



# REPLACEMENT OF OBSOLETE EQUIPMENT - PERFORMANCE IMPROVEMENT

2012 – Sabic Hadeed (Kingdom of Saudi Arabia) – Walking Hearth Furnace

Equipment revamping – Low Investment Cost and High Benefits

## PROJECT

140 t/h natural gas fired Walking Hearth Furnace, 130x130x14000mm billets

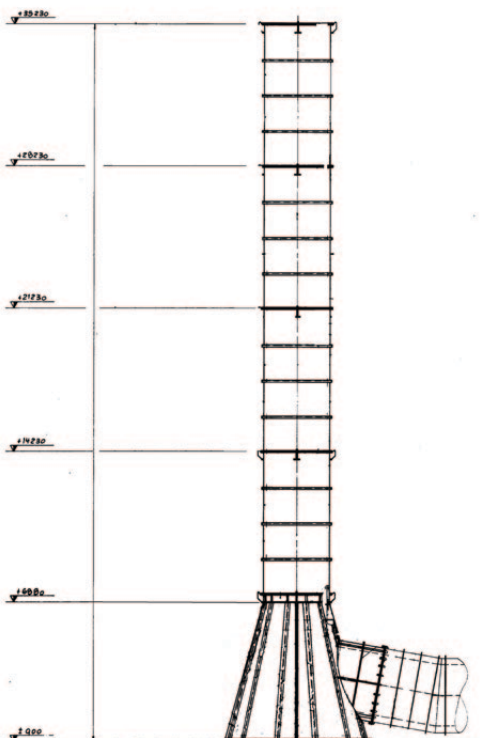
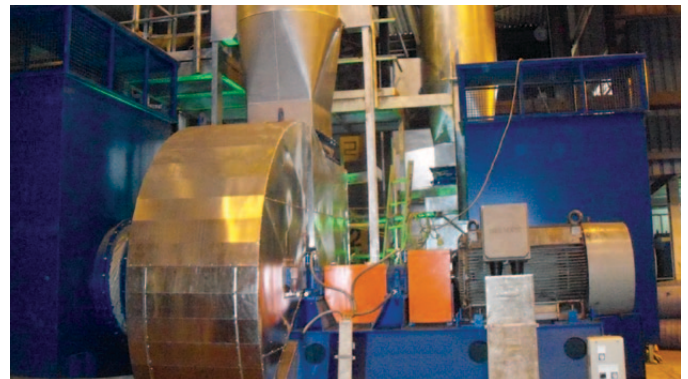
- Replacement of obsolete field instrumentation and automation hardware/software
- Replacement of combustion air fans and cooling water exchangers
- Addition of an ejector system including modifications to the existing stack

## HIGHLIGHTS

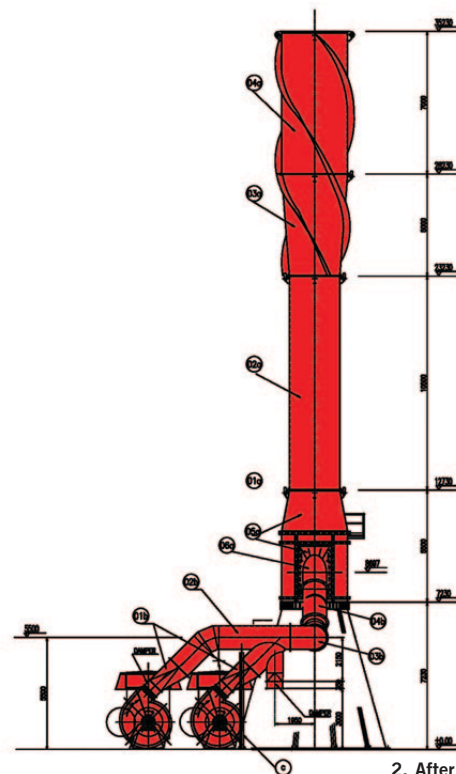
- 30% furnace capacity increase to 180 t/h
- Elimination of high furnace pressure issue by new ejector system
- Revamping executed on a turnkey basis

## ACTIVITIES

Mechanics, process, electrics and automation



1. Before



2. After



## 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

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

### TECHNOLOGICAL PACKAGES

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

### e - SERVICES

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