



ENERGY SAVING - SCALE REDUCTION

2015 – Sidenor (Greece)
– Pusher Type Furnace

Equipment revamping – Low Investment
Cost and High Benefits

PROJECT

90 t/h Pusher Type Furnace, 140x140x9700mm billets

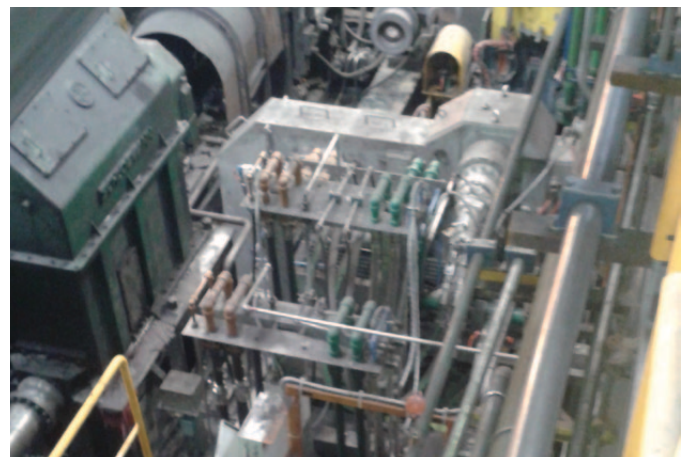
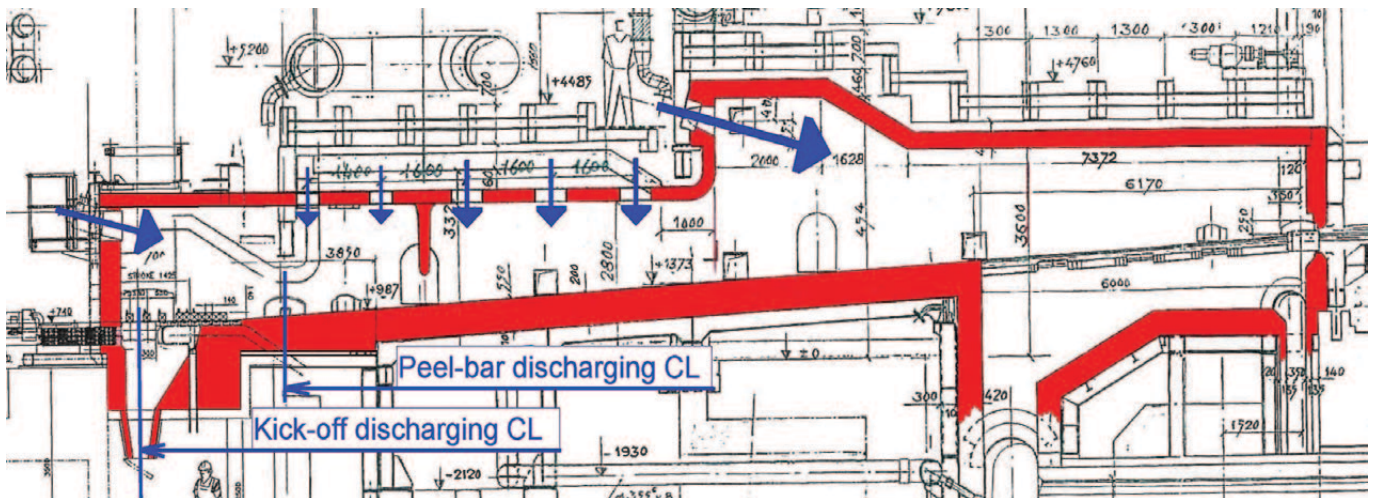
- New furnace profile to house roof burners, kick-off machine and discharging double roller way
- Replacement of preheating front burners and relocation of existing soaking burners
- New compact peel-bar to allow billet discharging three meters before the roller way centreline
- Upgrade of automation hardware and software

HIGHLIGHTS

- Furnace massive modification to allow operation without or with induction heating (Hybrid Reheating)
- Energy saving and scale reduction thanks to different operating modes:
 - furnace on, simultaneous discharging by kick-off of two billets on the double roller way
 - furnace on, displaced billet discharging by peel-bar with final reheating by electrical inductors
 - furnace off, billets from CCM to electrical inductors and then to the mill over the furnace roller way
- Articulated peel-bar machine allows installation in severely constrained area

ACTIVITIES

Mechanics, refractory, electrics and automation





Proven Track records

BENEFITS

Performance improvement
Revamping and relocation
Replacement of obsolete equipment
Fuel conversion and/or combustion system enhancement
Capacity upgrade
Scale reduction
Energy saving
Product enhancement
Safety update and Regulation compliance
Environmental responsibility

SCORE

Total revampings carried out on reheating & heat treatment furnaces for flat, long and pipe products	#51
All Information refers up to 2015	

TECHNOLOGICAL PACKAGES

Ultra-low NOx[®] flameless burners	Patented burners operating in both staged combustion and in flameless mode to guarantee reductions in NOx emissions
TFB-REK[®]	Patented TFB-REK [®] self-recuperative burners providing internal high efficiency air preheating without a central heat recovery unit
2P-type RTS + TFB-REK[®]	2P-type Radiant Tube Shape combined with self-recuperative TFB-REK [®] burners guarantees state-of-the-art strip temperature uniformity
Eco-wet rolls[®]	Patented rolls for tunnel furnaces minimizing cooling water thermal exchange to improve energy efficiency
Multi-variable Process Control	A plug-in hardware/software tool noteworthy saves fuel and reduces scale by predicting control loop behaviour
Hybrid reheating	Stocks preheated inside the furnace achieve the required rolling temperature passing through electrical inductors, to enhance efficiency and to reduce scale considerably
Pre-fabricated solutions	Solutions from simple skid to complete furnace pre-assembly to minimise erection/outage time

e - SERVICES

e-Spare	Online spare parts services
Teleservice	Worldwide remote assistance and troubleshooting
e-Maintenance	From periodical technical advising up to complete predictive maintenance solutions
e-Training	Customized training services available in remote video connection in addition to on-the-job training or training at Danieli facilities
Asset Management System	Umbrella services covering improvements on production, operations, maintenance and revampings