

Northwest view

on the state-of-the-art New Foundry with finishing area and ventilation ducts.



Scania builds zero CO₂ foundry in Sweden

New iron foundries are rarely built in Europe nowadays. But Scania, one of the world's leading manufacturer of trucks, has now completed an impressive new work in Södertälje near the Swedish capital of Stockholm in cooperation with Gemco Engineers. It features a capacity of 65,000 tons of good castings per year, increased energy efficiency, reduced waste stream and CO₂-neutrality. The first casting in the state-of-the-art foundry took place in December 2020.



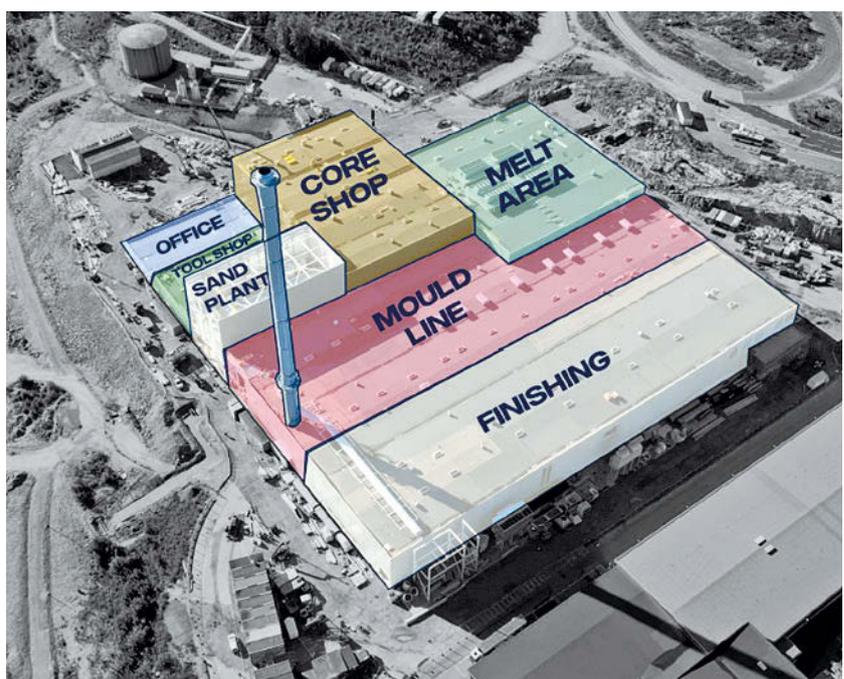


By Gemco Engineers, Eindhoven,
The Netherlands

Mikael Lindén, Scania project manager for the new foundry,
Cees Noortman, Gemco project manager, Anders Svensson, energy
and development engineer at Scania (from left to right).

Scania is a manufacturer of trucks for distribution, long-distance and heavy transport applications, buses and coaches. The Swedish provider of transport solutions strongly focusses on innovation, environmental impact and customer satisfaction. This also includes the development and improvement of a new generation of truck engines.

For Scania, to support its goals in view of development(s) of both product and production processes of key castings for the various generations of truck engines, the realization of a new foundry works became an obvious step to take. Strategic product development, including direction, supply and demand, global market development, and even location are ongoing topics for consideration and action within Scania and the group it is member of. However, for the new foundry works, another parallel recurring discussion took place that increasingly focused on the desire to build a foundry with a real and excep-



Aerial view of the new foundry and visualization of the different departments.



View on the core-setter molding line in Södertälje.

tionally high level of sustainability. Targeting e. g. the use of 100 percent renewable energy and zero CO₂ emissions was one of the sustainability objectives for the new foundry. That sustainability concept for the new foundry was fully in line with Scania's "strategy for the future".

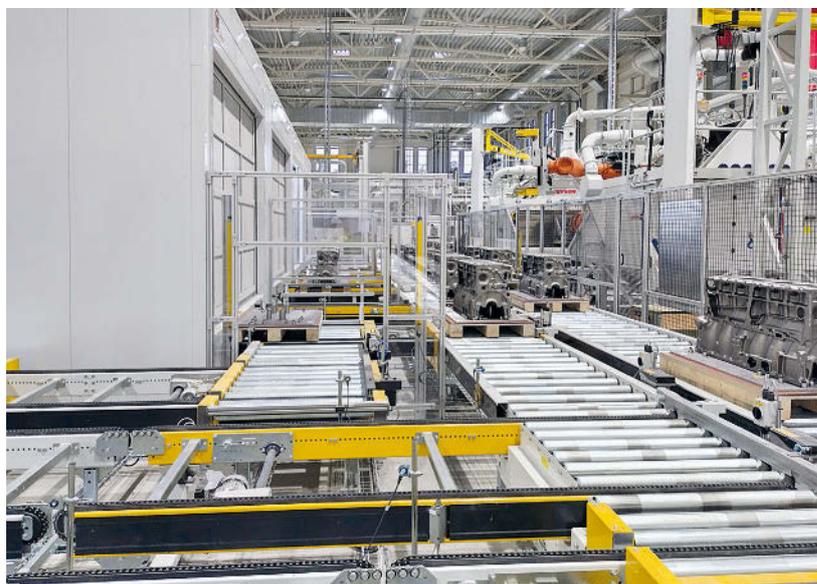
Gemco in which different alternatives were considered and carefully analyzed, including the modernization and extension of the existing foundry.

Also in 2017 the basic concept for the New Foundry was made, in which Scania and Gemco put together the principal layout, sizing of the main

Product flow through automated finishing area – in this case engine blocks for trucks.

Södertälje – Scania's development and production epicenter

In 2017 the investment decision was taken for the realization of a new foundry at Scania's premises in Södertälje, Sweden. For Scania it also meant that Södertälje remains the epicentre of development and production. For the realization of the foundry Scania worked with Gemco, Eindhoven, The Netherlands, as its foundry engineering and project management partner. The cooperation between Scania and Gemco however started long before this project, as it was about ten years ago that Scania engaged Gemco for the development of a new casting. The decision to build a new foundry was agreed after an extensive period of close cooperation between Scania and





Picture above: View from the outside on the core-shop with scrubber.

Picture below: Overview of the melting department in the new Scania iron Foundry.

equipment, the budget for the process, a project plan and cooperation structure, and time-schedule. In order to achieve the closest possible cooperation with Scania, at all time, Gemco engineers would reside Södertälje.

Implementation of up-to-date technologies

The new to build casting facility was realized on new factory premises (of approximately 98,000 m² overall) of which the foundry facility occupies

35,000 m² for a production of 65,000 ton per year of good castings. That is three times the capacity of the existing foundry. This production will be achieved with the same number of people that work in the existing foundry, which are approximately 200 persons.

To achieve both efficient as well as sustainable production – with Sustainable Development Goals (SDG's) in mind – only the most up-to-date technologies and even completely new technological solutions were applied. Solutions were designed and created in multilateral cooperation between Scania's project organization – which includes Scania production, engineers, and maintenance and safety representatives –, Gemco engineers and the equipment manufacturing companies, as well as the building engineering company. Before deciding for a solution principle, thorough evaluations were made from every perspective, such as efficiency, maintainability, operator safety and environmental impact. During the early stages Gemco calculated key figures for energy needed and for the requisite of cooling water, compressed air and other media. A task not to be underestimated, to list and map out the requirements for processes of equipment consumption not yet determined, while the architecture and engineering service provider Sweco did the engineering of the building. "Our high ambitions and technical solutions inspired and challenged us and our suppliers to raise the level in the work on energy efficiency, which will certainly benefit the foundry industry in the future" says Mikael Lindén project manager for the new foundry.

Notwithstanding a tripling of production capacity, the improved materials handling, and newly introduced sand recycling significantly reduce the required transport per cast unit. Energy usage will decrease while improved casting processes and heat recovery allow for energy gains. "We are convinced that the new foundry brings Scania closer to the goal of sustainable production," according to Anders Svensson, energy and development engineer at Scania

Successful teamwork

For the realization of the project Gemco delivered project management support, integration design and engineering, specialized area project man-

agers for charge, melt and pour, sand preparation and reclamation, environmental, heat recovery and molding, shake out and casting-cooling departments. "I want to emphasize that together with Scania we all acted as one team for the design and commissioning of the complete foundry, combining knowledge and expertise from different angles", says Gemco Project Manager Cees Noortman.

Overall, a combined team of 50 people had to be managed and it takes good teamwork and great team effort for a successful realization of such a project. Gemco also supplied site management during the construction phase on site. A big challenge was that certain detailed engineering was still ongoing during the building construction. Challenging was also the tough timetable, as is usual in the industry sector. During the entire duration of the project, there has been a very close collaboration with Skanska (building contractor) and Sweco (building design). The first casting in the new foundry was carried out in December 2020 and production is currently ramping up.

Gemco will further support Scania in the ramp-up phase. Together with Scania the company will follow the production processes closely, for instance to measure the equipment performances. Gemco will be engaged in the project at least until the new foundry is in regular production.

"We are really pleased with this reference project and the very good cooperation with the Scania team. To have contributed to this big foundry project with a three times higher capacity than the old one. To realize special solutions together, to achieve 50 % more energy efficiency, significantly reduce waste streams and to reduce the carbon footprint of the factory was a challenge and I believe that together we have been successful on the goals set before we started the project. All in all, it has been a very stimulating and interesting project", deems finally Cees Noortman, project manager at Gemco.

www.gemco.nl

*Gemco Engineers, Eindhoven,
The Netherlands*