

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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TECHINT GROUP



International Ferro Metals Smelter Project

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

Background and Project Description

In 2002 Pyromet were commissioned to perform the Bankable Feasibility Study for the International Ferro Metals project. In October 2005 International Ferro Metals listed on the London Stock Exchange and the project started immediately. Pyromet were appointed to design, construct, commission and guarantee the smelter on a turnkey fixed price basis.

The Pyromet supply included the Ore Beneficiation Plant and the Smelter. The Ore Beneficiation Plant processes the run-of-mine ore, received direct from the mining operations, into metallurgical concentrate, foundry grade concentrate and lumpy ore. The Smelter includes the submerged arc closed furnaces, raw material handling, screening, dust extraction, storage and batching, furnace off-gas scrubbing, electrical, automation and tapping equipment.

Successful Start-Up of Furnaces

The first of the two furnaces was started-up five weeks ahead of schedule on the 8th January 2007 and the second furnace seven weeks ahead of schedule on the 30th January 2007. The project duration from the date that Pyromet received the green light to proceed was 15 months for the first furnace and 16 months for the second furnace. This project duration is an exceptional feat by Pyromet bearing in mind that this was a greenfield project with a very large and complex scope of work implemented to a high standard of quality, technology and attention to detail.

The early start-up is a testimony to Pyromet's extensive experience in large greenfield turnkey projects and the good working relationship between Pyromet and International Ferro Metals.

Scope

The Tenova Pyromet scope of work included civils, structural steelwork, ROM ore upgrading, 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 technology was all designed by Tenova Pyromet, and includes proprietary and patented equipment developed by Tenova Pyromet. 95% of the equipment and services for the Tenova Pyromet portion of the project is South African supply. Tenova Pyromet provided guarantees for completion, furnace power, production capacity and product grade, all which was met shortly after the plant was commissioned.

Technology

The smelter incorporates the following technology:

- Pyromet submerged arc closed furnace technology
- 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 the Pyromet furnaces
- Provision to allow for the retrofitting of Pyromet multiple preheaters

Project Information

Project Name:	International Ferro Metals Smelter
Client:	International Ferro Metals (SA) (PTY) Limited
Produces	Charge Chrome (ferrochrome)
Plant Location:	Mooi-nooi, South Africa
Disciplines included:	Process Technology, civil, structural, mechanical, electrical, instrumentation and automation
Plant start-up:	January 2007
Scope of Work:	Greenfield 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.
Produces:	Charge Chrome (Ferro Chrome)
Furnace capacity:	2 x 66 MVA (54 MW)
Furnace type	Submerged arc closed furnaces
Production capacity:	235,000 ton/m per year

Project Statistics

Concrete:	20 000 m ³
Steel Structure :	5 000 tons
Construction Man Hours:	- >1 million
Pyromet Project Team :	40 persons

