



TECHNOLOGY

The specialist for industrial buildings.



GENERAL DYNAMICS
European Land Systems-Mowag

GENERAL DYNAMICS
European Land Systems-Mowag GmbH

INSIGHT



As global demand for the products of vehicle manufacturer General Dynamics European Land Systems-Mowag GmbH continues to rise, the efficiency of production processes had to be improved and manufacturing capacities expanded. To make processes more efficient and expand production capacity, IE Technology centralized vehicle production by adding an extension to an existing administration building in Tägerwilen. With IE Technology as its planning partner, the project was completed in record time.

The long-established Thurgau-based company General Dynamics European Land Systems-Mowag GmbH develops and manufactures highly protected wheeled vehicles for military applications in Kreuzlingen. The name MOWAG is familiar to every member of the Swiss armed forces and is closely associated with the city of Kreuzlingen. GDELS-Mowag was founded in 1950 as a private company by engineer Walter Ruf and has been part of General Dynamics European Land Systems-Mowag GmbH since 2003. The global success of the highly protected wheeled vehicles EAGLE, DURO, and PIRANHA impressively demonstrates the core competencies of "protection and mobility" of the Thurgau-based high-tech company.

EFFICIENCY, QUALITY, AND SAFETY UNDER ONE ROOF.

EFFICIENT PRODUCTION
OF HIGHLY PROTECTED
FOUR-WHEEL DRIVE
VEHICLES IN **RECORD TIME.**

«We were looking for a planning partner who is familiar with the special circumstances of vehicle construction and understands the requirements of line production. The corresponding expertise of the engineers at IE Technology convinced us.»

*Markus Haller,
Project Manager at GENERAL DYNAMICS European Land Systems-Mowag GmbH*

SUCCESS FACTORS

1

MANY YEARS OF INDUSTRY EXPERTISE

GREATER EFFICIENCY WITH THE HIGHEST QUALITY, RELIABILITY, AND PRECISION.

The project was supervised by IE Technology, which acted as general planner for the expansion of the two assembly halls and as total contractor for the construction of the front building. In order to further expand capacity, production was expanded with two additional production halls and a five-story front building for offices and staff rooms. The aim was to gradually relocate the entire production of the PIRANHA and EAGLE family of vehicles to Tägerwilen within a tight time frame. The time dimension was a decisive factor in the award of the contract. The upcoming large orders had to be executed as quickly as possible. In IE Technology, a planning partner was found that could handle the time pressure.

2

AUTOMATED OPERATING PROCEDURES FOR GREATER EFFICIENCY

INCREASING THE DEGREE OF AUTOMATION WITH LEAN MANUFACTURING.

Vehicle construction requires a high degree of precision and is carried out step by step as components and systems are assembled to form the finished vehicle. The IE planners developed the production layout based on the specifications of General Dynamics European Land Systems-Mowag GmbH and taking into account optimal process flows. The principles of lean manufacturing were decisive. These include the conscious avoidance of large storage areas and buffer zones. Material is therefore largely supplied just-in-time directly to the production lines. In addition, the aim was to achieve the highest possible degree of automation. The planners converted the previously workshop-oriented manufacturing process into a value stream-oriented process layout. The aim was to optimize material flows and shorten throughput times.

3

HOLISTICALLY THOUGHT OUT

PROCESS OPTIMIZATION IDEALLY INTEGRATED.

Integrating the complex production lines and workstations into the building layout posed a particular challenge for IE Technology. Special requirements included, for example, the integration of the metalworking shop equipped with welding robots and the gluing shop, where flat components are joined together with elastic high-performance adhesives. The painting facility with its various manufacturing processes also had to be planned and constructed in a sequence aimed at high efficiency.

4

INNOVATIVE APPROACHES

CUSTOMIZED SOLUTIONS FOR SPECIAL REQUIREMENTS.

All media supply and disposal requirements were met using state-of-the-art extraction systems. Ventilation technology was one of the more challenging areas of planning. The sub-processes required subdivision into several autonomous zones, which were equipped with their own process-controlled air systems and comply with current technical standards. IE Technology designed the gas supply system and the heating system in such a way that, in conjunction with the air technology, they enable a high degree of utilization of process waste heat.

5

IMPLEMENTATION IN RECORD TIME

TOGETHER FASTER TO THE IDEAL INDUSTRIAL BUILDING

The construction of the two new assembly halls, the integration of the production systems and building services, and the planning and realization of the main building were completed in just 17 months. Production continued uninterrupted in the existing hall during the construction period. The rapid and efficient completion of the entire project is thanks to the excellent cooperation of all those involved. **«One of the world's most modern production facilities for highly protected motor vehicles has been created in Tägerwilen»**, said Oliver Dürr, CEO of General Dynamics European Land Systems-Mowag GmbH.



IE Technology ZURICH

- › Planning and construction of two assembly halls as general contractor
- › Planning and construction of an administration building as total contractor

GENERAL DYNAMICS

- European Land Systems-Mowag GmbH
- › Client



20 MONTHS

- › Planning and construction period



CONSTRUCTION SCOPE

- › Administration 2 stories 1.700 m²
- › Hall 1, 1 story 2.800 m²
- › Halls 2 and 3, 1 story 6.700 m²
- › Head building 5 stories 1.800 m²
- › Total 13.000 m²
- › Length of the two production halls 140 m and 160 m, width 23 m, height 10 m



SERVICES

- › Process optimization
- › Concept planning
- › System planning
- › Construction management/ execution
- › Integration of painting and sandblasting systems



RECIPE FOR SUCCESS

- › Close coordination between equipment suppliers and the construction process



IE TECHNOLOGY

The specialist for industrial buildings.

We are the IE Group: Your specialist for industrial buildings.

We plan, design, and construct industrial buildings. Our goal is to maximize the efficiency of your production - with the help of industrial buildings that are perfectly tailored to your manufacturing processes. We work in manageable and therefore effective teams of industry experts whose motivation and initiative you can rely on. Because at our company, all employees are involved in the business. It goes without saying that we also give you guarantees on costs, deadlines, and quality. **IE Plast, IE Food, IE Life Science** and **IE Technology** are part of the IE Group, which has been on the market since 1966 and offers the necessary financial backing - even for large construction projects



AT HOME IN YOUR INDUSTRY



ENTREPRENEURIAL THINKING AND ACTION



ALL EXPERTS UNDER ONE ROOF



SECURITY THROUGH GUARANTEES

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