



Urban production – WITTENSTEIN shapes the future of society and industry

Production, sustainability and socio-cultural responsibility closely dovetailed

Back at the beginning of the year the vision finally became a reality: WITTENSTEIN bastian GmbH's Urban Production facility in Fellbach. It heralds in the fourth stage of the Industrial Revolution by redefining the relationship between industrial production and society.

Urban Production is low-noise, low-emission and ecologically trendsetting – yet this sustainable approach is far more than just a "green" end in itself: as an innovative overall concept comprised of optimized processes, the building itself and the energy supply systems, it supports WITTENSTEIN's striving for economic and technical excellence.

Consistently sustainable concept

It was the idea of taking work to people, rather than the other way round, that originally inspired WITTENSTEIN to erect its new production facility for gearing solutions – such as bevel and spur gears or internal gearings – and customized gearhead development directly adjacent to a residential area. To rule out potential sources of friction between the company and the local population, Urban Production is guided by a consistently sustainable concept: minimized resource usage coupled with very low emissions of noise, waste gas and CO₂ and significantly reduced refuse volumes. "Effective environmental protection goes hand in hand with social responsibility", says Michael Müller, General Manager of WITTENSTEIN bastian. "What's more, Urban Production provides an intelligent illustration of how a natural resource like energy can be optimally utilized." Rainwater is collected and used for sanitary facilities, for example. Electricity is generated with the aid of solar panels, several biogas-operated microturbines and a combined heat and power plant. The waste heat from the production machinery is fed into the building's grid and reused to heat the offices. Full air conditioning and dehumidification in conjunction with displacement ventilation help keep the consumption of resources in the production processes to a minimum – and that's not all!

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High-tech products made by **WITTENSTEIN** fly into space and win Formula One races. Intelligent drive systems – from the world's smallest high-performance servo drive to the latest state of the art in medical technology – are developed, produced and marketed by a team of around 1.400 employees. With a blend of dedication and enthusiasm, we set benchmarks – every day – worldwide.



View of WITTENSTEIN bastian's new "Future Urban Production" facility in Fellbach.

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Perfect climate, perfect precision

The dehumidified air and the constant room temperature together create a perfect room climate. Both WITTENSTEIN staff and their customers profit as a result – an optimal working climate is the best way to protect employee health and guarantee technical precision. The repeatable manufacture of highly precise gear wheels is WITTENSTEIN bastian's core competency along with the development and design of gearings and customized gearheads. Based on DIN 3961 bastian achieves DIN 6 for its internal gearings, DIN 3 for spur gears and DIN 1+ – the finest of the twelve possible qualities – for bevel gears. "We also attained a similar degree of excellence in the old manufacturing plant, but the superior air conditioning here has demonstrably stabilized our production processes", Müller continues. "At the same time, we've virtually eliminated prefabricated parts, which don't come up to our high standards of quality and precision, leading to more efficient use of resources and less scrap." This outstanding precision is tested, assured and documented in the new Class 2 measuring room – with a high basic accuracy of $0.4 \mu\text{m} \pm 0.6 \mu\text{m/m}$.

The advantages of Urban Production, with its modern equipment and structures, are especially appreciated by customers, who profit in a number of ways from WITTENSTEIN bastian's manufacturing and gearing expertise. A thorough analysis of each individual task is equally important and WITTENSTEIN is justifiably proud of its comprehensive consulting and engineering know-how. Technical consultancy, the development and design of gearings and customized gearheads, detailed calculations, noise optimization, load testing and expert training and reports are just a few of the engineering services offered by WITTENSTEIN bastian.

Gearing technology also benefits WITTENSTEIN alpha

The WITTENSTEIN alpha subsidiary and its customers also benefit from the state-of-the-art production opportunities available in Fellbach.

The production and assembly processes have been optimized, for instance, enabling the torque of the LP⁺ Generation 3 to be increased by up to 75%; this planetary gearhead now runs two or three times as smoothly, setting new standards in its class.

Precision hypoid gearsets manufactured at the Urban Production facility are featured in WITTENSTEIN alpha's servo right-angle

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gearheads. This special type of bevel gear unites high accuracy and power density with low operating noise and is therefore ideal for servo applications. The flexible modular system chosen for these servo right-angle gearheads provides exceptional design freedom.

The High Performance Linear System (HPLS) – an innovative unit consisting of a gearhead, rack and pinion – incorporates extremely precise helical gear wheels made in Fellbach, opening the door to totally new machine concepts, particularly for makers of machine tools.

WITTENSTEIN alpha additionally offers a broad portfolio of engineering services: "Thanks to our product and application know-how as well as powerful tools like the cymex[®] sizing software, we are also in a position to calculate complex kinematic systems, carry out multibody simulations and generate FEM analyses", explains Andreas Mei, Sales Manager Germany at WITTENSTEIN alpha.

Photos

Figs. 1 to 3: View of WITTENSTEIN bastian's new "Future Urban Production" facility in Fellbach.

Figs. 4 and 5: Economic, ecological and socio-cultural sustainability – a consistent theme of WITTENSTEIN bastian's Future Urban Production plant directly adjacent to a passive house estate in Fellbach on the fringe of the Stuttgart conurbation

Photo 6: Michael Müller, General Manager of WITTENSTEIN bastian GmbH

Photo 7: Andreas Mei, Sales Manager Germany at WITTENSTEIN alpha GmbH

Texts and photographs in printable quality can be downloaded from <http://www.wittenstein.de/presse.html>.

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WITTENSTEIN AG – being one with the future

With around 1500 employees worldwide and sales of €233 million in 2011/12, WITTENSTEIN AG enjoys an impeccable reputation for innovation, precision and excellence in the field of mechatronic drive technology – not just in Germany but internationally. The group comprises eight pacesetting Business Units with separate subsidiaries for servo gearheads, servo actuator systems, medical technology, miniature servo units, innovative gearing technology (WITTENSTEIN bastian GmbH), rotary and linear actuator systems, nano technology and electronic and software components for drive technologies. Through its 60 or so subsidiaries and agents in approximately 40 countries, WITTENSTEIN (www.wittenstein.de) is additionally represented in all the world's major technology and sales markets.

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