CURING OVENS WITH STEP-BY-STEP MOVEMENT

Approximately 7 years ago, when implementing a new KTL and Powder Coating plant, we set a goal aimed at reducing energy consumption and optimizing the space allocated for paint curing ovens.

The most common type of curing ovens typically installed involves pieces entering and exiting at floor level. This configuration necessitates long pre-ovens equipped with air curtains that inevitably consume a certain amount of electricity. Despite the pre-ovens, however, this solution results in significant losses of hot air and consequently energy.

To mitigate this problem, we constructed so-called “CANOPY ovens” with bottom entry and exit. This solution eliminates air curtains, but the entry/exit mouths are quite wide and, in turn, cause losses through convection and radiation. Additionally, in both aforementioned solutions, the conveyor chain and the corresponding piece support bars enter the oven, absorbing energy.

We thus developed a new oven concept, and already in the initial study phase, significant results emerged.

Our focus was on an approach involving efficient handling to reduce space and enable material entry and exit from the bottom with minimal openings to minimize heat loss to the hoods.

The first prototype we developed clearly showed markedly superior performance compared to conventional systems. The combination of optimized handling and an elevated oven proved to be a winning solution, highlighting tangible benefits in terms of energy efficiency and space utilization.

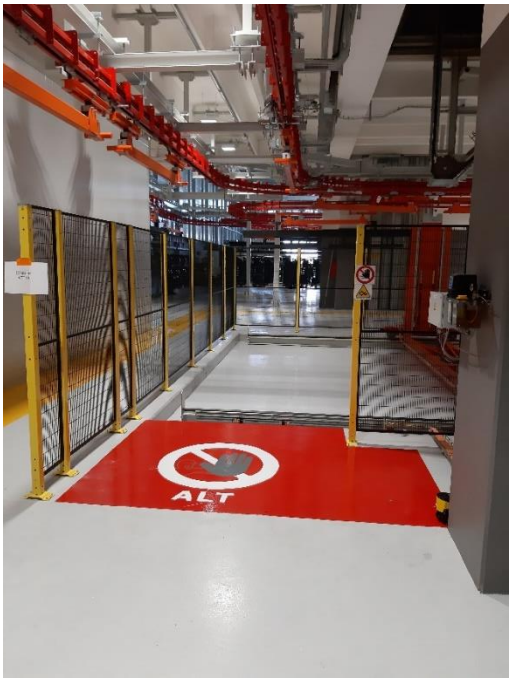
Furthermore, with this system, the overhead conveyor no longer passes through the oven, so it does not heat/cool down with each cycle, allowing for significant energy savings and drastically reducing expansions, stresses, and wear.

As we progressed towards the realization of the second oven, we further refined our solution by defining and optimizing every aspect of the system, we ensured greater consistency in performance and maximized benefits. The clear evidence of the high performance already observed in the first prototype was consolidated, confirming the validity and effectiveness of our innovative proposal.

In conclusion, our steadfast commitment to achieving the set objectives has guided us in creating an advanced and efficient solution for paint curing. Through the integration of an innovative handling system and the use of elevated ovens, we provide a solution distinguished by its high performance and effectiveness, fully in line with the style that characterizes us in our industry.

Trasmetal S.p.A.

View from the oven outlet side



Side view of entrance to cooking oven

Front view transfer frame from oven to bi-rail

Interior views of oven cooking chamber

Side view path inside frames