



SOPARA

Infrared
Heating
Technologies

GAS INFRARED RADIANTS FOR FORGE

Infrared radiant gases intended for preheating or maintaining the temperature of forging tools

French design and manufacture



Specialist in thermal process by electric and gas infrared radiation, **SOPARA** operates in the **forging sector** but also in the automotive, composites, paint, textiles and food industries.

+ The advantages of infrared compared to a traditional heating system:

- +** Energy saving
- +** Homogeneous heating
- +** Controlled final temperature
- +** Reduced heating time
- +** Quick and easy installation and positioning



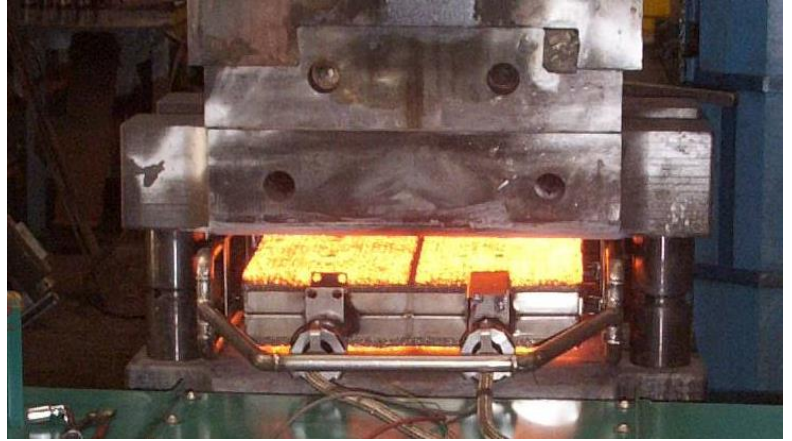
What are gas infrared solutions?

Infrared is generated by the combustion of gas in the refractory support which releases energy in the form of radiation. The use of an infrared radiant allows very fast and homogeneous heating of the forging tools.

The power of a gas radiant can vary according to the need from 100 to 250 kW / m².

All **SOPARA** systems comply with current safety standards.

The gas radiant can be placed directly between the tools in the open position, either on the machine (press or forging hammer) or on the magazine.



Double-sided radiant integrated directly into the press tooling



Mobile trolley allowing the rapid installation of the radiant between the tools

Gas radiators are available in all sizes, single-sided or double-sided. In double-sided heating, the minimum opening of the tool must be 200mm.



Concrete examples of preheating tools



Tools on the magazine: heating of 2 steel tools 400x400x250mm (≈ 310 kg / unit) 200mm apart with a 350x350mm gas infrared radiant.

Thermal results:

Consumption: **18 kWh (1.8 Nm³)**

Heating time: **15 min**

Temperature rise of the higher tool: **165 °C**

Temperature rise of the lower tool: **155 °C**

Energy efficiency **51%**

Tools on press: heating of 2 steel tools 600x400x300mm (≈ 560 kg / unit) 300mm apart with a 500x300mm gas infrared radiant.

Thermal results:

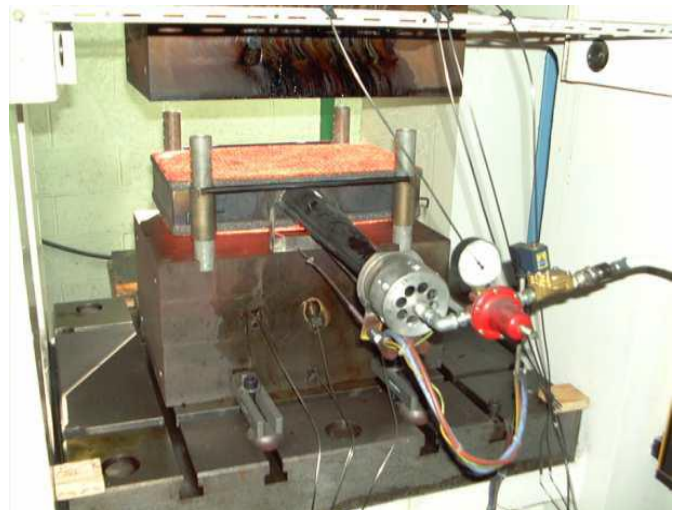
Consumption: **60 kWh (6 Nm³)**

Heating time: **60 min**

Temperature rise of the higher tool: **260 °C**

Temperature rise of the lower tool: **270 °C**

Energy efficiency **43%**

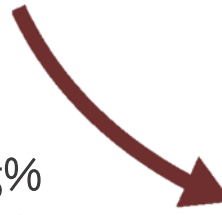


Maintain consistent tool temperature at 400 °C



Without infrared:
42 000 Nm³ of gas/year

Machine availability : <75%
Slide temperature : >90°C

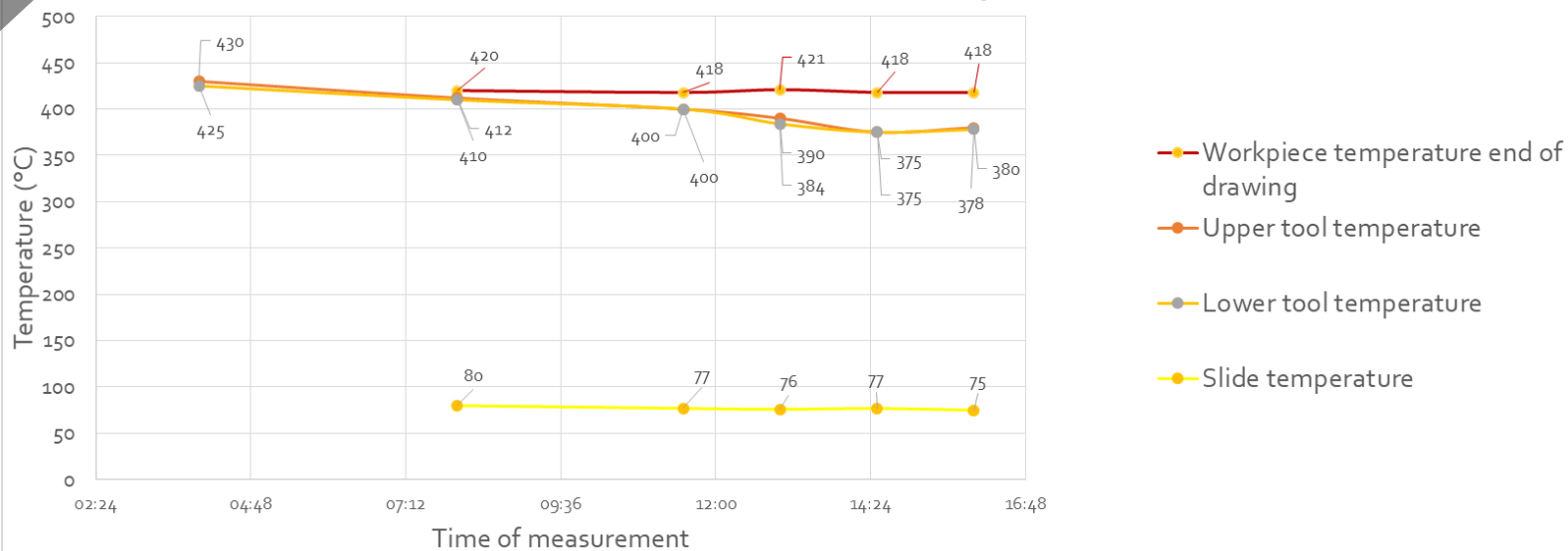


With the infrared :
11 000 Nm³ of gas/year

Savings: 31,000 Nm³ per year (> 20 k€ H.T.)
Machine availability: 100% (> 50 k€ H.T.)
Slider temperature stabilized : < 75°C
Maintenance: reduced



Tool temperature curve during operation





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