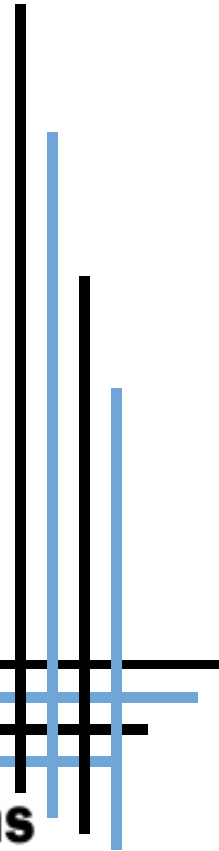


ELE.TEC.

**Electronic Design & Infrared Systems**



# INTRODUCTION

- **Low thermal efficiency in processes involving heat exchanges is the primary cause of the energy resources depletion**



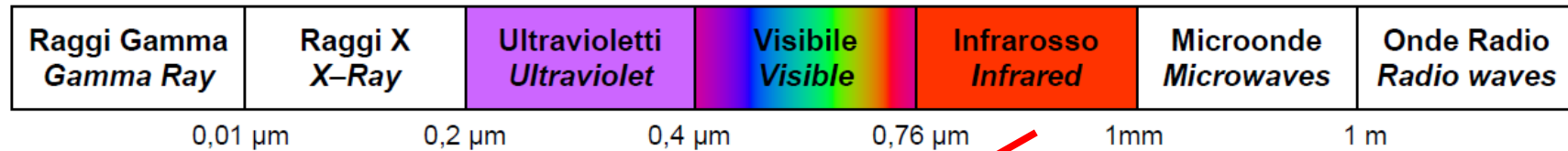
- **regarding the drying process (and treatment in general) is necessary to improve energy use, product quality and, above all, productivity**



**About the drying of paints and putties,  
INFRARED RAYS  
offer many potential advantages compared to traditional  
heating by convection**

# INFRARED RAYS (IR)

Spettro delle radiazioni elettromagnetiche  
*Spectrum of electromagnetic radiation*



WAVE TYPE	WAVELENGTH
SHORT WAVES	0,76 ÷ 2 $\mu\text{m}$
MEDIUM WAVES	2 ÷ 4 $\mu\text{m}$
LONG WAVES	4 ÷ 300 $\mu\text{m}$

# **INFRARED RAYS**

## **APPLICATIONS**

- **Clothes drying process**
- **Production of paper and professional printing techniques**
- **Heating of plastics and metals**
- **Heating of domestic and work environments**
- **Rubber vulcanizing processes (tires)**
- **Drying of paints (automotive industry, body shops)**

# INFRARED RAYS: ELECTRICAL SYSTEMS

## Applications in the automotive industry



**Drying of water-based paints**



**Drying of varnish and primer**



**Treatment of PVC parts and sealants**



**Treatment of soundproofing panels, before their installation**

# INFRARED RAYS: ELECTRICAL SYSTEMS

## Applications in the automotive industry



**Drying paint  
on fuel tanks**



**Heating of mouldings and of the zones where they have  
to be mounted**



**Paint treatment  
on varnished  
bumpers**



**Removing  
creases from  
molded  
components  
(eg. seats)**

# **INFRARED RAYS: a first conclusion**

- Infrared radiation transfers heat directly and with maximum efficiency
- Infrared technology means heat only where it is needed, with considerable energy savings
- The infrared system is more similar to natural sunlight

# INFRARED RAYS: gas systems ↔ electrical systems

	Characteristics
<b>GAS Systems</b>	<ul style="list-style-type: none"><li>• Emission of waves of different lengths;</li><li>• Real costs per unit area: "medium";</li><li>• 3 different connections: gas, compressed air, electricity (used for the preheating of catalytic lamps);</li><li>• Expensive machine with high maintenance costs (periodic replacement of the catalytic lamps).</li></ul>
<b>ELECTRICAL Systems</b>	<ul style="list-style-type: none"><li>• Emission of single type waves, specifically designed for drying paints</li><li>• Relatively high operating costs (electricity);</li><li>• 1 connection only: electricity network;</li><li>• Cost of the machine and real operating costs relatively low.</li></ul>

# INFRARED



# CONVECTION

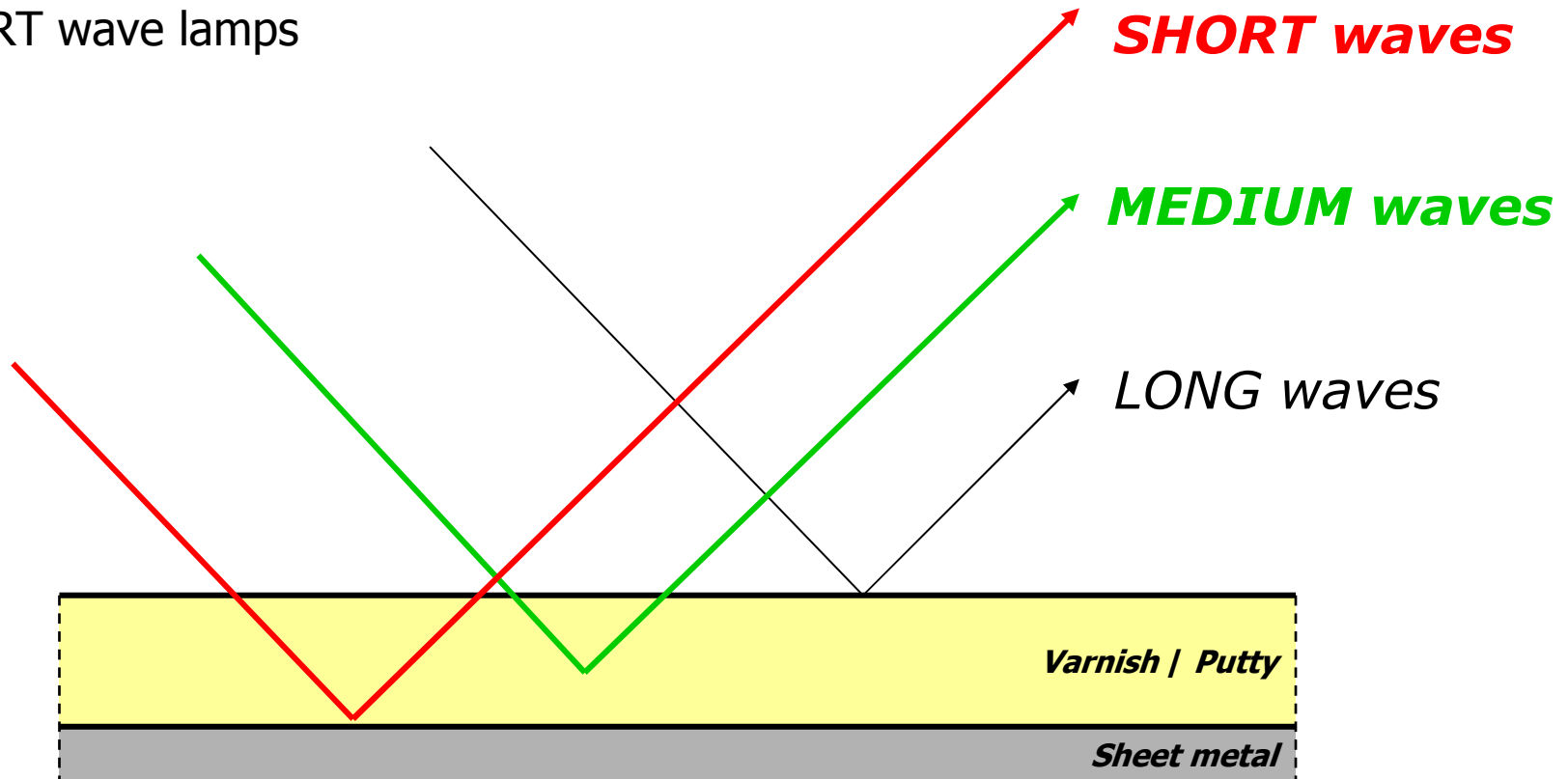
ADVANTAGES/ FEATURES	TRADITIONAL CONVECTION OVEN	INFRARED TECHNOLOGY	
		GAS	ELECTRIC
Widespread distribution of heat	✓		
The intensity can be adjusted easily for different types of products		✓	✓
Use less energy per unit area for drying		✓	✓
Energy source at lower cost (time-varying parameter)	✓	✓	
Operating costs per unit of dried surface	High	Low	Low
Costs of ordinary and extraordinary maintenance	High	High	Low
Real costs per unit of dried surface	High	Medium	Low

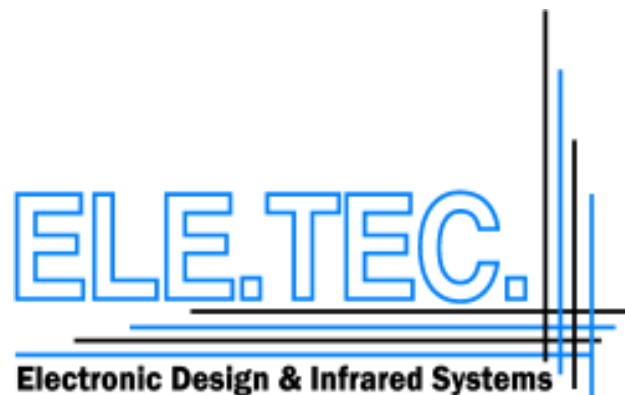
# INFRARED RAYS: **PAINTING**

## MEDIUM WAVES ↔ SHORT WAVES

The **ELE.TEC.** infrared dryers are available with panels equipped with

- FAST-MEDIUM wave lamps, or
- SHORT wave lamps





**[www.ele-tec.it](http://www.ele-tec.it)**

**[info@ele-tec.it](mailto:info@ele-tec.it)**

**Tel.: 0425/762450**

**Fax: 0425/769623**

**Via dell'Informatica, 29  
45030 OCCHIOBELLO - ROVIGO - ITALY**