



FURNACE REVAMPING AND CAPACITY UPGRADE

2007 – ABS (Italy)
– Walking Beam Furnace

Equipment revamping – Low Investment
Cost and High Benefits



1. Before



2. After

PROJECT

90 tph gas fired Walking Beam Furnace, 240x200x14000mm billets

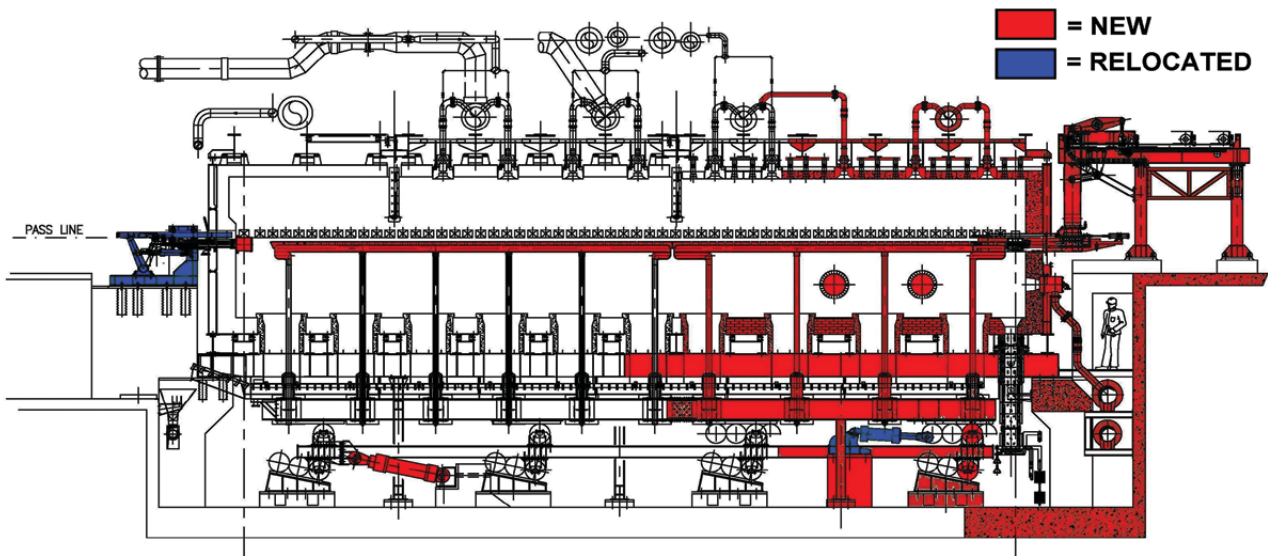
- 5,5 m furnace length extension involving foundation, roof, hearth, skids, lifting and translation frames
- Addition of 27 roof burners, 15 wall burners and 2 wheel groups
- Replacement of combustion air fan, waste gas exhauster, lifting cylinder and kick-off machine
- Upgrade of automation hardware and software

HIGHLIGHTS

- Capacity upgrade from 90 tph to 120 tph on turnkey basis
- 44-days plant shutdown for project execution from civil foundations to production restart
- Extended handling capability: round blooms up to 250mm

ACTIVITIES

Civil, mechanics, refractory, process, electrics and automation





Proven Track records

BENEFITS

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| 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

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

TECHNOLOGICAL PACKAGES

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| 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

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|--------------------------------|--|
| 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 |