

Tenova is a worldwide supplier of advanced technologies, products and services for the metal and mining industries providing innovative integrated solutions. Combined process automation and metallurgical know-how enhance the value delivered to the customers. Tenova is committed further to develop its technology in the areas that mostly impact the future of the industries it serves: quality of the products delivered by the customers, energy saving and environmental safeguard.

Tenova Pyromet is a leading company in the design and supply of high-capacity electric submerged-arc smelting furnaces and complete smelting plants for the production of ferroalloys, base metals, slag cleaning and alloy refining.

Tenova Pyromet has a long and successful history in the ferroalloy industry and also designs and supplies equipment for material handling and pre-treatment, alloy conversion and refining, granulation of metal, matte and slag, furnace off-gas fume collection and treatment, treatment of hazardous dusts and wastes.

The company has been certified to ISO 9001:2008 for "The Design and Supply of Smelting Technology and Equipment".



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ASA Metals Expansion Project

TENOVA is a world-wide supplier of advanced technologies, product and services for the metal and mining industries.

Project Description

In October 2007 ASA Metals awarded a Lump Sum Turn Key contract to Tenova Pyromet for the ASA Metals expansion project. The project was the design, supply, installation and commissioning of 2x66MVA closed submerged arc furnaces, complete with Outotec single shaft pre-heating systems.

The Pyromet scope included the submerged arc closed furnaces complete with pre-heaters, raw material handling, screening, dust extraction, storage and batching, furnace off-gas scrubbing, electrical, automation and tapping equipment.

Scope

The Tenova Pyromet scope of work included civils works, structural steelwork, raw materials handling, storage and blending, HV, MV and LV electrical reticulation, plant automation, furnace off-gas cleaning and the furnace and auxiliary equipment and technology.

The complete plant was designed by Tenova Pyromet, and the majority of the technological equipment fabricated at Tenova's Timec facility located in China.

Tenova Pyromet provided guarantees for completion, furnace power, production capacity and product grade, all which was met shortly after the plant was commissioned.

Challenges

One of the major challenges that had to be overcome was the physical site layout for the expansion project, with the ASA Metals site located on the slope of the Lebalelo mountain. The Tenova Pyromet engineers delivered an innovative site layout which not only managed to fit the complete plant in a small footprint, but also provide unrestricted maintenance access.

The new plant had to be constructed next to the existing operating plant, which meant that the construction philosophy had to be flexible and not interfere with the existing operation.

A further challenge was to manage the extensive logistics involved in supplying a substantial amount of equipment from Tenova's Timec workshop in China. All equipment fabricated met with Tenova Pyromet's world class quality requirements and was delivered to the ASA Metal site well within schedule.

Technology

The smelter incorporates the following technology

- Pyromet submerged arc closed furnace technology
- Outotec single shaft pre-heating system
- Pyromet patented electrode columns, which are installed on all six of the ferrochrome furnaces constructed in South Africa during the last two years
- Complete plant automation system designed by Pyromet
- Pyromet designed furnace off-gas scrubbers, two per furnace with each scrubber rated at 130% of furnace capacity
- Fully integrated and automated raw material handling system from the mine through the Pyromet ore beneficiation plant to

Project Information

Project name:	ASA Metals Expansion Project
Client:	ASA Metals (Pty) Ltd
Site:	Burgersfort, Limpopo province, South Africa
Project description:	Brownfield turnkey design, supply, erection, commissioning and equipment and process guarantees of furnaces, furnace building, off-gas scrubbing, slurry handling, raw material storage and batching systems, electrical HVA,MV, LV, control and instrumentation.
Disciplines included:	Process Technology, civil, structural, mechanical, electrical, instrumentation and automation
Produces:	Charge chrome (ferrochrome)
Furnace capacity:	2 x 66 MVA (54 MW)
Production capacity:	254,000 tpa charge chrome
Project duration:	20 months
Plant startup:	August 2009
Commissioned:	July 2009

Project Statistics

Concrete:	20 000 m3
Steel structures:	7 000 tons
Construction Man hours:	- >1 million
Project team:	70 persons

