           | Nº de pieza     | Descripción                | CTDAD |
|----------|-------------------------------------------------------------------------------------|-----------------|----------------------------|-------|
| 27       |    | 120-04-04-00009 | Apoyo Frontal Material     | 1     |
| 28       |    | 120-04-04-00007 | Tapa Regulación            | 1     |
| 29       |    | 130-04-04-00001 | Capota Superior            | 1     |
| 30       |    | 120-04-01-00157 | Separador Termopar         | 1     |
| 31       |    | 120-04-01-00143 | Aislante Separador         | 1     |
| 32       |  | 120-04-01-00141 | Manguera Metálica L=1500mm | 1     |
| 33       |  | 120-04-01-00139 | Aislante Lateral 2 50      | 2     |
| 34       |  | 120-04-01-00137 | Separador Fijación Puerta  | 2     |
| 35       |  | 120-04-01-00136 | Fijación Puerta Lateral    | 2     |
| 36       |  | 120-04-01-00135 | Aislante Puerta Lateral 30 | 2     |
| 37       |  | 120-04-01-00134 | Aislante Puerta Lateral 20 | 2     |
| 38       |  | 120-04-01-00133 | Chapa Puerta Lateral       | 2     |
| 39       |  | 120-04-01-00130 | Antigiro Entrada Gas       | 1     |

| Elemento | Miniatura                                                                                | Nº de pieza     | Descripción                    | CTDAD |
|----------|------------------------------------------------------------------------------------------|-----------------|--------------------------------|-------|
| 40       |         | 120-04-01-00128 | Regulador Caudal De Aire       | 3     |
| 41       |         | 120-04-01-00127 | Inyector                       | 3     |
| 42       |         | 120-04-01-00126 | Soporte Inyector               | 3     |
| 43       |         | 120-04-01-00124 | Tobera Venturi                 | 3     |
| 44       |         | 120-04-01-00123 | Tobera Larga Quemador          | 3     |
| 45       |       | 130-04-01-00006 | Difusor Quemador               | 3     |
| 46       |       | 120-04-01-00114 | Aislante Lateral 20            | 2     |
| 47       |       | 120-04-01-00111 | Aislante Lateral 1 50          | 2     |
| 48       |       | 120-04-01-00108 | Apoyo Material                 | 1     |
| 49       |  | 041-GAS-00014   | Tuerca 1/4"                    | 1     |
| 50       |       | 041-GAS-00013   | Encendido Electrónico H3       | 1     |
| 51       |       | 041-GAS-00011   | Válvula Antiretorno de Propano | 1     |
| 52       |       | 041-GAS-00010   | Regulador de Propano           | 1     |

| Elemento | Miniatura                                                                           | Nº de pieza      | Descripción                                                 | CTDAD |
|----------|-------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------|-------|
| 53       |    | 041-GAS-00008    | Termopar                                                    | 1     |
| 54       |    | 041-GAS-00007    | Codo 90° Inox AISI 304 H-H 1"                               | 3     |
| 55       |    | 041-GAS-00006    | Tuerca Estrecha 1/4" GAS                                    | 5     |
| 56       |    | 041-GAS-00005    | Codo H-H 1/4                                                | 1     |
| 57       |    | 041-GAS-00004-GB | Valvula Seguridad Termopar M-M 1/4                          | 1     |
| 58       |  | 041-GAS-00003    | Bujia de Encendido                                          | 3     |
| 59       |  | 041-GAS-00001    | Valvula Aguja H-H 1/4                                       | 3     |
| 60       |  | 040-TVA-00001    | Tapon Allen 1/2'                                            | 2     |
| 61       |  | 040-SHF-00002    | SUPLEMENTO HEMBRA FIJO 1/4                                  | 3     |
| 62       |  | 040-RRMM-00003   | Racor Reducido 1/2'-1/4' Macho Macho                        | 1     |
| 63       |  | 040-RMM-00011    | Racor Macho - Macho - 1/4" BSP - Cono 60° - L = 27mm        | 6     |
| 64       |  | 040-RG-00002     | Racor Giratorio Macho Hembra 1/4'                           | 3     |
| 65       |  | 040-CMH-00003    | Codo 90° - Macho/Hembra con TG - Conos 60° - G1/4"-19 (BSP) | 3     |

| Elemento | Miniatura                                                                           | Nº de pieza      | Descripción                                       | CTDAD |
|----------|-------------------------------------------------------------------------------------|------------------|---------------------------------------------------|-------|
| 66       |    | 122-04-04-001    | Calca Horno H3                                    | 1     |
| 67       |    | 122-04-01-003    | Calca Advertencias Horno                          | 1     |
| 68       |    | 122-04-01-002    | Placa Características                             | 1     |
| 69       |    | 020-I7380-M6X50  | Tornillo Allen Abombado ISO7380 M6X50             | 2     |
| 70       |    | 020-I7380-M6X12  | Tornillo Allen Abombado ISO7380 M6X12             | 18    |
| 71       |   | 020-I7380-M6X10  | Tornillo Allen Abombado ISO 7380 M6X10            | 4     |
| 72       |  | 020-I7380-M6X6   | Tornillo Allen Abombado ISO7380 M6X6              | 35    |
| 73       |  | 020-D9316Z-M6    | Tuerca Remachable Ranurada M6                     | 2     |
| 74       |  | 020-D7981-3C5X16 | TORNILLO DIN 7981 Ø3.5X16 CABEZA ALOMADA PHILIPS  | 3     |
| 75       |  | 020-D7505-4x40   | Tornillo DIN 7505 Ø4x40 Cabeza Avellanada PHILIPS | 4     |
| 76       |  | 020-D7337-3X8    | Remache De Clavo DIN7337 De Al D3X8               | 2     |
| 77       |  | 020-D934-M6      | Tuerca Hexagonal DIN934 M6                        | 14    |

## Gas layout



# OUR RANGE OF MACHINERY



IRON WORKERS



SECTION BENDING  
MACHINES



NON-MANDREL  
PIPE BENDER



HORIZONTAL PRESS  
BRAKE



TWISTING/SCROLL  
BENDING MACHINES



HYDRAULIC PRESS  
BRAKES



HYDRAULIC SHEAR  
MACHINES



GAS FORGES



IRON EMBOSSING  
MACHINES



END WROUGHT IRON  
MACHINES



BROACHING  
MACHINES



POWER HAMMERS



PRESSES FOR LOCKS