



Industry 5.0 applied to new machinery for Gold and Silver ingots production

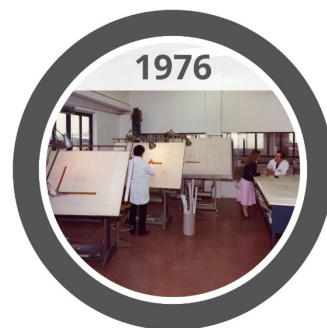


ASSAYING &
REFINING
CONFERENCE

THE STORY



ITALIMPIANTI ORAFI'S
FOUNDATION



FIRST MEDIUM-FREQUENCY
INDUCTION MELTING FURNACE



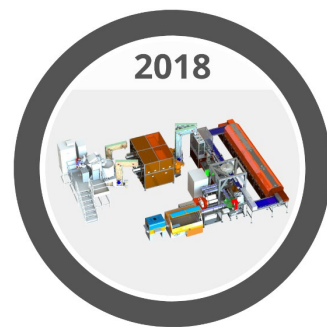
Start of the industrial
machines manufacture
for the **REFINING OF
PRECIOUS METALS**



The company
obtains patent of
the **FIRST TUNNEL
FURNACE**



Italimpianti starts its
winning collaboration
with **TERA AUTOMATION**.



FIRST T-LINE
the first fully automated line in
the world for the controlled and
certified mass production of
gold and silver bars.



Development in an
Industry 4.0 perspective.



INDUSTRY 5.0 product line.

We slept on our laurels



INDUSTRY 5.0 PRINCIPLES:

- reducing energy and resource consumption
- supports more environmentally friendly production processes



ITALIMPIANTI GRAF



A NEW WORK PHILOSOPHY

INDUSTRY 5.0



ITALIMPIANTI GRAFI



A NEW WORK PHILOSOPHY


Industry 4.0



Reduction of machines'
physical space

Reduction of
energy consumption

Reduction of
consumables

A close-up photograph showing several hands of different skin tones working together to assemble a complex mechanical structure made of interlocking gears. The gears are primarily orange and blue. The hands are positioned around the gears, with fingers carefully placing and adjusting them. The background is dark and out of focus.

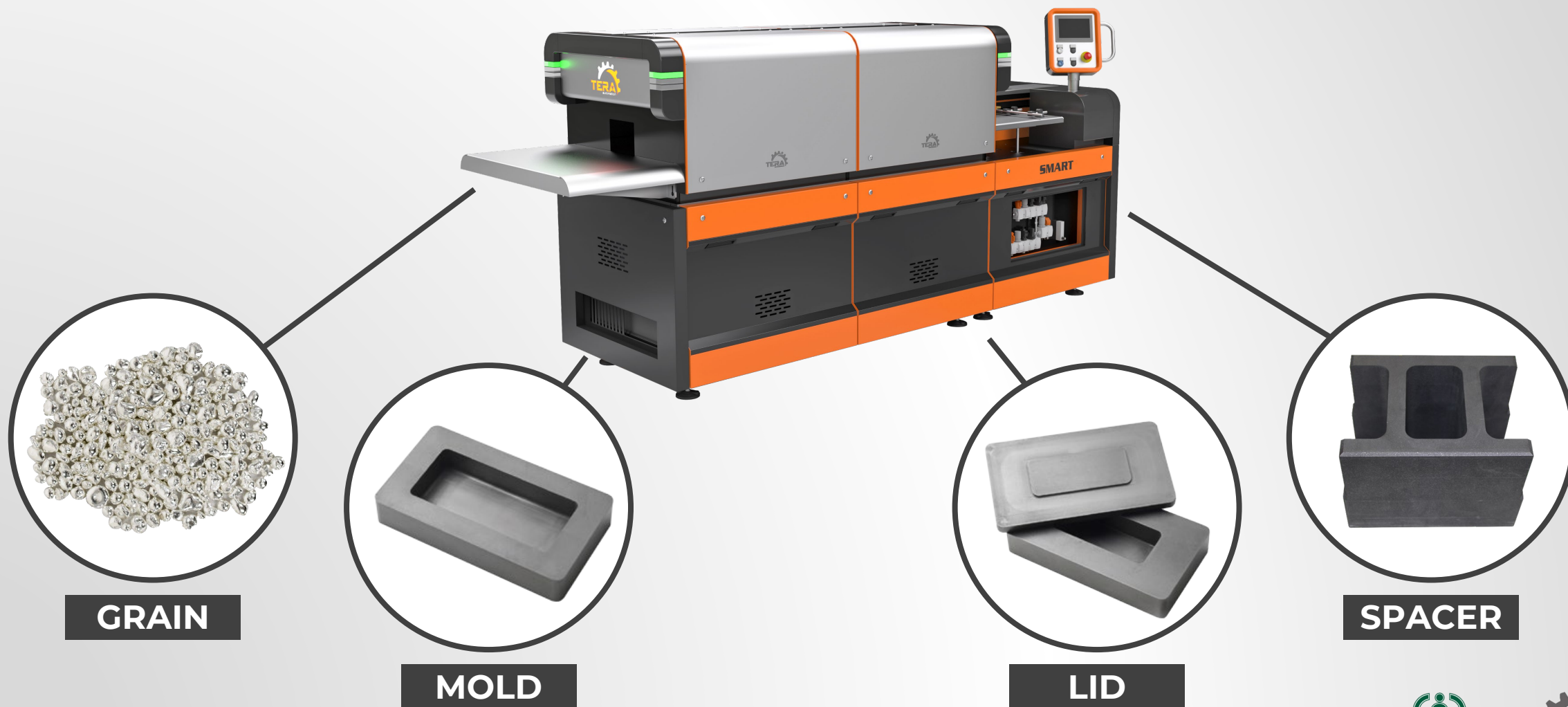
**But what does it mean
in practice?**



ITALIMPIANTI GRAFI



Our traditional furnaces require

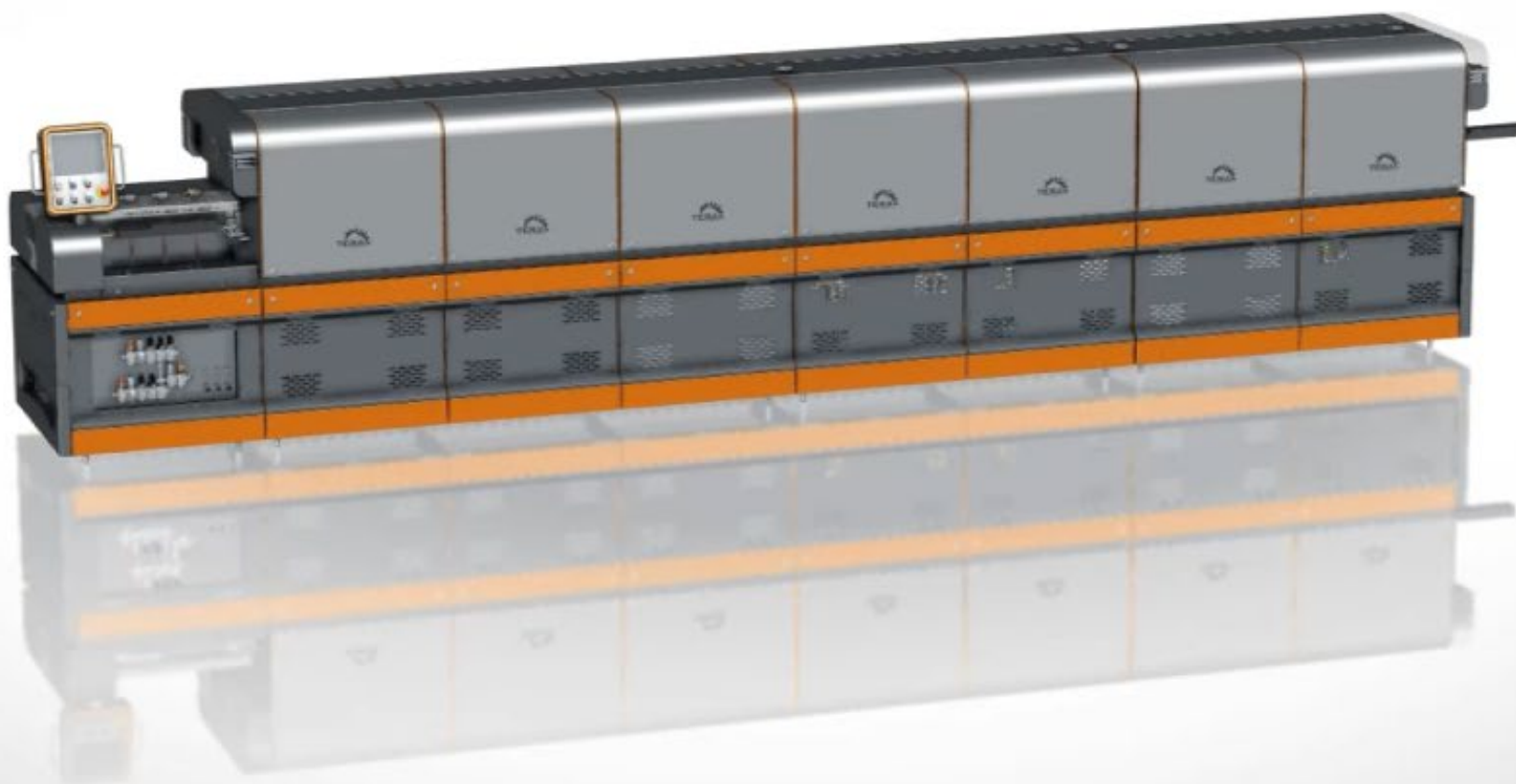




**Our first step attempt...
reduction of
machine's footprint.**

T-Barmaster Powerloop

For companies with special space requirements



The next step was...



**minimizing
consumption**

**optimizing
performance**



ITALIMPIANTI GRAF



T-Barmaster Spaceless

The first tunnel induction furnace WITHOUT spacers



T-B Spaceless: **OPTIMIZATION**



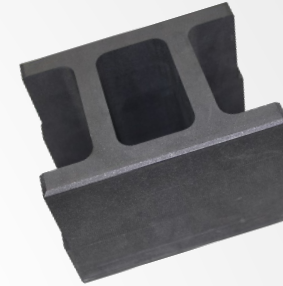
Smaller footprint



Lower consumption



Optimum performance



T-BARMASTER ONE SMART

1 hour

1
kg/bar

2 kW



3,9 m²

T-BARMASTER ONE SMART

SPACELESS

1 hour

1
kg/bar

1 kW



3,1 m²

Reduction of consumption by

50%

Reduction of footprint by

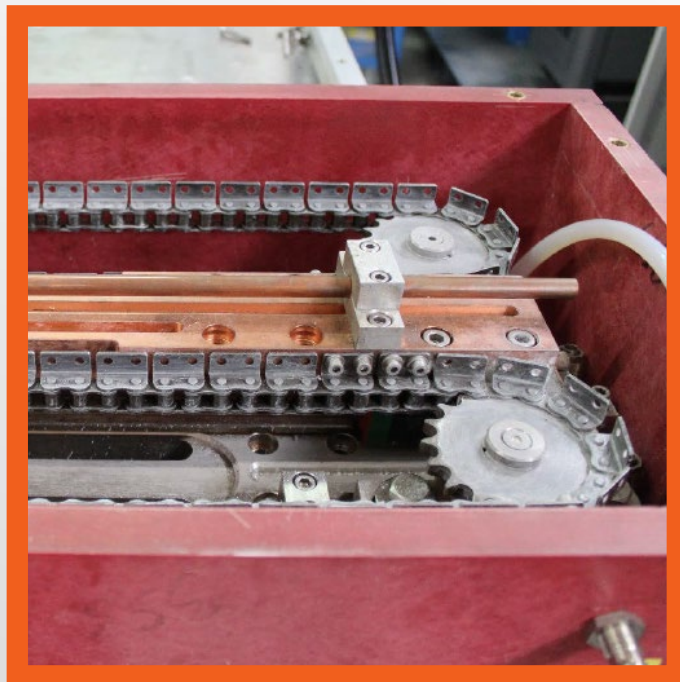
21%



ITALIMPIANTI DRAFT

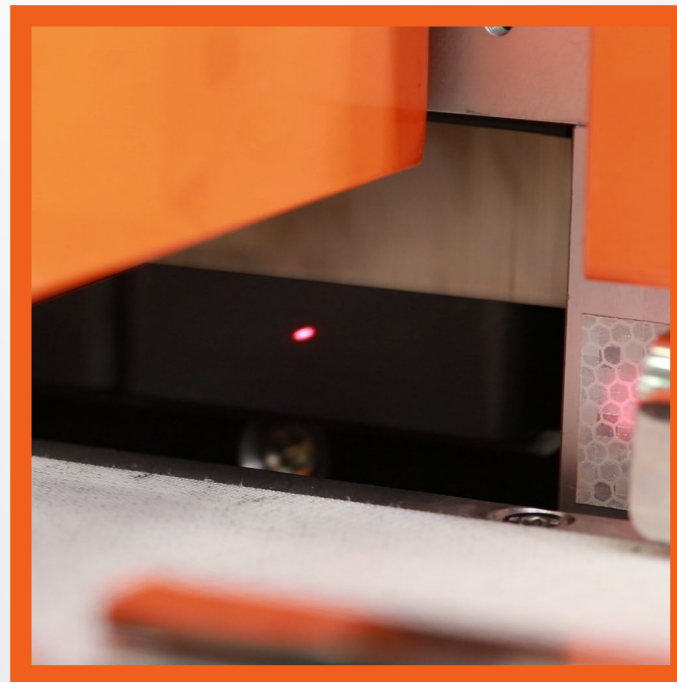


T-B Spaceless: INNOVATIONS



1

**Water-cooled
telescopic pusher**



2

**Gate valve instead
of Pinch valve**



3

**High-efficiency
converter**



A close-up photograph of a large, dark, textured metal casting. The casting has a circular opening in the center, revealing a lighter, smoother interior. The surface of the casting is rough and granular, typical of a sand-cast part. The lighting is dramatic, highlighting the textures and the circular feature.

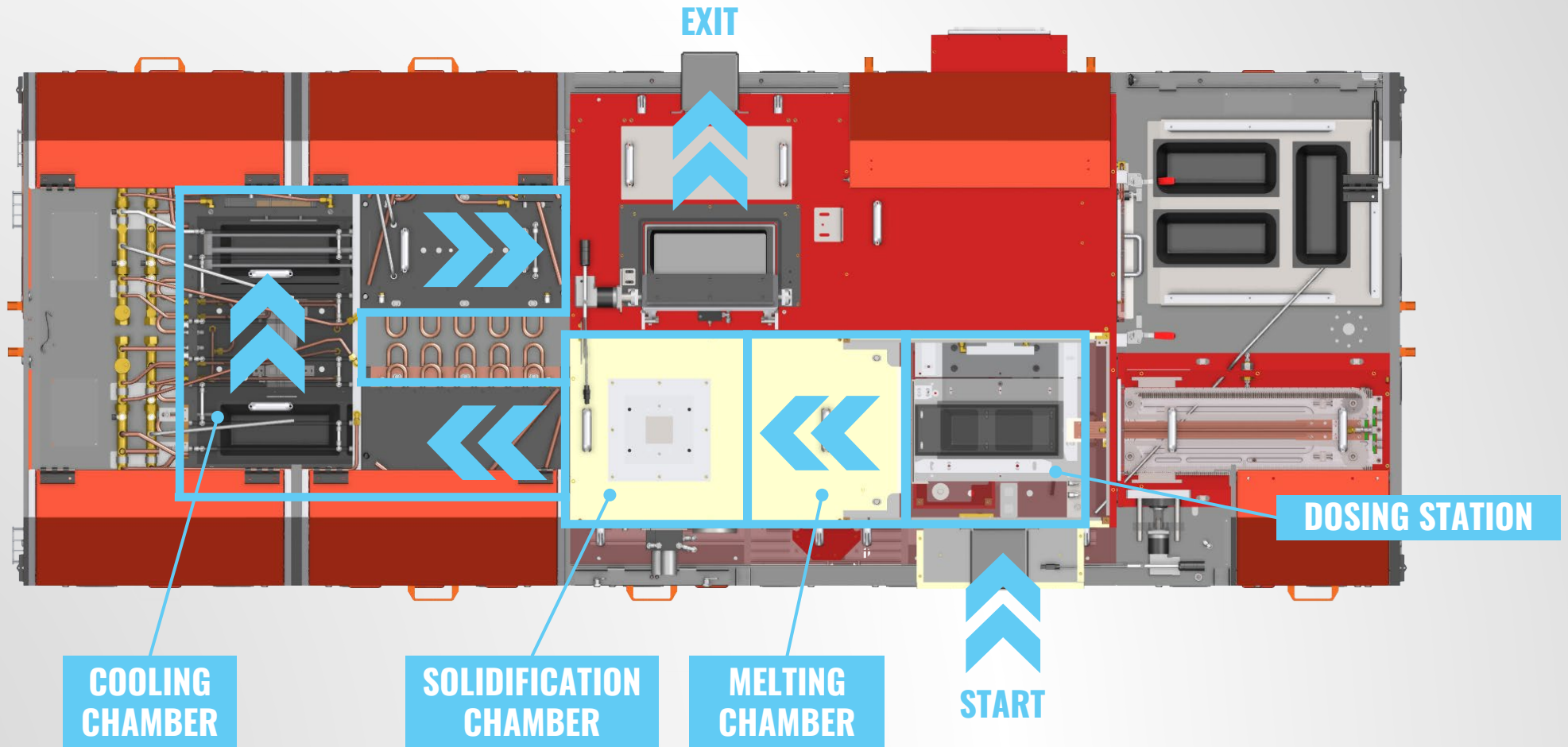
**The challenge was:
skip a casting step
and start with refined metal**

How to optimize the process

IT Onecast

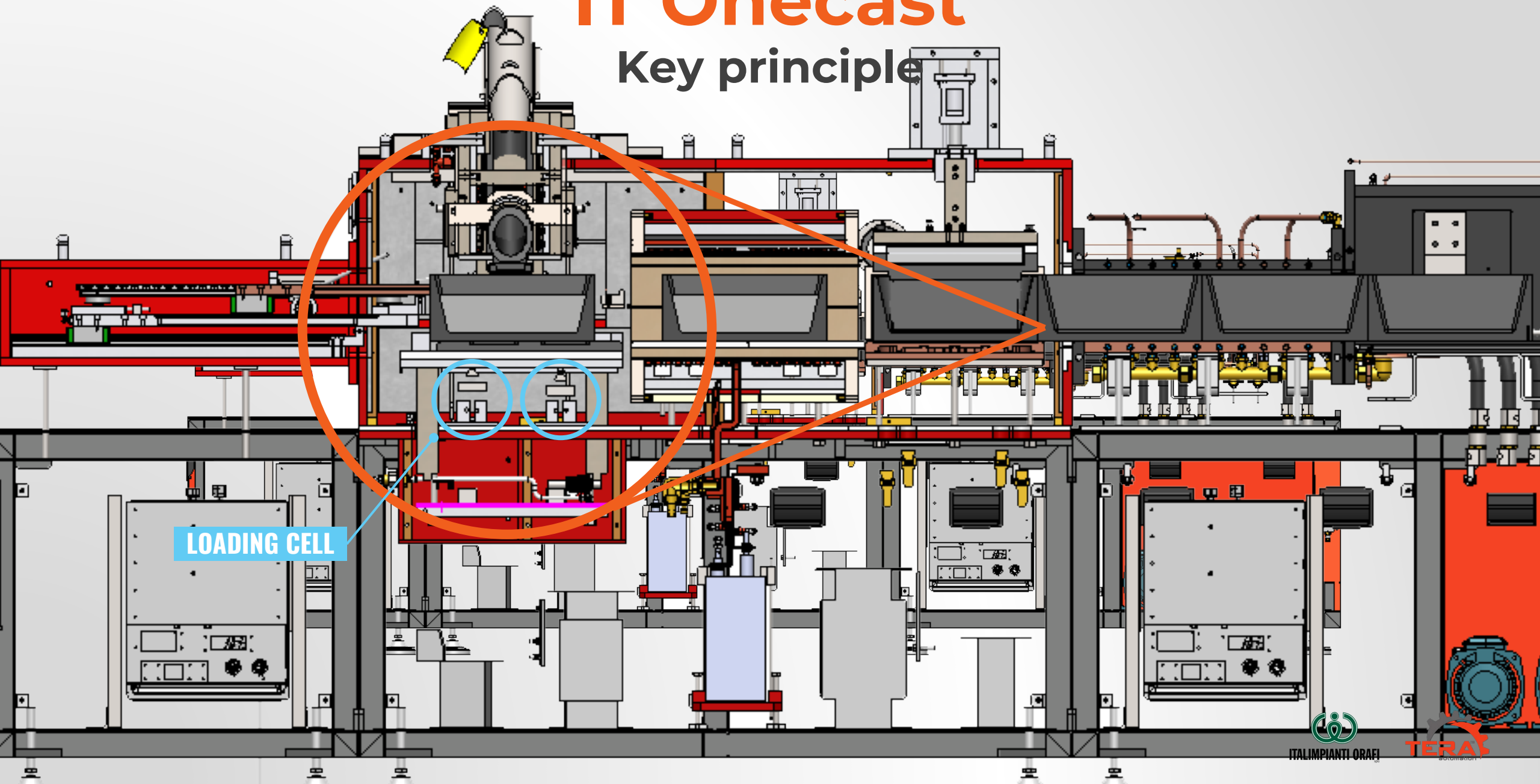
**Allows metal to be melted in its different forms
and poured directly into the ingot mold**

T-Barmaster Spaceless Good Delivery



IT Onecast

Key principle



LOADING CELL



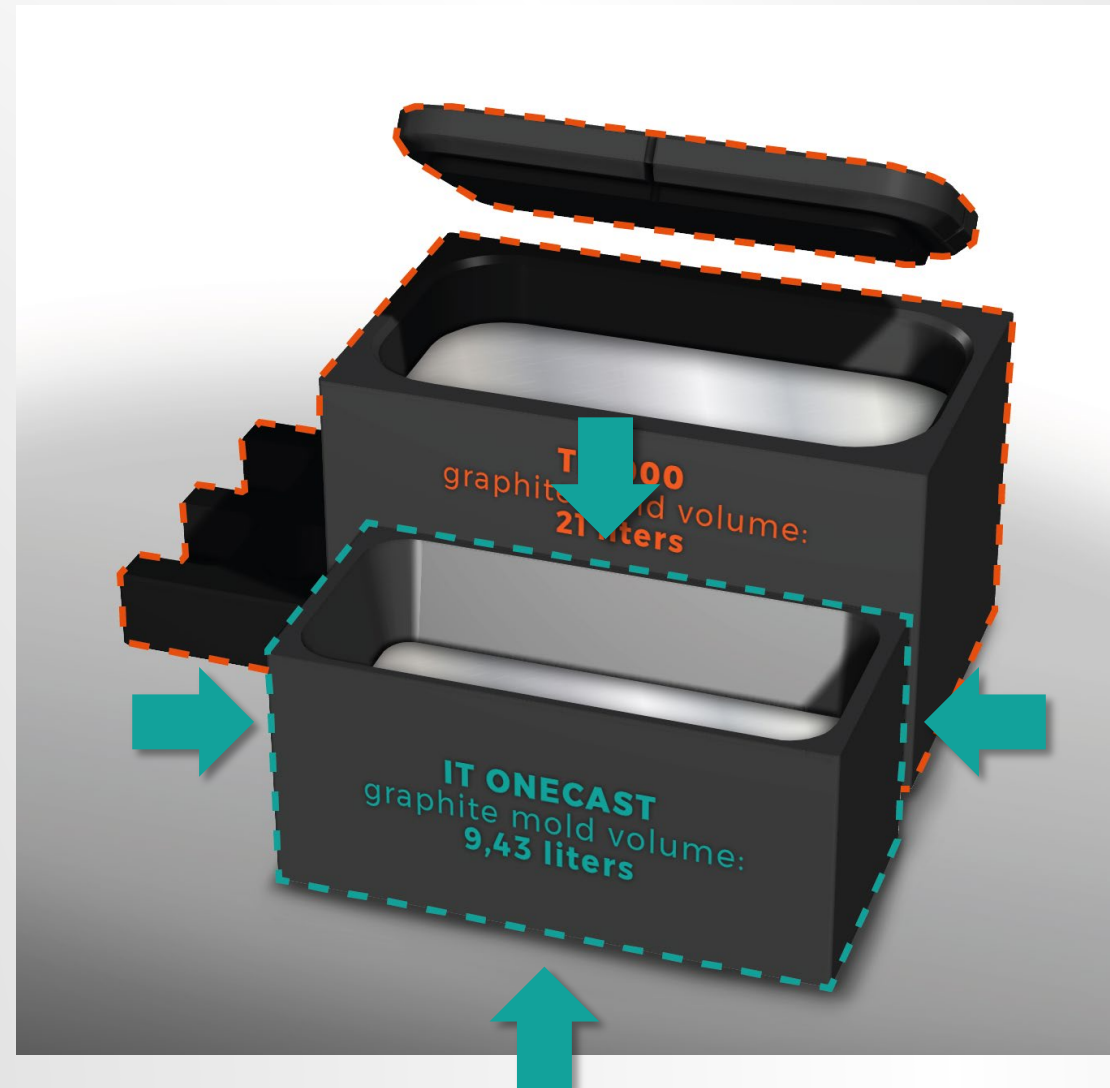
ITALIMPIANTI ORAFI



TERA

IT Onecast

Focus on consumable saving



IT Onecast

Focus on consumable saving

The mold volume is significantly reduced as it exclusively contains the molten metal at its maximum density (10,5 kg/l), without the need to load grains or crystals that require larger mold volumes.

TB1000

445,5
liters



81%
Graphite
saving



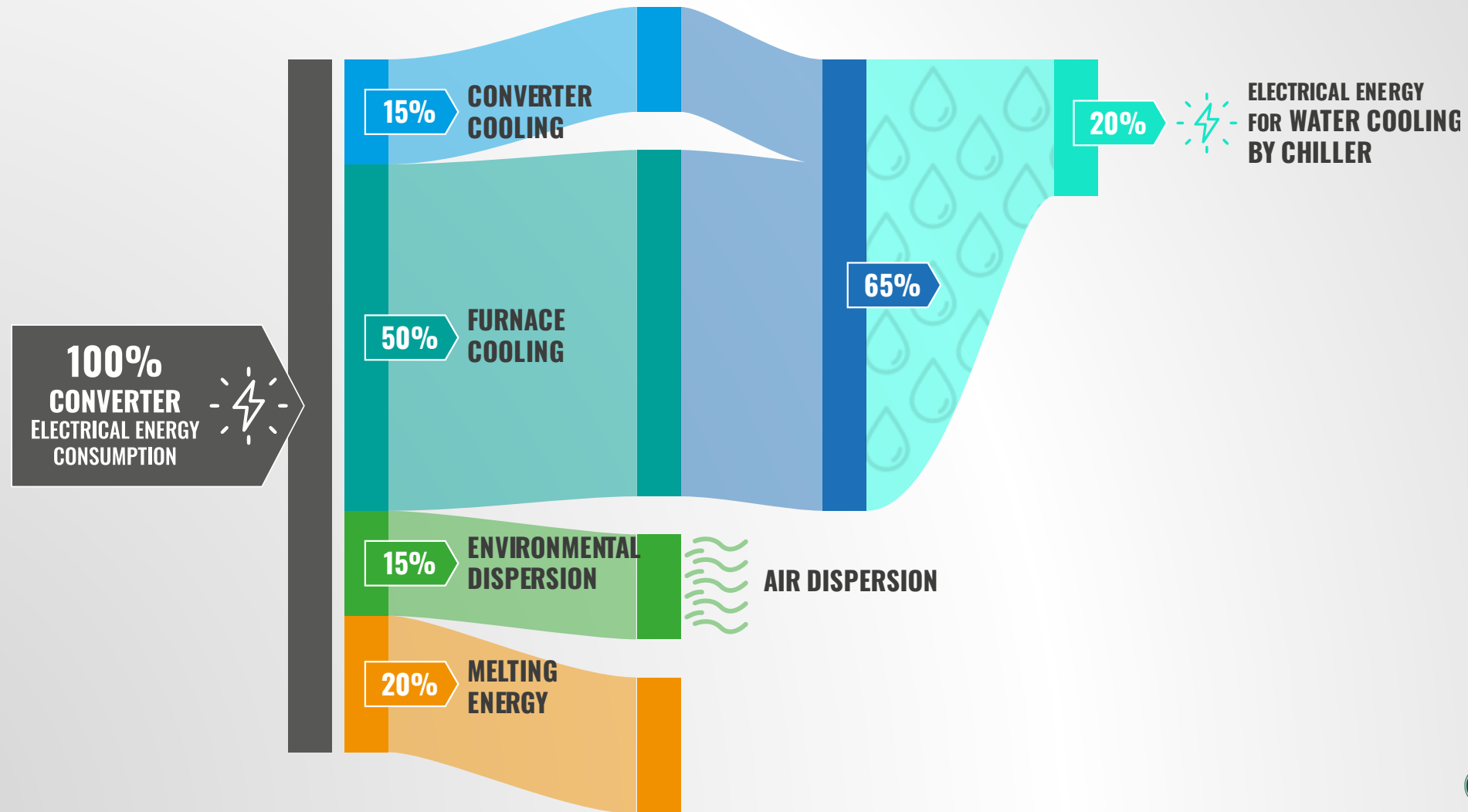
ITONECAST

84,87
liters

How to optimize cooling system?

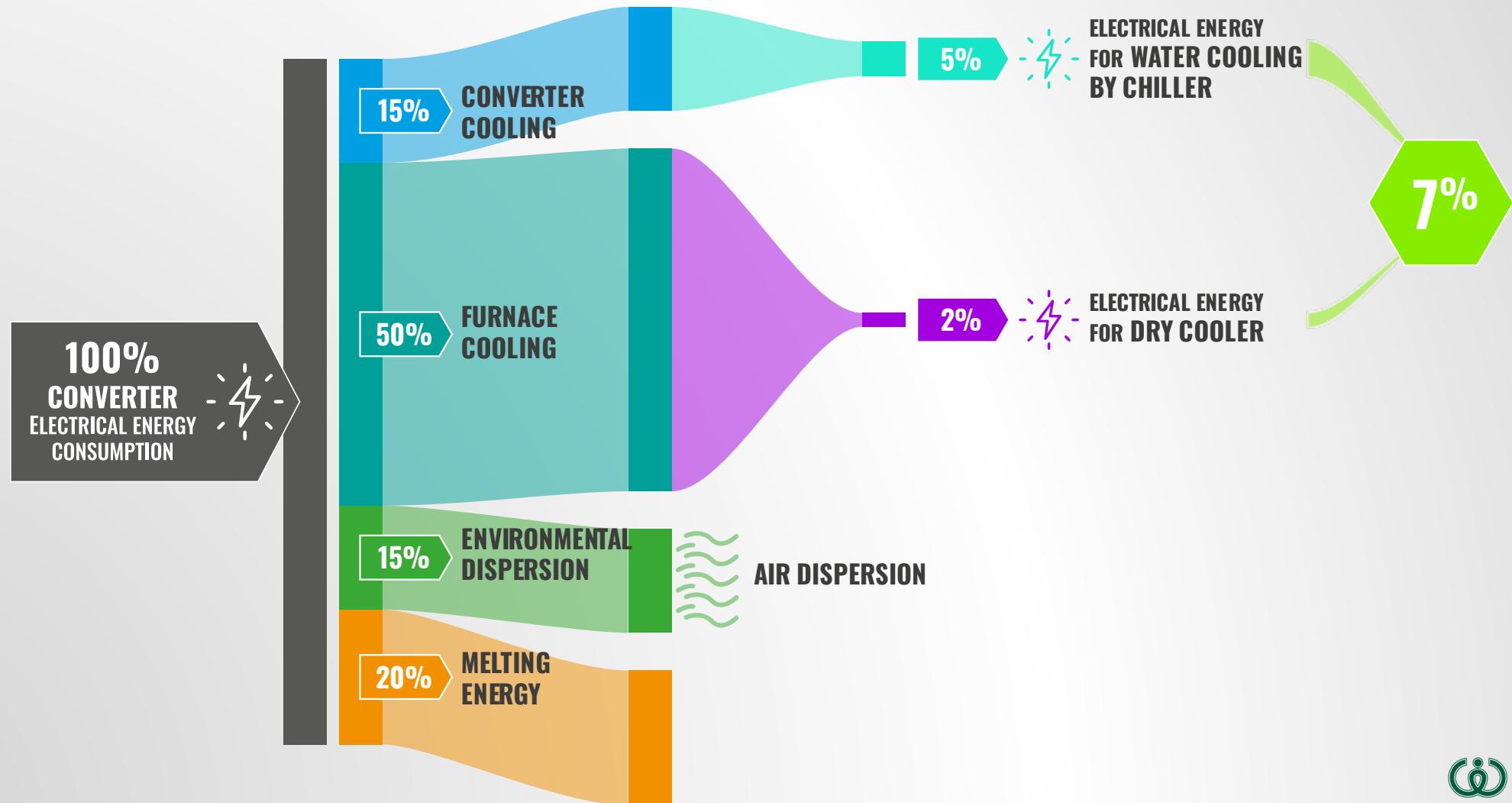
How to optimize cooling system

The traditional system was...



How to optimize cooling system

The new system will be...

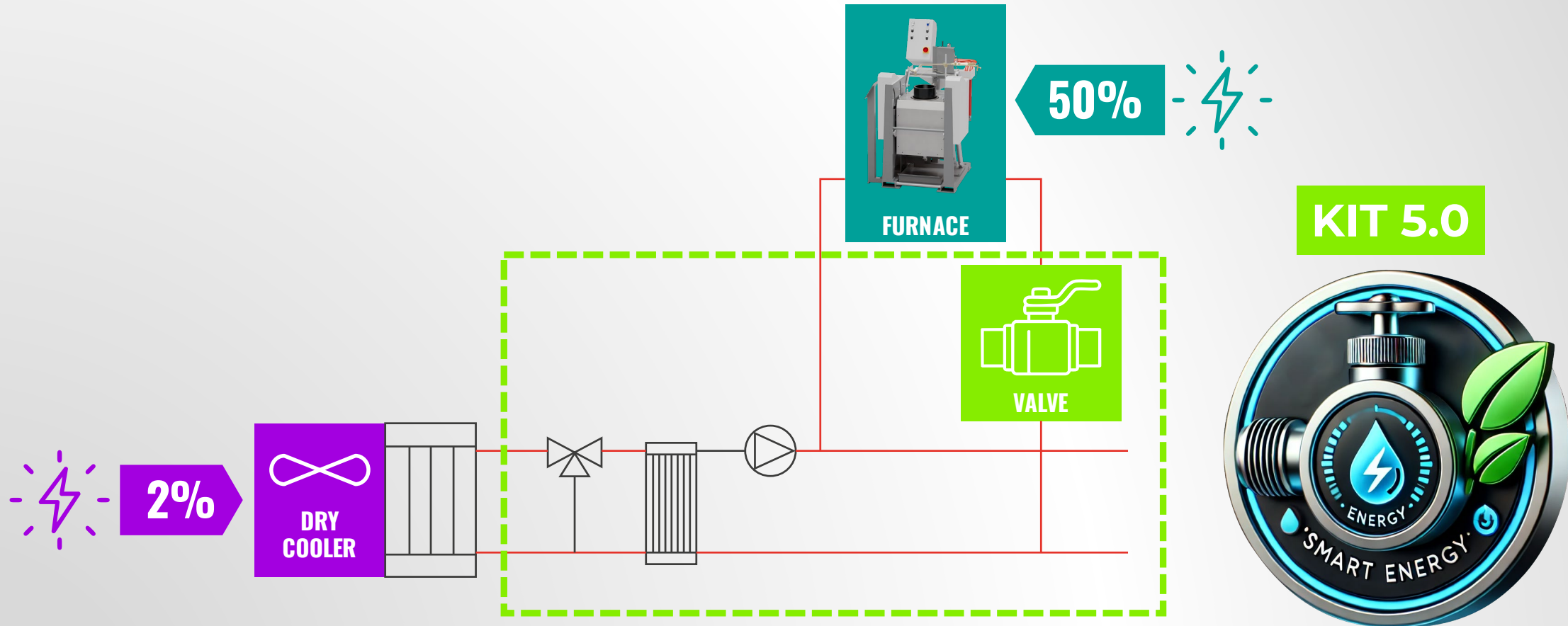


How to optimize cooling system



How KIT 5.0 works

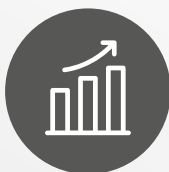
A smart energy valve kit



IT Onecast: **BENEFITS**



**Footprint
reduction**



**3 x
T-Barmaster**



**No spacers
No mold lid**



Ecological



**Continuous
cycle**



**Integrated
weighting
system**



**No immersion
in water**



**Operator
safety**

What's more?

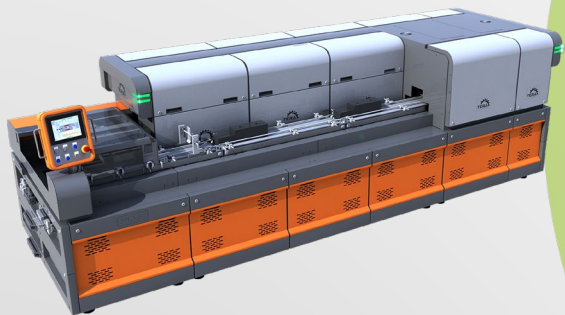


**From refined
metal**



**Compact
molds**

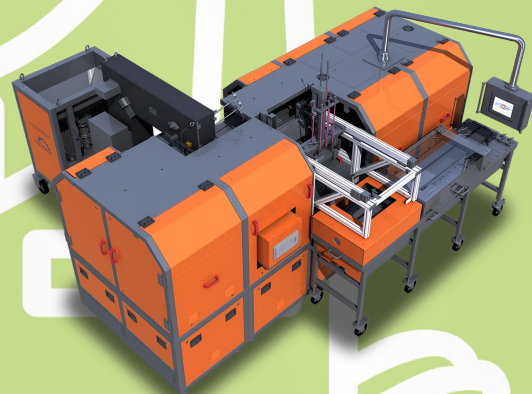
OUR NEW ECO-FRIENDLY FURNACES



**T-
Barmaster
Powerloop**



**T-
Barmaster
Spaceless**



**T-Barmaster
Spaceless
Good Delivery**



IT Onecast

The present demands great challenges...

...we are ready!



ITALIMPIANTI ORAFI
s.p.a.



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REFINING
CONFERENCE