



WITTENSTEIN on fairs:  
AUTOMATICA Munich  
16.-19.5.2006  
ILA Berlin Air Show  
16.-21.5.2006  
IMTS Chicago  
6.-13.9.2006

alphaplanet  
Newsletter –  
short & concise

## WITTENSTEIN

### Limitless applications

Drive systems from WITTENSTEIN Business Units are renowned for successful duty worldwide in a broad variety of applications - not just in industrial plants but also in the most unlikely locations 11 miles down in a borehole or 115,000 miles up in space.



Dear reader,

Servo systems can be made to carry out the movements intended by designers if intelligent use is made of feedback and account taken of the technical constraints. Yet what happens if a fault occurs? After all, no technical system is absolutely reliable.

How can mechatronic drive systems guarantee functionality and performance even when subject to negative influences? How can they be made controllable? Coming up with concepts for functional mechatronic drive systems is no easy task. We regard this challenge as an opportunity to provide innovative solutions which will contribute to our customers' success.

Regards,

Hans-Hermann Spohr  
Managing Director  
WITTENSTEIN motion control GmbH

#### Extreme operating conditions

Temperatures of 200 °C and pressures of up to 1000 bar have to be withstood by motors from WITTENSTEIN cyber motor if they are to complete their mission 11 miles deep inside the Earth reliably and thus help safeguard our energy supplies.

The gear wheels from WITTENSTEIN bastian used in the second rocket stage of the Ariane 5 launcher - where they are crucial for problem-free take-off - face a totally different set of challenges as they soar through space as part of the TVA (Thrust Vector Actuator).

#### Efficient production

Other highly advanced technological systems in plant and machinery are responsible for ensuring that mass-market products can be manufactured cost effectively.

#### Flexible applications

What's more, our solutions are regularly employed with immense success in the most diverse fields extending from marine installations to medical implants:

- Electromechanical servo drives for oil and natural gas valves 3000 m down at the bottom of the sea.
- Pump motors for cooling torpedo batteries just below the surface of the sea.
- Electromechanical servo drives for aerials and gun laying systems functioning in "salty" sea conditions.
- FITBONE® and motors for heart pumps in the human body.
- Installations on the earth's surface or on off-road vehicles which are exposed to inclement weather conditions.
- PDU (Power Drive Units), door actuators, trimming actuators, PKM40 aerial drives, satellite antennae and active control sticks installed in A380 and Transall C-160 aircraft.
- Drives for fans in Zeppelin NT airships.

#### Extremely satisfied customers

These examples all underline the trust which our customers place in our technical expertise and their faith in the reliability and premium quality of our products.

We owe this success in no small part to our employees whose commitment, know-how and experience have enabled the company to achieve its aspirations.

#### Future potentials

Endeavouring to ensure that stable growth remains the backbone of the company's success, we will increasingly showcase speed and agility as a key strategic focus alongside superior technologies.

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# New perspectives for tomorrow's packaging technology

alpha getriebebau and Siemens organise their fourth "mechanics meets electronics" trade conference



Never far from the centre of interest at the "mme-days 2005": the innovative alpha product portfolio.

How can sweets be packed faster and better in the future? And what if the juice or beer can were to be created just in time for it to be filled in the packaging machine? For the fourth time engineers and users from Siemens Automation and Drives and the Igersheim-based high-tech company alpha getriebebau GmbH sneaked a glimpse into the packaging technology of the future.

## Latest packaging technology trends

The key focus of "mechanics meets electronics" was new solutions, mechatronic concepts and joint activities between machine builders, manufacturers of drive technology and researchers. Over 100 engineers and users in the field of packaging technology attended the fourth "mme-days" at the head office of WITTENSTEIN AG. Participants were able to gather new information straight from the horse's mouth and discover more about the latest trends in the packaging world.

## Evolving new solutions together

Following the market trend, participants from the machinery, plant manufacturing and electronics sectors, together with researchers, took advantage of this important trade conference as a

communication forum. Servo drives account for a growing proportion of mechanical engineering technology as a whole. Promoting the interdisciplinary exchange of knowledge and experience is consequently a major concern to both organisers - Siemens and alpha getriebebau GmbH.

**Lucrative research**  
Jens-Peter Majschak, Professor

of Processing Machinery and Processing Engineering at the Technical University of Dresden, provided some extremely interesting insights into current projects being undertaken by the "Fraunhofer Application Centre for Processing Machinery and Packaging Technology (AVV). Prof. Majschak emphasised that the researcher's perspective must always be focused on customer benefits and stressed that there is an almost infinite variety of angles from which improvements could theoretically be made in packaging machine systems. Flexible packaging materials, integrated functions, the separation of individual work processes: all relevant production processes need to be examined before work can begin on any new development. It is only when it is absolutely clear how the processed object reacts, how thick the packaging material is, or how the



Guest speaker Prof. Jens-Peter Majschak (TU Dresden)

distribution of heat on the knife of a bread-cutting machine changes, that new trends will have the desired effect.

## Positive feedback

"The enthusiastic participation in the fourth 'mme-days 2005' has shown that there is still a great need for communication and information among machine builders and automation partners. The partnerships which have grown out of this event offer new potentials for shared business success," was how Svenja

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## alpha Products

# Flexible performance: TK+

Productivity is significantly boosted by higher torques. The latest alpha getriebebau development offers a persuasive level of performance thanks to innovative hypoid gearing and optimised overall design.



The market launch of TK+ provides an extremely efficient low-backlash right-angle gearhead for servo applications in S1 to S5 operation. TK+ boasts an impressive torsional backlash of < 4 arcmin (fatigue-resisting) and is available in five sizes with reduction ratios of  $i = 3$  to  $i = 100$  (single-stage: up to  $i = 10$ ).

Courtesy of the universal alpha motor mounting system, any servo motor can be easily mounted. With an output featuring a robot flange and a free, through

hollow shaft as standard, TK+ facilitates innovative design solutions for grabs, tool changers, rotary tables, linear actuators and workpiece manipulators used in automatic welding. TK+ can optionally be supplied with alpha's rack-and-pinion system.

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# WITTENSTEIN aerospace & simulation GmbH founds new aerospace forum

Things are looking good: with the recent foundation of a new forum, southern Germany is striving to become an indispensable centre of aerospace competence. The first demand made by the forum is for future innovations to be facilitated by intensive collaboration between companies and universities.

The new Aerospace Forum ([www.lrbw.de](http://www.lrbw.de)) was officially launched in Stuttgart in July 2005 and is now able to pursue its activities within the regional forums of the BLDI - the interest group which undertakes lobbying work for its 38 member companies and represents around 50 percent of Baden-Württemberg's aerospace industry.

## Aerospace forum generates new impetus

The high-tech enterprise WITTENSTEIN aerospace & simulation GmbH in Igersheim-Harthausen is a co-founder of the new forum and sees its role in the association as a partner and co-developer of leading-edge concepts.

Managing Director Günter Posch hopes that the new forum will help to achieve a shift

in perspective towards the interests of medium-sized aerospace firms and consequently act as a beacon of new business vigour for the entire region.

## Successful medium-sized companies crucial for the future of aerospace

WITTENSTEIN aerospace & simulation GmbH alone employs 50 people. However, in international aerospace markets, the WITTENSTEIN AG company is also represented by its subsidiaries.

As a certified manufacturer of simulation tools and crucial

safety-relevant components for the aerospace industry, one of the company's products in particular has provided a genuine innovation for the Airbus A380: all the doors of the new double-deck super jumbo are fitted with three electromechanical drives. By 2006 all the door actuators are scheduled to be produced in Igersheim.

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## alpha International

# Achieving more together

Sixth international alpha and WITTENSTEIN Sales Meeting 2005 brought together 125 sales engineers from around the world

Receiving the latest product and company information at first hand, developing new visions together, establishing personal contacts - these were just some of the most important topics addressed at the 6th alpha und WITTENSTEIN international sales meeting.

The meeting also clearly defined participating companies' shared objectives for the future: two-digit growth in the years ahead and the aim of stamping their leadership on the world market for low-backlash planetary gearheads.

Although the sales meeting is now a well-established and successful event, the last meeting

was given a new slant by a series of workshops in which the companies' salespeople were able to focus on essential aspects of their work and deliver presentations of the outcomes to other participants on the final day.

The event thus provided an outstanding opportunity for people to exchange ideas and experiences and to foster and underline the importance of international cooperation.

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## alpha Fairs

# alpha at the Russian "Mashinostroenie"

Premiere in Moscow: For the first time, alpha getriebebau presents its own stand at the Russian machine tools trade fair. With huge success - the well-attended fair fulfilled all expectations.

alpha getriebebau's main aim in going to Moscow and presenting its own stand at the "Mashinostroenie" was to learn more about the Russian market and to show what it has to offer Russian customers. The company's presence on the ground was especially important bearing in mind that the trade fair, held in the "Sokolniki" Culture and Exhibition Centre in Moscow, was attended by all major Russian and world leading machine tool manufacturers.

In addition to its booth-based presentation, alpha also arranged for a separate film portrait to be shown to selected companies by our Russian agent, "Servotechnics".



At the same time, the fair offered a welcome opportunity to present the WITTENSTEIN group to Russian customers.

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# DYANA - the new compact class

One of the conspicuous features of WITTENSTEIN motion control GmbH's new "DYANA" AC servo actuator is the way it unites minimum mass inertia with a compact, integrated design.

The product was developed jointly by WITTENSTEIN motion control and Siemens A&D MC.



The very name conjures up a host of dynamic images. DYANA: With its echoes of the Roman goddess of hunting, DYANA is a dynamic and economical all-rounder.

## Quality in triplicate

The DYANA servo actuator boasts three outstanding advantages over traditional combinations of servo motor and coaxial gearhead.

- The integrated design reduces the weight and length of the servo actuator
- The compact type of construction renders right-angle gearheads superfluous
- The high level of integration results in optimised dynamics, increased reliability, improved efficiency and reduced moment of inertia

## Cost effective application

Users also benefit from easier procurement and mounting. Since the gearhead and motor are already mounted, they have only one material number. The biggest potential source of errors with conventional, discrete drives - until now the industry standard - is thereby eliminated, namely incorrect assembly of the motor and gearhead. The DYANA servo actuator is available in four sizes: 70 / 90 / 120 / 155.

## The all-rounder

The DYANA servo actuator is the perfect answer for a wide range of applications, for example in the food processing and packaging industries, in woodworking machines or mould making - wherever machines are required to operate in cyclic or continuous duty.

## Technical characteristics in brief

- Reduction ratios: 5 / 10
- Max. torque: 32 - 233 Nm
- 2-pole feedback resolver / single-turn encoder / multi-turn encoder (EnDat)
- Maximum precision (torsional backlash 6 - 8 arcmin)
- Lifelong lubrication and sealing
- Degree of protection acc. to EN 60034-5: IP644
- Optional additional equipment available**

## Information

WITTENSTEIN motion control GmbH is the specialist in WITTENSTEIN AG for complete drive systems, offering integrated servo actuators for use in the mechanical engineering sector as well as for special applications.

## WITTENSTEIN worldwide:

### Drive technology generates growth and record sales

- Sales in 2002/2003: 86 million euros (+16%)
- Sales in 2003/2004: 100 million euros (+16.4%)
- Sales in 2004/2005: 116 million euros (+16.3%)
- Export rate: 58%
- Number of employees worldwide (end of 2005): 955
- Own WITTENSTEIN Academy (founded in 1999)
- Companies: 50 subsidiaries and agents in 35 countries
- Board of Directors: Manfred Wittenstein (President), Karl-Heinz Schwarz (Vice President), Klaus Spitzley

## WITTENSTEIN International

# New building in the USA

More room for more people, more productivity and more customer service - the U.S. WITTENSTEIN group's new office buildings have trebled the amount of space available to the company.

The U.S. WITTENSTEIN group has found a new home in Bartlett, Illinois. The company's new domicile on 2.5 ha of land at 1249 Humbracht Circle in the Brewster Creek Business Park offers outstanding expansion potential for the future.

## Efficient communication

Thanks to its spacious grounds, the new office buildings now offer sufficient space to reunite the head offices of alpha gear drives and WITTENSTEIN manufacturing, which were originally based at different locations in Chicago. Tim Herbst, Executive

Vice President and General Manager, is confident that the move will foster more efficient internal communication and give a fillip to the company's development.

## New horizons

Another advantage which Tim Herbst believes is offered by the new building complex is its sheer versatility. As well as rooms for customer training, the complex also offers amply dimensioned production facilities and storage space. The company plans to recruit new engineers, technical personnel,

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service and administrative staff in the months ahead to help the WITTENSTEIN group expand its global reach.

## Responsible for content

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