

A photograph of an industrial furnace with molten metal being poured, overlaid with a large white arrow pointing right. The image is tinted with a reddish-purple hue.

# WIRELESS POWER TRANSFER SOLUTIONS FOR ENERGY EFFICIENT FURNACES AND INDUSTRIAL APPLICATIONS

CIRCE FOUNDATION

Brussels, 22 october 2018.



# THE PROJECT

**FP7 Project coordinated by TECNALIA with 10 partners**

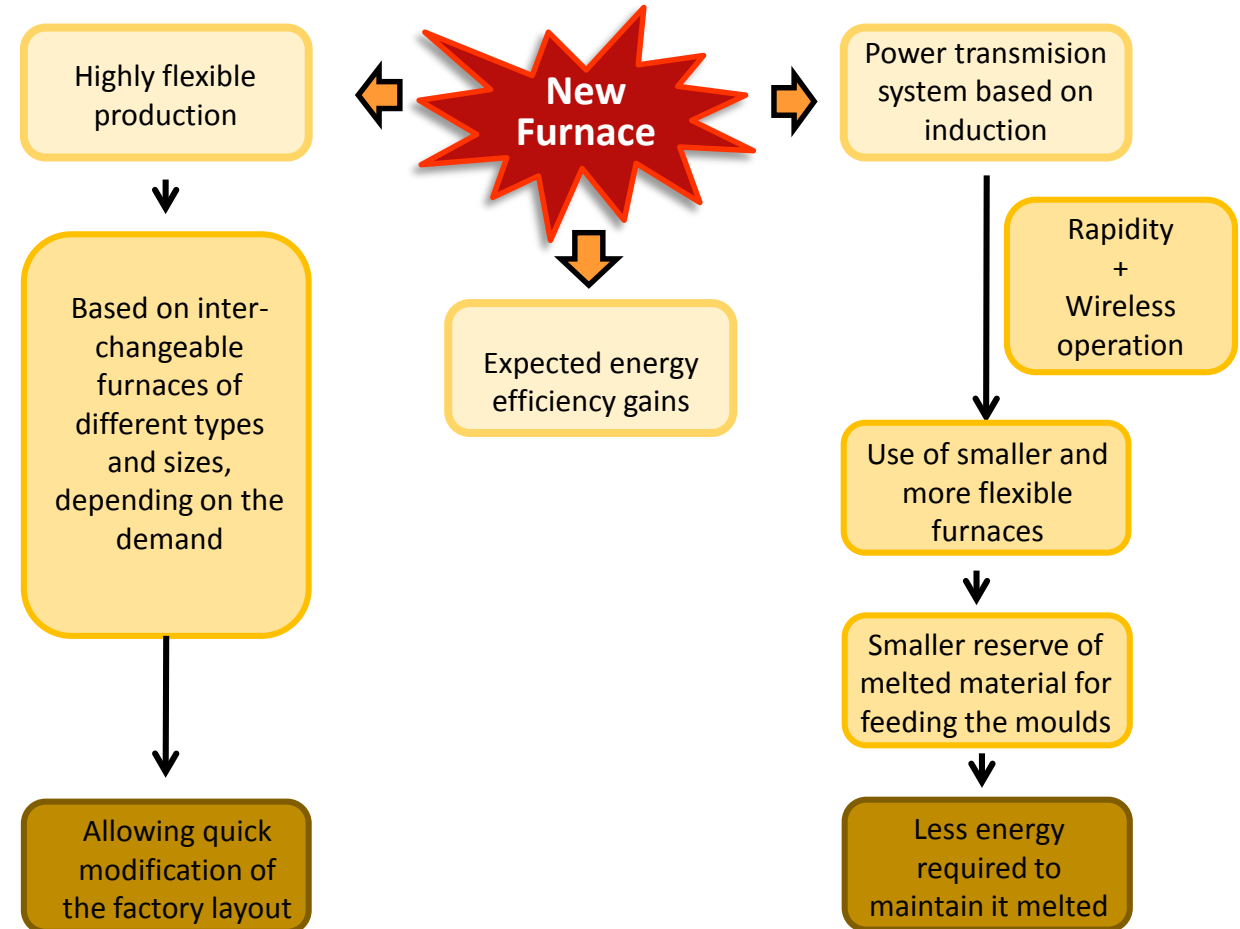
To reduce the energy consumption in the casting and manufacturing processes and to reduce the GHG emissions with the aim of achieving lower carbon footprint products.



# THE PROJECT

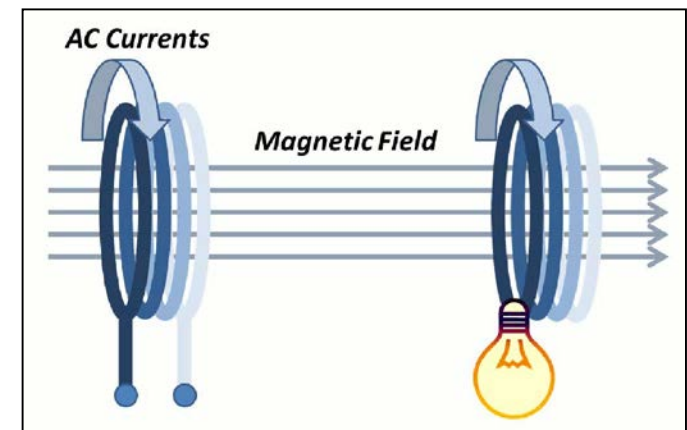
## LEADING INNOVATIONS

- More flexibility
  - Less emissions
  - And more energy efficiency
- ...within the whole plant



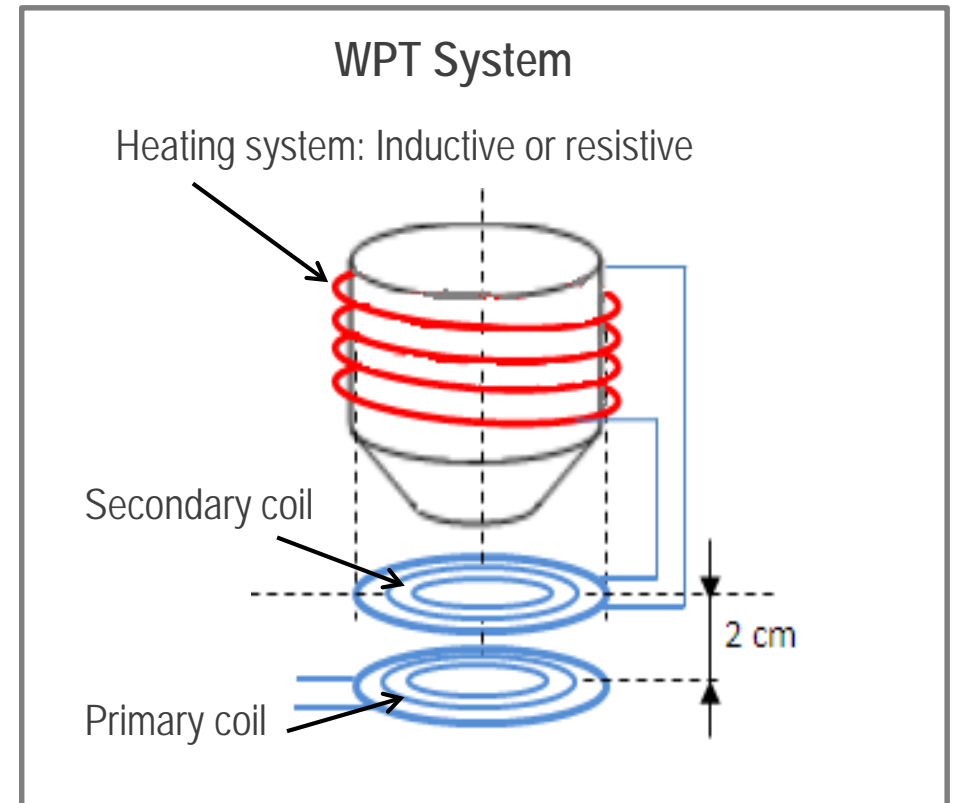
# THE CONCEPT BEHIND WPT SYSTEM OPERATION

- An WPT (Wireless Power Transfer) consist of two coils separated through the air by a defined distance.
- The system works as a transformer but in this case without iron core



# THE CONCEPT BEHIND WPT SYSTEM OPERATION

1. The objective is to feed the resistance of the induction heating coil using an WPT system
2. It allows a highly flexible production. This increase on the production flexibility attends to the current variability of the foundry products demand.





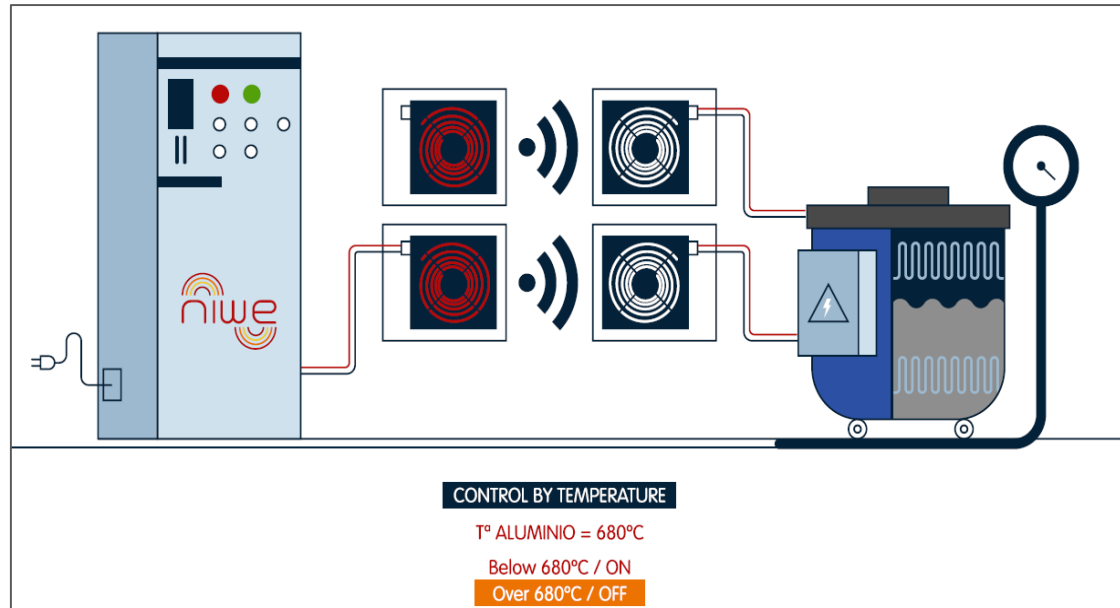
# DEMONSTRATION IN A REAL ENVIRONMENT



# THE DEMO

## DEMONSTRATION AT FONDERIA2A (ITALY)

Each WPT consists of two modules (primary and secondary) of 50 kW





## THE DEMO

### DEMONSTRATION AT FONDERIA2A (ITALY)

The WPT maintains the temperature of the load in the holding operation at **680°C**, while waiting for feeding the cycle.

680°C ✓

Therefore there is **no need of a overheat up to 750°C** of the aluminum, **reducing the consumption of energy and increasing the quality** of the aluminum.

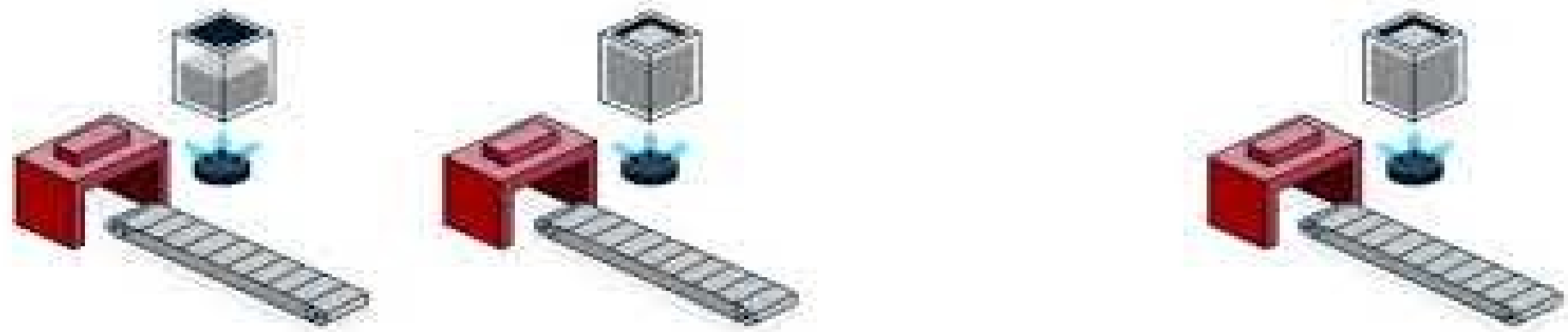
750°C ✗



# APPLICATION IN THE INDUSTRY

## CURRENT PROCESS

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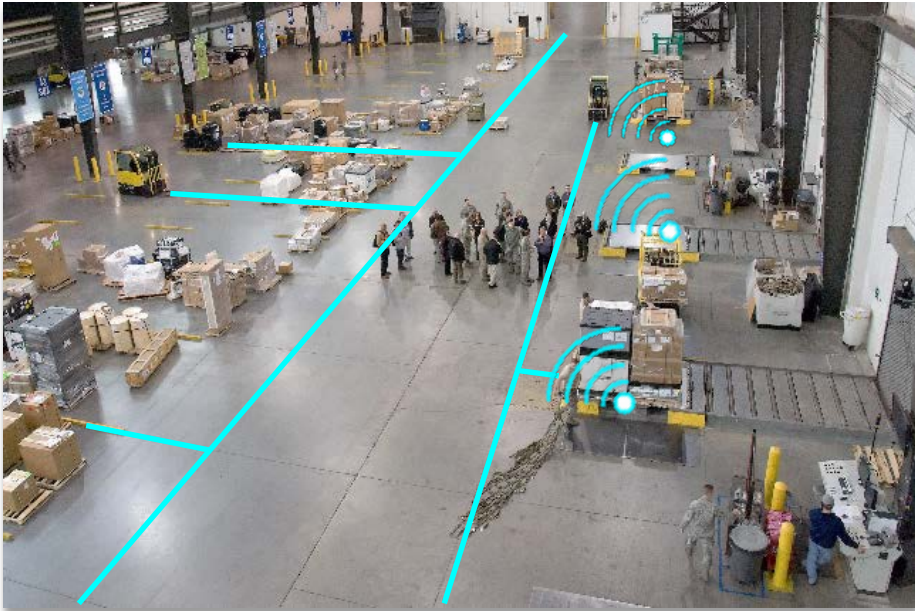


# OTHER APPLICATIONS

## A SOLUTION FOR MULTIPLE SECTORS AND INDUSTRIES

### AUTOMATED INDUSTRIES

Charging System for AGVS (Automated Guided Vehicles) to optimize industrial process.



### EXPLOSIVE ATMOSPHERES

Charging System for mining industry electric vehicle and also for electric heavy tools.



Source:  
Artisan Vehicles

# THANK YOU VERY MUCH FOR YOUR ATTENTION

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