



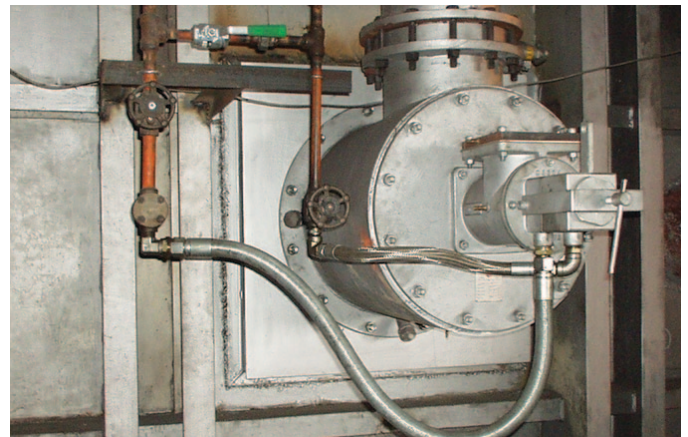
FURNACE REVAMPING AND CAPACITY UPGRADE

2004 – Arcelor Mittal Sonasid (Morocco) – Walking Hearth Furnace

Equipment revamping – Low Investment Cost and High Benefits



1. Before



2. After

PROJECT

120 t/h fuel oil fired Walking Hearth Furnace, 130x130x13000mm billets

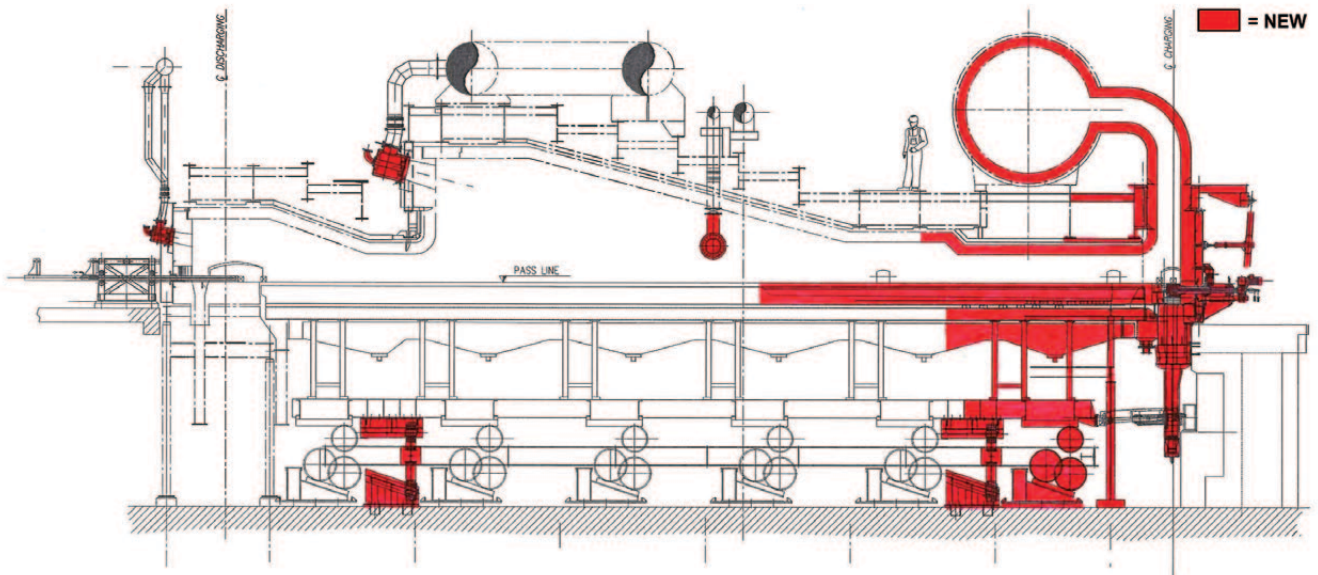
- 3,6 m furnace length extension involving roof, fixed and movable hearths
- Addition of no.2 lateral preheating burners, new fume uptake using existing manifold
- Replacement of no.22 front burners, no.2 combustion air fans, charging roller way and aligning machine
- Upgrade of automation hardware and software

HIGHLIGHTS

- 20% furnace capacity increase (from 120 t/h to 145 t/h)
- Dual fuel burners

ACTIVITIES

Civil, mechanics, refractory, process, 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