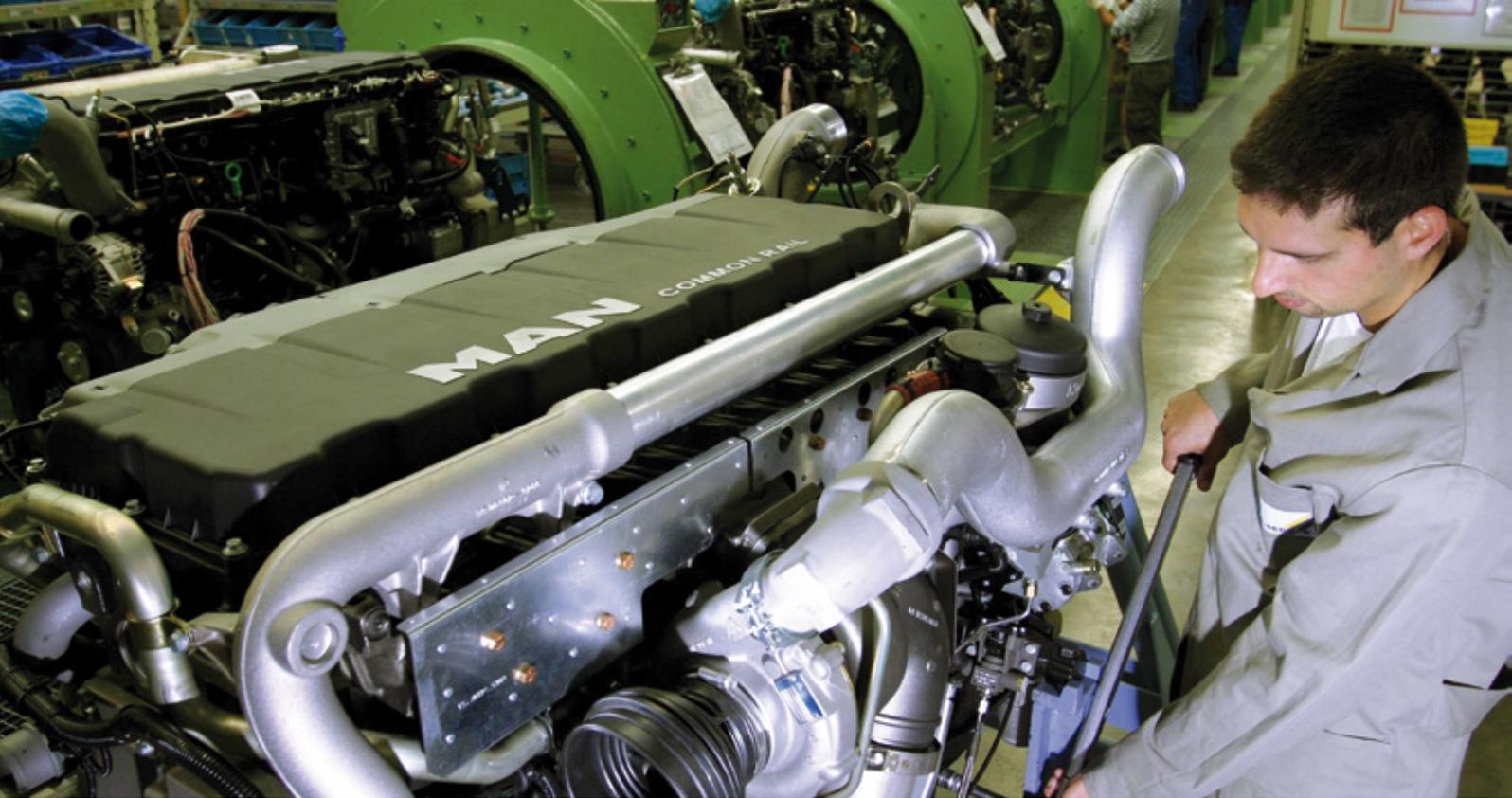


SUCCESS STORY

Using Lean Logistics to Create a Centralized Sequencing Center for Engine Assembly at MAN Truck & Bus

Commercial Vehicle





A NEW SEQUENCING CENTER AT MAN TRUCK & BUS TO OPTIMIZE ASSEMBLY LINE SUPPLY

Giant steps forward with lean logistics

At MAN Truck & Bus in Nuremberg, experts in engineering from Ingenics were engaged in a project lasting over a year to plan and realize a new centralized sequencing center to supply engine assembly lines. As a result, 65,000 container spaces are now available in the automated small parts warehouse, while depalletizing is being performed by robots that automatically place small part carriers onto the conveyor system. Optimal use of space is achieved on two new floors.

i About MAN Truck & Bus in Nuremberg

MAN Truck & Bus is a leading international provider of commercial vehicles and transport solutions. MAN Truck & Bus manufactures trucks weighing from 7.5 to 44 tonnes and heavy special vehicles with a gross train weight of up to 250 tonnes gross train weight as well as buses, diesel engines, and natural gas engines. To match these products, MAN Truck & Bus is also a one-stop shop for a wide range of services. In May 2015, the majority shareholder of Volkswagen announced that the commercial vehicle division was to be transferred to the VW subsidiary Truck & Bus GmbH together with Scania.

MAN Truck & Bus, 90441 Nuremberg, Germany

Given that the importance of logistics has been continuously growing as a factor of overall success for many manufacturing companies, logistics planning has played a prominent role at Ingenics AG for a long time. Ingenics analyzes, plans, and realizes logistics structures in order to develop material and information flows in line with the lean philosophy, systematically aligning the entire supply chain to value creation in accordance with process thinking. Implementation support, including staff training and the initialization of continuous improvement processes, is part of this holistic approach.

At MAN Truck & Bus in Nuremberg, where engines for trucks and buses are produced, experts in engineering from Ingenics AG were regularly on-site for more than a year to provide a consultancy service. Headed up by project director Dr. Jens Nitsche, Ingenics partner, the team realized a completely new concept of a centralized sequencing center to supply engine assembly lines.

In the area of warehouse technology, solutions were developed that have changed the factory: fully automated loading of the sorting trolleys for small part carriers (SPCs) with a picker that dispenses SPCs from the shuttle car without intermediate storage as well as



The most important project results and Ingenics performances:

- › Implementation of a space-efficient logistics concept using lean logistics principles
- › Planning, tendering, and supporting implementation of the entire intra-logistics system
- › Clear segmentation of material flow categories
- › A flexible, ergonomic, and automated storage concept

an automated depalletizing system tailored specifically for MAN in collaboration with the company that provided the automated small parts warehouse. The SPCs are handled with grippers and vacuum suction pads in their original packaging, sorted into individual units, and placed on a tray for the conveyor system. Tray handling is also fully automated.

Before Ingenics became involved, the team at MAN had begun comprehensive measures to optimize sequencing. At the outset, material was being supplied to the assembly line from the high bay following the push principle. The shelves closest to the assembly line were fully loaded at all times. Since the possibilities for optimization were eventually exhausted under these circumstances, the shelves were dismantled and the forklift traffic replaced by a routing system with sequenced supply to the assembly line. With the main aim of reducing the number of trips as well as crossing traffic, SPC supply then occurred following the milk run principle. However, it soon became apparent that the logistics resources were not sufficient to provide optimal sequencing for the entire assembly line. Once the decision had been made to carry out sequencing in an extended building, Ingenics was invited on board.

“Without Ingenics we would not have had access to expertise in the area of automated small parts warehouses. Even the task of preparing tender documents was enormous in itself.”

Fabian Leitschuh
former project manager for the sequencing center at MAN Truck & Bus in Nuremberg

The initial needs assessment revealed that it would only be possible to manage with the available floor space of 50 by 110 meters if the building was on two levels. Once a decision had been made in favor of the concept consisting of an automated small parts warehouse, narrow aisle warehouse, and sequencing area, a tender was issued and bids were compared for warehouse technology (narrow aisle racking, crane systems, hoists, and route trains). There are now 65,000 container spaces in the automated small parts warehouse available for filling. Robots unpack pallets and place the SPCs onto the conveyor system, while optimal use is made of the space. The responsible management team at MAN realized that there was a shortage of expertise in small part carriers without Ingenics, and that even preparing tender

documents would have been a difficult task. The Ingenics consultants also proved to be indispensable in the area of project management – not least because of their excellent standing and the fact that, as an external party, they could not be accused of department blindness or tunnel vision.

Efficiency improvement³ – Building sustainable business success



In a nutshell, the core services of Ingenics can be summarized in three words: Planning. Optimization. Qualification. Or, to put it simply, efficiency improvement³. Our main focus is on three central areas of business – factories, logistics, and organization. Ingenics' history in these areas has been sustained for more than 35 years.

Benefit from unique experiences gained over the course of more than 5.100 successful projects. Discover how, considering your goals and objectives, we create space for your sustainable corporate success.

