



## Item 1) TWO THERMAL OIL HEATERS OF 1200 kW EACH

### 1.1) THERMAL OIL HEATER BODY

Brand	<b>PIROBLOC</b>
Model	<b>GFT-060/40/H2</b>
Power	1200 kW
Delta Temperature	40 °C
Execution	Horizontal
Designed and built	According AD-2000 regulation
Homologation and branded CE	According to the European Directive 97-23-CE
Test pressure	21 bar
Maximum working pressure	9 bar
Design pressure	10 bar
Design temperature (1)	350 °C
Maximum working temperature	300 °C
Thermal efficiency (2)	87%-91%
Thermal oil connections	DN-80
Chimney flange connection	350 mm

(1) Special execution till 400 °C

(2) It depends of the circulating fluid temperature, fuel, type of oil, orientative values:  
- 87 % a 300 °C  
- 91 % a 100 °C

Inside coils made with seamless tube, quality ASTM A106 Gr.B.

25% of the total welding made on the pressure body has been radiographed and tested with penetrating liquids.

Finished in anodized aluminium AlMg1 material in temper H14. High resistance to corrosion through anodizing for application outdoor and indoor.

### 1.2) SECURITIES (supported and assembled on the heater)

1 Pressure switch for inlet pressure.

1 Differential pressure switch for pressure.

2 Pressure gauges Ø 63, of 0-6 kg/cm<sup>2</sup>, with glycerine bath and with its own expansion quadrants and closure taps.

1 Safety and relief valve, PN-40, manufactured with carbon steel, inside and spring with stainless steel AISI-304, working maximum pressure 9,5 kg/cm<sup>2</sup>. Flanges connection DN-20.

3 Temperature probes type PT-100  
1 for inlet temperature,  
1 for outlet temperature,  
1 as safety outlet temperature).



1 Temperature probe type "J", FE-KO as safety temperature limiter in flue gas.  
4 Thermowells for the placement of the probes.

### 1.3) BURNER (supported and assembled on the heater)

Brand	<b>M. WEISHAULT</b>	
Model	WM-G20/2-AZM LN	
Fuel type	Natural gas	LPG Gas
L.H.V. estimate	9.270 kcal/m <sup>3</sup>	11.082 kcal/kg
Burner top power	1600 kW	
Fan motor power	3 kW	
Regulation	Modulating	
<b>One gas train</b>	1 1/2"	
Gas pressure required	Between 100 and 300 mbar	
Pressure reducer	From 4 bar to 250 mbar (*)	
Low NOx	Yes	
Required electrical power	3 Ph 400 V and 50 Hz	
Electrical installation	Yes	

(\*) Please confirm the gas pressure arriving to the heater's room

### 1.4) MAIN RECIRCULATION PUMP (supported and assembled on the heater)

Motor power	15 kW (to start up at 15°C in thermal oil)
Flow	50 m <sup>3</sup> /h @ 4 bar
Working temperature	Till 350°C
Closure	Mechanical
Built	With spheroidal casting GS-42 specially designed for thermal fluid oil according to DIN 24256.
Support-gantry	Made of steel with coupling plate.
Required electrical power	3 Ph 400V 50 Hz
Electrical installation	Yes



## 1.5) CONTROL PANEL (supported and assembled on the heater)

Type	Conventional
Box	Rittal RAL 7035
Designed and built	According with UNE-EN 60439-1 / UNE-EN 60204-1 / EN 50081
Required electrical power	3 Ph 400 V+N 50 Hz
Electrical installation	Wiring to the pump and all securities (except such of expansion tank, but wires are supplied)

## 1.6) ELEMENTS FOR CONNEXION OF THE PUMP TO THE HEATER BODY

**2 x** Interruption valves, nodular cast body closing by STAINLESS STEEL BELLOWS with safety packing box and bell for heat isolation, connection by flanges DN-80 PN-16.

**1 x** Dirt collecting filter PN-16, flange connection DN-80.

**2 x** Gate valves, PN-16, for filling-draining.

**3 x** Ball valves, PN-16, connection by thread of ½ ".

**1 x** Motor-driven reversible pump group for filling and draining of the circuit.

Seamless steel piping according to A106 GrB and accessories for this pipe such as neck clamps, forged curves for welding, concentrically reductions, caps, graphite seals, nuts and bolts, etc.

Our Specialised employees labour.

## 1.7) GAS DETECTORS TO CUT GAS IN HEATER'S ROOM

**2x** Gas detector placed beside every heater for detection of gas lakes and able to shut-off the main gas valve. Output 4..20 mA. Wall installation.

**1x** Control panel for both gas detectors, 230V 50Hz. Wall installation.

**1x** Electrovalve with flange connection of 1 ½". Manual reset.

Electrical installation.

## 1.8) CO2 FIRE-FIGHTING FLANGES

**2 x** Fire-fighting flanges PN-16 to connect CO2, one in every heater body.

Our Specialised employees labour.



## 1.9) ONE DRY CONTAINER OF 40'

Supply of the described elements into a dry container of 40' as a mobile heater's room, ready to be connected to a thermal fluid circuit.

The present container is provided with the following services:

- Lighting through three (3) rectangular fluorescent luminaire with two fluorescent light each.
- Ventilation through fans placed in two different points in the container.

**Total electrical consumption in heater's room (container): ~ 115 kW**

## Item 2) UNION OF TWO THERMAL OIL HEATERS

### 2.1) ELEMENTS NECESSARY FOR THE CONNECTION OF BOTH HEATERS

**2 x** Retention valves PN-16, flange connection DN-80.

**1 x** By-pass valve PN-16, flange connection DN-65.

**2x** Connection flanges PN-16 DN-125 to connect the heater's room to your process plant.

**2x** Blind flanges PN-16 DN-125 to protect the previous ones.

Seamless steel piping according to A106 GrB and accessories for this pipe such as neck clamps, forged curves for welding, concentrically reductions, caps, graphite seals, nuts and bolts, etc.

## Item 3) METALLIC CHIMNEYS

Quantity	2
Height	6 meter
Diameter	350 mm Ø
Materials	Manufactured in double wall of stainless steel AISI-304 plate and isolated among both walls with rock wool and ceramic fiber of high density.
Provided with	Straight modules of 1 m length, fixation clamp and deflector final module.



## Item 4) THERMAL FLUID TANKS

### 4.1) ONE EXPANSION TANK placed over the heater's room container

Capacity 4500 liters (\*)  
Execution Horizontal and cylindrical  
Materials Made of carbon steel sheet, quality **S-235-JR** with curved bottoms and supplied with the following elements:

- In-going and out-going branches for thermal fluid.
- Level taps set, with drainage tap and glass tube, for oil level visual control.
- Magnetic float switch, with STAINLESS STEEL AISI-316 buoy, flange of stainless steel and switch housing of die cast Al. This is in order to block the burner in case that oil gets to its minimum level.

Measures: Diameter ~1750 mm  
Total Length ~2250 mm

Supply of **one support structure** from container's floor till 4 meters height.

### 4.2) AIR SEPARATOR

Supply of one (1) air separator consisting on piping, two bottoms, one in the up side and one in the down side, for the thermal fluid in-going, centrifugation system, drain and gases extraction and derivations for the connection to the expansion tank and the thermal fluid return network.

### 4.3) VENT VALVES

Supply of two (2) ON/OFF valves, to vent the pressurized system, placed between the air separator and the expansion vessel:

**2x** Interruption valves PN-16, flange connection DN-125.

Seamless steel piping according to A106 GrB and accessories for this pipe such as neck clamps, forged curves for welding, concentrically reductions, caps, graphite seals, nuts and bolts, etc.



## Item 5) TRANSPORT ARRANGEMENTS

From	Our workshop in Barberà del Vallès
Way	One 40' Dry container + your carrier
Incoterms 2010 ICC	FCA PIROBLOC workshop Elements ready to pick up

## Item 6) SUPERVISION OF INSTALLATION AND START UP SERVICE

Supervision of installation made by others and start up service of the heaters by one specialised technician, including the following actions:

- Checking of the installation made by others,
- The first ignition of burners,
- Dilatations control,
- Collection and cleaning of the welding rest of the circuit,
- Burners end regulation,
- Training to the people in charge of the use and maintenance of the heaters, etc.

The price includes the employee's labor per day.

In reference to the round trip flight ticket to Vilnius, hotel and food expenses, please be so kind to read the **GENERAL CONDITIONS OF START UP** included in the present offer.

## Item 7) SPARE PARTS FOR COMMISSIONING

- 2 Temperature probes Pt-100
- 1 Temperature probe "J" Fe-Ko
- 1 Pressure switch
- 1 Differential pressure switch
- 1 Set of spare parts for burner
- 1 Set of spare parts for pump

**Net Price** \_\_\_\_\_ **0,-€**



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GENERADORES DE FLUIDO TERMICO  
CALDERAS DE VAPOR. INGENIERIA



## QUALITY CONTROL RECORD

### Documents included:

- Record of conformity to standards (CE)
- Quality assurance plan route sheet
- Material list
- Certificate of dimensional and visual test
- Material certificate type 2.2 or type 3.1/B according EN-10204.
- Material certificate type
- Film temperature not exceed certificate
- Welding procedure specification
- Procedure qualification report
- Welder qualification test record
- Test certificate of welded section
- Hydrostatic test report
- X-Ray test report (only if required)
- Electrical test report
- Operating technical description
- Lay-out with weight, connections, overall dimensions indications
- Technical manuals
- Start up and operation manual
- Electrical diagram
- Logical diagram (only if required)
- Flow sheet
- Handling operation notice