



WITTENSTEIN

move

The magazine for customers and friends of WITTENSTEIN AG

Technology – Male domain in transition!

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Masthead

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Dear readers,

This, the second issue of “*move*”, our customer magazine, appears in difficult economic times. We are currently going through a phase which many people are calling a recession and to which the response is all too often an alliterative counterpart that no-one likes to hear: resignation. In reality, however, there is absolutely no cause for such an attitude. If we bury our heads in the sand, we will be unable to recognise the positive perspectives the present situation also offers.

After one year as VDMA President, I think I can fairly say that Germany continues to shine with outstanding conditions and infrastructure for industry, especially when it comes to the engineering sector: it boasts excellent networks for business, science and research with many well trained and highly motivated individuals who come up with brilliant ideas and are burning to get things moving. However, this vision will only materialise if the government succeeds in creating a suitable framework. It must be worth both employees’ and employers’ while to continue working here in Germany. This is why I’m engaged in a fight for a more employment-friendly labour market and wage policy, less unnecessary red tape, an intelligent taxation system, a more competitive strategy on research and – at the risk of repeating myself – a sustainable education policy. These are just a few of the many pressing issues I am currently attempting to resolve. And there’s still plenty of work waiting to be done before my term of office comes to an end in 2010!

In the present situation all of us in business are called upon to “clean up our own houses” and get fit to face the challenges of tomorrow – for instance by introducing measures to boost productivity or by investing in pioneering projects that make efficient use of resources. Providing we economise in the right places and invest our innovative strengths in reducing our consumption of raw materials, we are ideally placed to get back on course with robust growth when the current economic downturn comes to an end. That is exactly what we are doing, and doing consistently, here at WITTENSTEIN. If you read on, you will find several very good examples of how we are moving in precisely this direction. The same applies, of course, if you visit us at the international Hanover Fair in 2009. Our completely new stand concept is sure to both surprise and inspire our visitors. Our motto: **“Technology – male domain in transition”**.

We look forward to inspiring and motivating you with new ideas and new approaches, and to setting off together full of resolution and confidence in a successful future! We hope you enjoy reading this newsletter.

Dr. Manfred Wittenstein
President, WITTENSTEIN AG

A handwritten signature in black ink that reads "Manfred Wittenstein". The signature is written in a cursive, slightly stylized font.

move talks to:

Karl-Heinz Schwarz



You won't believe your eyes!

The planning and launch of a new trade fair concept is typically accompanied by a fanfare of platitudes describing all the benefits that will inevitably accrue to the company as a result. The objective is to achieve the greatest possible boost to the company's image, to make the company stand out from the competition by enhancing its attractiveness for customers and, finally, to make the maximum impact in all the relevant target groups, especially in the media. Although nowadays many marketing specialists shudder at the phrase "innovative thinking", this is precisely the quality that is so often called for in this context. What would happen, however, if a totally different conceptual and practical approach meant that these objectives really could all be met at once? WITTENSTEIN AG has endeavoured right from the outset to achieve just this – to adopt an entirely different way of thinking for its innovative trade fair strategy. In the interview below, Karl-Heinz Schwarz, Vice-President with responsibility for sales and marketing, gives us a sneak preview of the new concept – without giving the game away altogether. The idea, after all, is to unveil the new idea for the first time at the 2009 international Hanover Fair – a premiere which Schwarz assures us will be a real coup.

move: Mr Schwarz, what kind of timeframe do you envisage for the "WITTENSTEIN AG new trade fair concept" and what areas will the project cover?

Karl-Heinz Schwarz: The project is long-term and is intended to continue for several years. This timeframe is necessary to make sure the new concept is firmly etched in our employees' and customers' minds. It is first and foremost an important building block in our plans to regularly update the WITTENSTEIN umbrella brand which was launched on July 1, 2008. However, in periods of economic turmoil – such as the turbulences we are going through right now – companies also need new and fresh conceptual approaches that set them apart from their competitors. This is particularly true of our trade fair planning, as a field of activity that obviously has a very strong external impact. If we draw both these lines of argument together, it very quickly becomes apparent that there is no point in participating in trade fairs simply for the sake of it. On the contrary, at times like these it is important to realise that the main purpose of exhibitions is to promote sales and make sure the company keeps moving in the right direction.

We are adopting a three-pronged approach to this ambitious project. First of all, we will take part at the international Hanover Fair (HMI) from April 20 to 24, 2009, where we will present a new trade stand concept which will subsequently be used all over the world as a modular stand solution that can be adapted to any required dimensions – the second strategy cornerstone. Thirdly, we are working on the development of a trade fair strategy planning process that will orchestrate the management and coordination of WITTENSTEIN's participation at global exhibitions and

ensure that such presentations are aligned with public relations activities. In principle, this means creating a company-wide guideline that will enable WITTENSTEIN AG to make qualitative and substantiated statements about participation at trade fairs, stand sizes and communications equipment. The project will culminate in global meta messages with their own specific market orientation as well as in highly efficient planning processes.

move: What role does HMI 2009 play in this context?

Karl-Heinz Schwarz: In many respects, HMI 2009 can be regarded as a pilot project for our new concept. Under the motto “resource efficiency” we aim to bring together and harmonise several critical elements of our company philosophy, which states that the ambition of the WITTENSTEIN Group is to solve tomorrow’s questions today and thereby to be at the forefront of, and influence the very process of, change itself. In doing so, we will demonstrate the international power and know-how transfer within the WITTENSTEIN Group in the broadest possible way. The elements involved are our products and engineering services, our employees and our trade fair presentation and stand as the visual banner for our WITTENSTEIN umbrella brand. In terms of human resources we will draw on a uniquely constituted international competence team of highly skilled professionals; on the product side, we are banking on our new “WITTENSTEIN corporate design” and our broad range of engineering services. The stand itself will likewise incorporate many new details, which will turn our overall participation at the international Hanover Fair into one of the highlights of our new trade fair concept.

move: Where will the key focus be?

Karl-Heinz Schwarz: We want to pave the way for resources and energy to be utilised as efficiently as possible and to make our customers successful as a result. This fits in synergistically with our company philosophy of assuring that social responsibility and sustainability are the focus of all our work.

move: How can WITTENSTEIN help achieve these ambitious objectives?

Karl-Heinz Schwarz: We regard ourselves, and intend to present ourselves both nationally and internationally, as a know-how

pool and solution factory that is in a position to provide answers to precisely these, the major questions of tomorrow. We are working as pioneers with vehemence and passion on the implementation of the mechatronic issues of the future and have exactly the right solution competence for this purpose. This approach is also reflected in our trade fair concept. Starting with the international Hanover Fair in 2009, we intend to spotlight WITTENSTEIN as an unmistakable global brand. The kick off event for this new marching route is of critical importance to us. We are particularly concentrating our energies on HMI 2009. In fact, I think I can fairly say at this stage that we have practically reinvented our image from scratch for this event. This means no less than that we will be presenting an entirely new, and I would add, highly unusual profile. WITTENSTEIN will show itself off in an innovative new guise that will also include surprising new solutions.

move: There is a lot more to marketing and communication than just exhibition stands and public relations. What other measures will WITTENSTEIN be taking?

Karl-Heinz Schwarz: Let us return to the concept for HMI 2009 for a moment. It is not our intention to present ourselves simply as producers of high-quality components, modules and systems, but also – under our new umbrella brand concept – as an important regional, national and international employer. In other words, the aim of our marketing and trade fair concept is to give WITTENSTEIN an instantly recognisable uniform image across the globe as a mechatronics group and to create a clear marketing structure that highlights the company and its services. In the process, we intend to exploit synergies wherever this appears appropriate.

move: An instantly recognisable company and brand – that sounds good! What practical steps do you intend to take to achieve this goal?

Karl-Heinz Schwarz: Without giving too much away, I can tell you now that our trade fair presentation at the 2009 international Hanover Fair will make a very strong impression and have a distinctly international flavour. I can guarantee that you will be in for a surprise. In fact, you won’t believe your eyes!

move: Mr Schwarz, thank you very much for talking to us.



A double combination

WITTENSTEIN alpha GmbH combines TK⁺ with ball screw drive / Powerful solution for compact machines

from Simone Hugel/WITTENSTEIN alpha GmbH

High-performance, integrated and versatile – those are the key adjectives which describe WITTENSTEIN alpha GmbH's new ball screw solution. This pairing of the TK⁺ hypoid right-angle gearhead with a high-quality ball screw drive is mainly used to carry out stroke movements, for positioning, feeding or pressing in the machine building industry in particular. The aim is to translate rotary and high-precision movements into linear movements. This unique combination of motor mounting, gear ratio, axial bearing with built-on assemblies and ball screw drive is perfect for this purpose.

The combination of a TK⁺ with ball screw is available in sizes TK⁺ 010, TK⁺ 025, TK⁺ 050 and TK⁺ 110. The optimal alignment of the individual components makes for a powerful and versatile drive solution as well as unbeatable all-round system performance. The high power density of the TK⁺ linear actuator permits a highly flexible machine design.

High-performance system solution

WITTENSTEIN alpha's new combination is especially recommended for customers who are looking for a ball screw system solution. WITTENSTEIN AG's biggest Business Unit is able to draw the components for the entire drive train from a single source and calculate customised designs using the cymex® 3.1 sizing tool.

The heart of the combination consists of a TK⁺ servo right-angle gearhead that can be integrated with an intermediate flange, a spindle nut, a motor mounting and a lead screw to form a compact linear actuator.

Important detail: the alpha intermediate flange

One particularly interesting design detail is the way the spindle nut is connected to the gearhead's output flange by means of an intermediate flange that is assembled and aligned on



How you benefit

The main question asked whenever a new product or system solution is launched is the advantages it has to offer. In the case of the TK+ and spindle combination, the benefits are plain to see:

- The integrated, sturdy bearing of the ball screw ensures a long service life and the absorption of high forces
- The option of using correspondingly small motors even for medium-to-high loads makes the drive solution more cost effective and efficient
- The drive axle has only a very short "disturbance length" as the motor is always mounted vertically to the feed – in other words, the entire drive unit is extremely compact and space saving
- The control quality can be optimised simply by varying the gear ratio and pitch of this harmonious system, which also means it is very easy to commission

More information: www.wittenstein.de

modern assembly equipment. These components prolong the service life of the entire configuration and ensure a high level of reliability in day-to-day operation by preventing the occurrence of radial loads on the ball screw drive.

The exceptionally smooth running of the unit produced by this novel solution reliably avoids vibrations throughout the entire machine.

TK+ and spindle: New system solution for ball screws

WITTENSTEIN alpha has again gone back to the drawing board to come up with a perfect combined TK+ and ball screw system solution for spindle drives. The new system launched on the market offers unparalleled reliability and flexibility. With its attractive and yet functional design, it unites customisability with a long service life. The high power density which can be achieved in a very small space allows machines to be

designed in a way that reconciles power with compactness. The drive can be used for slow, highly precise applications or whenever high dynamics are demanded in conjunction with controllable travel speeds. The TK+ and ball screw configuration is consequently just right for integrated linear drive solutions that are also economically efficient. It goes without saying that WITTENSTEIN alpha's services additionally include consulting support from the design phase through to sale and customer service.

Highly realistic flight simulation!

WITTENSTEIN aerospace & simulation GmbH (WA&S) “Control Loading Module” recreates the real experience of flying



from Michael Knoblauch/WITTENSTEIN aerospace & simulation GmbH

The purpose of flight simulators is to help pilots experience as directly as possible how an aircraft will respond to specific flight manoeuvres. As in “real life”, the simulator’s task is to reproduce the haptic-physical sensation of the way it “feels” when an aircraft – in this case a helicopter – is put through its paces in extreme flying conditions.

In a simulation project with DLR (German Aerospace Center) Braunschweig, WA&S focused on the integration of Control Loading Modules in a research simulator for the ACT/FHS.

WITTENSTEIN aerospace & simulation GmbH is the WITTENSTEIN AG unit responsible for research, development and production work on, as well as the sale and marketing of, high-quality and compact electromechanical actuator systems for the aerospace and simulation industries. WITTENSTEIN aerospace & simulation is certified as a production and maintenance organisation to EASA 21G and EASA 145 and consequently has the necessary approvals to tackle the extremely challenging tasks in this sector.

These challenges are met by around 50 men and women at several locations in the UK, USA and Germany. WITTENSTEIN aerospace & simulation products are found in the Airbus A380 as well as in machines produced by major simulator manufacturers all over the world.

The customer for the Braunschweig project was the German Aerospace Center (DLR), which describes its mission as basic research and, in particular, application-driven aerospace research. The primary objective of DLR’s aerospace

work is to enhance the competitiveness of the national and European aerospace industry and to satisfy the demands of public policymakers as well as society in general in the process.

Helicopters play a largely independent role in the DLR portfolio. Building on major research facilities developed over a period of 25 years, such as the ROTOS rotor test stand and airborne testbeds like the Bo-105 and EC 135 FHS helicopters, DLR performs globally preeminent research projects in the field of rotor aerodynamics, rotor dynamics, total system descriptions, dynamic pilot and helicopter interactions as well as helicopter control and piloting.

Project with DLR Braunschweig

The project carried out with DLR Braunschweig in 2008 involved the technical equipment for a research simulator for future helicopters. The German Aerospace Center’s ACT/FHS ‘Flying Helicopter Simulator’ is based on a standard Eurocopter EC 135 type helicopter, which has been extensively modified for use as a research and test aircraft. The mechanical controls, for example, have been replaced by a fly-by-wire/fly-by-light (FBW/FBL) flight control system in which control commands are transferred over electric and fibre optic cables instead of control rods.

The range of potential applications for the FHS covers pilot training, trials of new open and closed-loop control systems right through to simulation of the flight characteristics of other helicopters under realistic environmental conditions. As far as the Braunschweig simulator (which is used in addition to the



“real” helicopter on the ground) is concerned, the initial aim was to achieve the “most realistic” conversion of all the flight commands into corresponding movements. In the tender to DLR, WA&S proposed a steering force-based simulation system in which the required forces are applied directly to the electromechanical drives by means of existing connections to the steering input devices in the simulator cockpit.

Scope of the Control Loading system

WA&S' supplies to DLR in Braunschweig included the 'Control Loading Module', comprising the electromechanical actuators and torque sensors, which was delivered as a complete package together with the 'System Control Module' and all electrical connections, wiring and adapters.

The adapters connect the Control Loading Module to the original steering input devices or to the pilot and co-pilots' 'flight sticks'. The System Control Module communicates with the simulator's host computer over an Ethernet connection using either the TCP/IP or UDP protocol.

The all-in-one solution for the DLR simulator also included the entire mechanical installation as well as the configuration and fine adjustment of the system. This particularly concerned the set-up as well as the haptic tuning of the Control Loading software to a helicopter's original steering forces.

The configuration was completed by the Active Toolkit, which provides a graphical interface to the Control Loading System and enables DLR engineers to adapt the entire 'movement system' for different types of helicopters.

The very finest integrated high-end actuator technology

The integrated technology with brushless motors and planetary gearheads in several different sizes, was originally developed for robotics applications, but is also suitable for the high end of the market. These finely adjustable actuators can be used to program and perfectly reproduce the physical sensation of many different flight characteristics and thus mo-

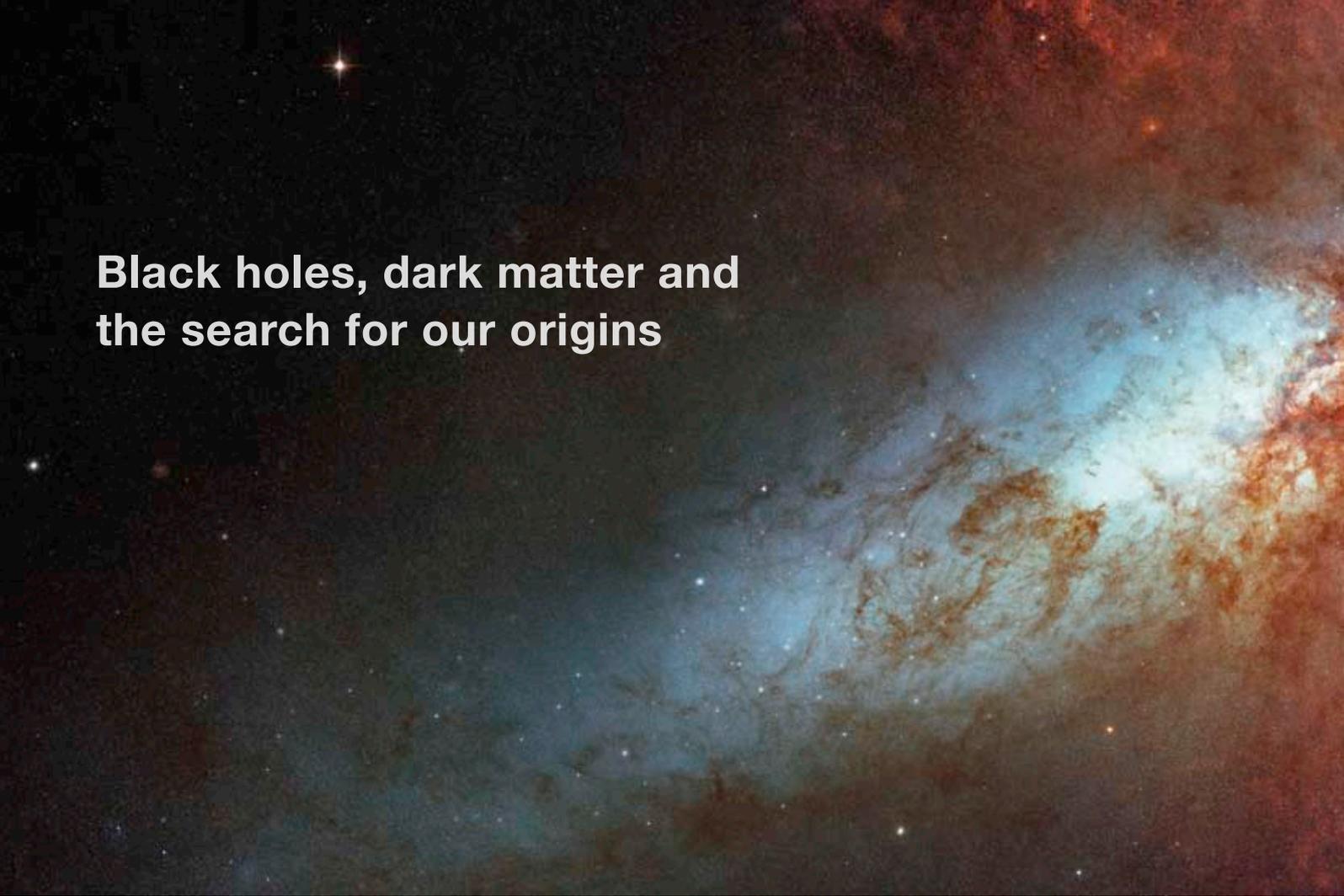
dify the simulation to create an incredibly realistic imitation of everyday flying experience. The configurations are modular in design and allow each customer to attune their servo systems, mechanical interfaces and sensor adaptations to their respective requirements. The integrated digital motor control permits the torque and power in the closed system to be adjusted with utmost precision. All electromechanical actuators not only function extremely precisely, economically and efficiently, their extensive programming options also mean they are ideally suited for individual training and for simulating complete tactical missions and tasks.

DLR's total satisfaction with the application

Carsten Seehof of DLR in Braunschweig is totally satisfied with the simulator package: “The entire project was put into effect without a single hitch and the system performs even better than we expected. We value WITTENSTEIN aerospace & simulation as an absolutely reliable supplier and our number one contact for everything to do with 'force feedback'. Our users are also extremely pleased with the installed system and we already have firm plans to undertake further projects with WA&S in the future.”

Carina Mohr, WA&S project manager, commented on the smooth collaboration with the German Aerospace Center in a similarly positive vein: “Our clearly defined, transparent project management goes down very well with our customers. We tackle the typical challenges in a systematic way and solve them with the unambiguous objective of providing total customer satisfaction. This is an immensely important aspect – particularly in this highly sensitive field.”

Ultimately, the insights gained in this high-end sector of actuator technology also benefit all of WITTENSTEIN's other customers. The results of work in this field, for example, consistently find their way into series production and help to further perfect not only our gearheads and servo motors but also WITTENSTEIN's electromechanical drive systems.



Black holes, dark matter and the search for our origins

Journeying to the edge of the universe with WITTENSTEIN motion control Special Applications

from Dr. Stefan Gärtner/WITTENSTEIN motion control GmbH

While astronomy is considered to be one of the oldest of sciences, radio astronomy is a comparatively young discipline. It was as recently as 1931 that the American physicist and engineer Karl Guthe Jansky first discovered that the Milky Way emits cosmic radio waves.

Since the sources of such radio waves are so far away, the signals we can pick up are naturally very weak and have to be received using extremely large and powerful antennas equipped with highly sensitive amplifiers. The radio waves collected in parabolic dishes are stored and assembled into images by computers.

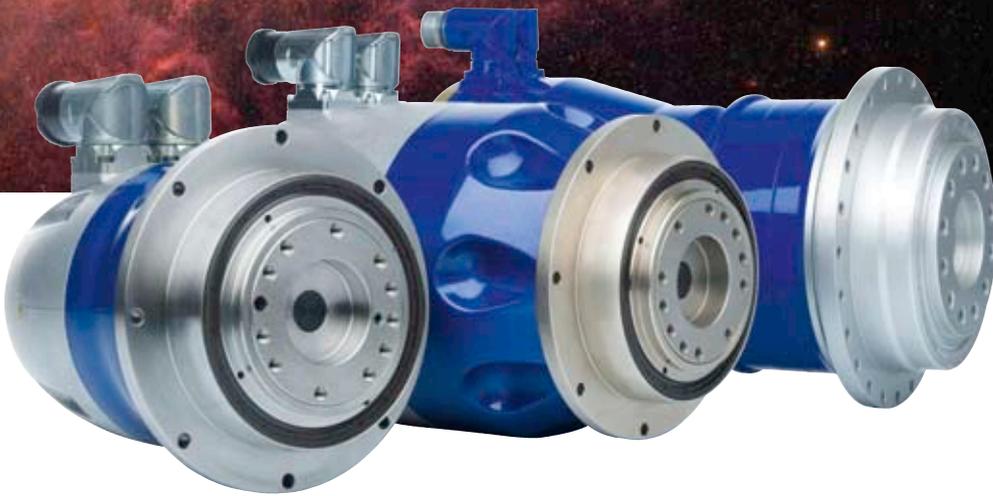
SKA: A colossus among radio telescopes

Scientists from at least 50 institutes in 17 countries are now planning to use a radio telescope of unprecedented dimen-

sions to collaborate on research into the origins and evolution of the universe. The “Square Kilometre Array” (SKA) project is in fact an interferometer which combines the signals from several thousand antennas with the aid of high-performance computers to produce enhanced resolution. The antenna field itself consists of a set of simple, fixed-mounted dipole antennas or semiconductor elements (also known as a phased array) as well as moving parabolic antennas. Altogether, the SKA will have a total collecting area of one square kilometre – or a million square metres, equal to around 140 soccer pitches.

A project of gigantic proportions

The ingenious design of the SKA includes a distance of around 3,000 kilometres between the outer receiving stations and the



centre of the array, whereby the central core itself has a diameter of about 180 km. These few figures alone demonstrate the gigantic proportions of this project – a project which aims to investigate some of the most fundamental issues in astronomy, particle physics and astrobiology.

An international team of experts has selected various key projects from a much larger list of potential scientific issues: the SKA will be used to study the very early history of the universe, dark matter and dark energy. It will be employed to investigate the influence of cosmic magnetism on the origins of galaxies and stars.

The SKA will also be called upon to test the theory of relativity taking account of the continuing expansion of the universe. Finally, the SKA will explore the question of whether life – or even alien civilisation – exists somewhere out there far

away from our home planet earth. Of course, the SKA will be equally suited for carrying out other research projects in the future, the nature of which we can as yet only guess at. In order to achieve all this, it will work in a frequency range from 100 MHz (three metre wave length) up to 25 GHz (1.2 cm).



“Radio silence” as a location criterion

Many different factors play an important role in selecting the location for the SKA project. One such requirement is for “radio silence” in a radius of more than 100 kilometres around the site. This means that radio interference, such as television or radio broadcasts, mobile phone stations, radar or other radio stations must only be extremely weak. The regional authorities must also guarantee continuing radio silence for an operating period of at least 50 years. This additionally implies, of course, that the region must be politically stable. What’s more, the atmosphere and ionosphere must let certain frequencies pass. After taking measurements, sites in Australia and New Zealand, southern Africa with South Africa itself as the central location, and several neighbouring countries have all been shortlisted. The decision is expected to be made as soon as the prototype phase now under way is completed at the end of 2012.

WITTENSTEIN motion control contributes high-precision servo motors

While the phased array radio telescopes themselves do not need any moving parts, the parabolic antenna reflectors are

adjustable. This enables the intensity of a radio signal and its coordinates to be determined by tilting or swivelling the antenna a small amount. The reason for this is that the signal is brought to a focal point by the parabolic reflector, whereas a dipole antenna receives the signals independently of their cardinal direction.

The next step – positioning a parabolic antenna exactly – requires highly precise, absolutely jerk-free servo motors which react with one hundred percent accuracy. The motors also need to be totally exact and precise whenever the antenna is required to track an object. WITTENSTEIN motion control won the order for three servo actuators for the first antenna prototypes for the SKA project in South Africa. Movements in the 15-metre reflectors’ horizontal and vertical planes are each controlled by one TPMA 500; the radio camera on the telescope’s focal plane is adjusted by a TPMA 010. WITTENSTEIN motion control supplied complete systems in each case, including the necessary control and power electronics.

However, drive precision is not the only critical criterion. Speed is equally decisive. The drives must be able to execute extremely accurate changes in position during normal operation or lock the reflector in its “parking position” as quickly as



Glossary

Light year – an astronomical unit of length not recognized in the International System of Units (SI), but which astronomers regard as indispensable. It is a very practical and readily understandable measure of distance:

1 light year = 9.5 billion km (9.5 x 10¹² km).

Astronomical unit – alongside light years, the astronomical unit is another unit of length which is important in astronomy: 1 AU is equal to 149,597,870,691 metres – a distance which corresponds almost exactly to the mean distance between the earth's core and the centre of the sun.

Sources:

Falcke, H., Beck, R.: Per Software zu den Sternen;

Spektrum der Wissenschaft, July 2008

Beck, R.: Das Square Kilometre Array;

Sterne und Weltraum, September 2006

<http://www.skatelescope.org>

<http://www.kat.ac.za>

<http://www.hartrao.ac.za>

<http://www.astronomie-heute.de>

<http://www.skads-eu.org>

<http://www.mpifr-bonn.mpg.de>

possible in response to a sudden change in the weather, for example.

Robust motor technology essential

The southern Africa part of the SKA project is located in the Karoo – a central plateau region of South Africa. The climate in this semi-desert region is predominantly dry and harsh: in summer, daytime temperatures regularly exceed the 40°C mark. By contrast, the winter temperatures can be inhospitably cold. WITTENSTEIN motion control has designed its drives with sufficient robustness to ensure that they carry on working reliably and continuously despite the tough climate. Confidence in WITTENSTEIN technology has also been underlined by a further detail: the classic configuration envisages antennas of this type being fitted with two drives on each axis to counteract the face clearance. However, this was not necessary for the High Torque actuators from Igersheim. On the contrary, in all tests performed they exceeded expectations for precision and dynamics.

Now that the first measurements and tests have been successfully completed with the TPMA 500, the SKA project in South Africa is about to enter its second phase. The next step will be the construction of eight radio telescopes,

each with a diameter of twelve metres. WITTENSTEIN motion control has supplied a TPMA 300 and a TPMA 010 for these antennas. By the time the prototype phase comes to an end in 2012, a total of 50 radio telescopes will have been built in South Africa.

Superlatives: Costs, performance, sensitivity

In “terrestrial” terms, the sensitivity of the SKA will be truly astronomical. Working at 20 GHz the telescope will, for example, be capable of revealing intricate details as small as 0.1 astronomical units in discs 300 light years away. SKA will be able to identify a typical radar signal at a distance of 100 light years, and if its sensitivity were to be increased tenfold, it would even be possible to detect a typical modern television station 1000 light years remote.

The forecast volume of investments in the project is currently around 1.5 billion euros, of which more than 50 per cent will be accounted for by technical equipment (antennas and receivers). Assuming that the financing and preparations go according to schedule, construction should begin in 2013. The first tests could take place a mere three years later once the inner area is finished; the project is due for completion in 2020.

Performance has a new name:

TPM⁺ power

from Siegfried Wallauer/WITTENSTEIN motion control GmbH

Last autumn's main industry event, the "SPS/IPC/Drives" fair, which was held in Nuremberg from November 25 to 27, was an ideal platform for the presentation of a new high-performance WITTENSTEIN motion control product: the "TPM⁺ power" drive series, which appropriately rounds off the "TPM⁺ dynamic" motor-gearhead units for particularly demanding applications.

The response to the trade fair clearly demonstrated that the market had been waiting for exactly this kind of development from WITTENSTEIN.

It is not for nothing that WITTENSTEIN motion control is regarded as a trend setter in its market segment. The short project life of just ten months shows that WITTENSTEIN experts had also accurately read the sign of the times and realised the need to press ahead with the implementation of the new product lines. The first three sizes – 004, 010 and 025 – were introduced to the market in December 2008. The 050 and 110 "TPM⁺ power" sizes followed in February 2009.

TPM⁺ power series rounds off TPM⁺ dynamic servo actuators perfectly

The TPM⁺ power servo actuators are especially interesting for customers who require higher torque than can be provided by the TPM⁺ dynamic series. The new gearhead-servo motor units are also extremely useful if higher control quality is essential to counteract disturbance variables.

Compared with the "TPM⁺ dynamic", the motor of the "TPM⁺ power" features an additional power stage. For the first time, motors with a stator diameter of 155 and 220 mm will be used by WITTENSTEIN motion control as standard for the 050 and 110 sizes.

Just like the "TPM⁺ dynamic" drive unit, the "TPM⁺ power" motor and gearhead are installed very close together. Planetary gearheads and AC servo motors are consequently slowly merging into a single unit in which the sun wheel and the rotor shaft are connected without a coupling. Product Manager Siegfried Wallauer sums up the resulting benefits of the new servo actuator as follows: "The 'TPM⁺ power' is also



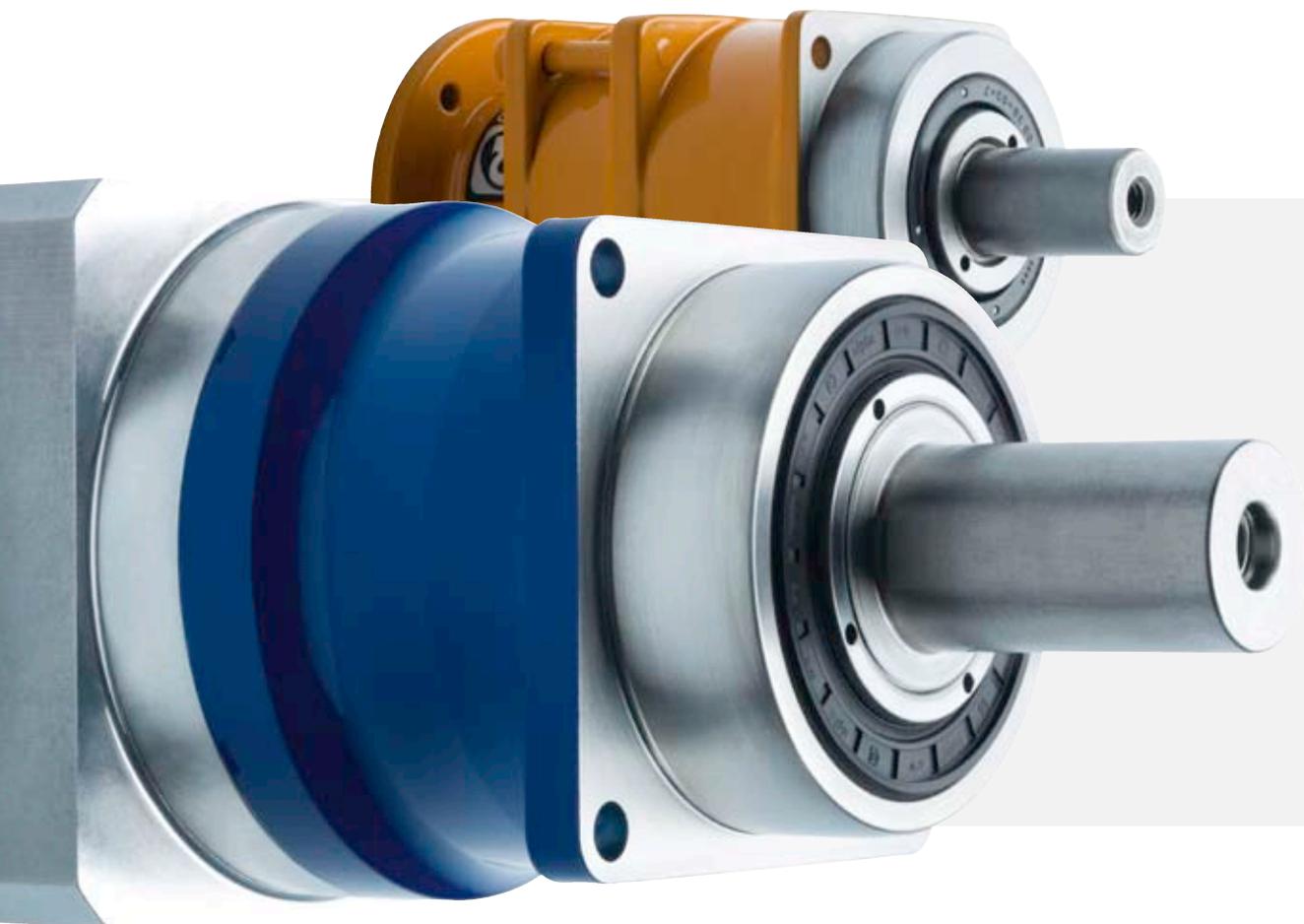
much shorter than most other motor-gearhead combinations available in the market. For example, 'TPM+ power' 025 with a resolver and without a brake is approximately 35% shorter than the equivalent combination of a TP+ 025 with a standard servo motor from a market partner. In addition to their superior overall stiffness, this is what makes our actuators so unique. None of our competitors in the planetary gearhead motor sector currently comes close to rivalling our compactness and power density. While one manufacturer has set a new record in this area, it is only able to offer half to a third of our overall stiffness, so that the bottom line is considerably poorer control quality."

New name and design for a new product

The "TPM+ power" actuator series has been adapted to the new WITTENSTEIN corporate design with its particularly striking blue design ring between the gearhead and the motor. The higher-performance and larger size of the TPM+ power actuators already create an extremely powerful impression

that is further emphasised by the blue ring.

The product names of the TPM actuator family make unmistakable reference to their application and performance. They now comprise two parts. "TPM+" describes the class of servo actuator with an output flange. The second part of each name is derived from the product's key technical characteristic, in other words, "dynamic" or "power". This means the names have already been defined for future types of actuator: It will not be long before our portfolio of rotary servo actuators with an output flange is enhanced with the 'TPM+ high torque', the successor to the existing TPMA, and the 'TPM+ endurance', a water cooled version.



The prelude to alpha getriebebau's 25 years of remarkable achievement is no exception. After all, who could ever have guessed that a decision to restructure the company's business operations that was originally born of simple necessity would turn out to be such a massive triumph? It is unlikely that, even in his wildest dreams, Manfred Wittenstein could have foreseen what would follow from the presentation of his first planetary gearhead at the Hanover Fair way back in 1983 before he had even set up the company.

In retrospect, the company founder of what was then alpha getriebebau GmbH and today's President of WITTENSTEIN AG and the VDMA was doomed to success from the start. When Manfred Wittenstein took over DEWITTA, the family firm, in 1979, an era was drawing to a close. It was

increasingly obvious that DEWITTA's specialism, manufacturing glove sewing machines, had no real business future. The company had enjoyed a successful run well into the 1970s. Thereafter, however, this niche market began to take a turn for the worse. The textile maker and machine builder Manfred Wittenstein very quickly recognised which way the wind was blowing and – out of sheer necessity – set about looking for a quick yet sustainable solution for “his” company.

The opportunity: construction of planetary gearheads

Manfred Wittenstein believed that low-backlash planetary gearheads would be the perfect investment for a brighter future. Driven by his single-minded inventiveness he immediately began putting his ideas into practice and converting DEWITTA's

More power right from the start

from Uwe Becker/UBCom



entire production and product portfolio. The first SP planetary gearhead was exhibited by Manfred Wittenstein in Hanover in 1983. The foundation of alpha getriebebau GmbH followed shortly afterwards, in 1984, initially in collaboration with Bastian, medium-sized company in Fellbach, just outside Stuttgart. Today Bastian's specialist gearing know-how contributes to the success of the WITTENSTEIN group of companies.

A strategy vindicated by market success

The development and realisation of the new planetary gearhead was richly rewarded by enduring market success. alpha's rapid rise was fuelled by more and more new developments and improvements to its gearhead range. From its very earliest days, the two-digit year-on-year increases in

sales reported by the company were a source of unshakable confidence for its employees.

Innovations as a magnet for investments

alpha getriebebau's operations continued to boom throughout the 1990s. Thriving business generated new investment resources which, in 1996, were channelled into the new Hall 1 – desperately needed to accommodate expanding production capacities – at the company's head office in Igersheim-Harthausen. By 1999, the building had been extended at a cost of more than 20 million marks (around 10 million euros). By this time, 250,000 SP gearheads had already been sold worldwide.

This commitment was rewarded for the first, but no me-

25 years of gearhead innovation and passion

ans last, time in 2002. “alpha” won first prize in the prestigious European “TOP 100” shortlist of 454 competing firms as the most innovative medium-sized enterprise in Germany.

alpha getriebebau becomes WITTENSTEIN alpha

The enduring success story of alpha getriebebau was also essentially the germ cell for the subsequent triumphs of WITTENSTEIN AG. One Business Unit after another was established around alpha getriebebau, which continues to account for the largest share of the WITTENSTEIN Group’s sales. In the meantime, WITTENSTEIN alpha, as it is known today, not only pursues its original mission involving the research, development, design and marketing of high-precision low-backlash planetary gearheads, it is also active in “speciality” fields such as servo right-angle gearheads and complete mechanical drive systems. More than 80 percent of sales are currently generated by products developed less than five years ago and the average product lifecycle is a mere seven years – a figure that is unparalleled anywhere else in the industry.

Milestones in the company’s development

The milestones in alpha’s history read like a “Guinness Book of Gearhead Records”. In 1987, alpha launched the “SPF”, a world premiere and the very first planetary gearhead with conical teeth. The “Synchrobox”, the world’s first low-backlash planetary gearhead to be integrated in a timing belt pulley, followed in 1992. Just one year later, alpha constructed the world’s first flange gearhead. In 1997, the company came up with the “EPM”, yet another global premiere from Igersheim – this time the first highly-compact, roomless elevator drive with integrated low-backlash planetary gearhead and motor. The software tool launched on the market in the year 2000 under the name of “cymex®” was equally important and pioneering. This software was the first of its kind to be developed by alpha and enabled clients to put together the optimum drive train from several essential components for their own customised applications. 2004 was the year in which alpha produced a crop of highlights for the entire industry: SP+, the world’s most successful planetary gearhead entered its third gene-

ration and alpheno IQ® was unveiled by alpha as the world’s first ever sensor planetary gearhead. To top it all, in the same year customers were offered the first “HG+” servo hollow-shaft gearhead to combine the bevel and worm principles in a single housing. And there’s more to come: alpha is well on the way to becoming a one-stop supplier of mechanical drive systems. Rack-and-pinion products and product combinations with couplings and ball screws are set to drive future developments.

The list of alpha’s groundbreaking research and development activities could be extended almost indefinitely. Yet even this brief survey amply demonstrates that alpha was, is and will remain one of the most important technical pioneers in the entire industry. Manfred Wittenstein, President of WITTENSTEIN AG, who ultimately masterminded alpha’s huge success, puts it succinctly: “It was always the aim of every one of us at WITTENSTEIN alpha to build the very best gearheads for our customers, to find the solutions best suited to their needs, to be a partner they could always rely on, and to provide advice and support right where it is needed. When customers come to us asking for assistance with a particular problem, we offer all the know-how we have and the results provide inspiration for each and every stakeholder.”

Success comes to those who earn it

This is probably the secret of WITTENSTEIN alpha’s lasting success. Of course, 250 motivated employees guarantee the punctual delivery of more than 150,000 premium-quality gearheads a year to all our customers around the world. Of course, the company’s global presence, sound customer training, on-site workshops, our speedline® delivery service for Europe and several of the most important national and European awards for excellence play a fundamental role in ensuring the satisfaction of our clients. Nevertheless, the runaway development of the company’s business is probably due more than anything else to our playing by the basic rules of customer proximity: listening carefully. The product and organisational developments that have grown from this attentiveness have been a reliable “driving force” for both our customers and alpha itself for 25 years.



Spectacular aerospace customers in Spain

WITTENSTEIN S.L.U., the Spanish regional office of WITTENSTEIN AG, has integrated two spectacular customers into its portfolio in recent months. These important clients are M. Torres and Fatronik, an innovative engineering consultant for technical concepts and machines. Both companies operate in the aerospace technology industry.

Torres manufactures milling and winding machines and has been the exclusive supplier of such plant to Airbus S.A.S. since February 2008. This unique machine technology is used to reinforce the aircraft fuselage, wings and empennage with carbon fibre. The fibres are either wound around the aircraft body like a thread or sprayed on in the form of small chips.

Exclusive cooperation with WITTENSTEIN S.L.U.

Sales Director Thorsten Weiss describes the cooperation between Torres and WITTENSTEIN in Spain as follows: "We have reached an agreement with Torres which ensures that WITTENSTEIN will be its exclusive supplier for the winding machine drives.

Altogether, a total of twelve TP+ motor-gearhead units will be used in master-slave or master-slave-gantry mode, in other words, all the drives in each machine."

Since the A and C axes are accommodated in the spray/winding head, a compact drive design was especially important. The plan is for Torres to sell between 10 and 16 winding machines with these components to Airbus by June 2010.

Fatronik: Innovative developments for the Spanish market

WITTENSTEIN S.L.U.'s second customer, Fatronik, is an engineering consultant that creates technology concepts and machines for a wide variety of clients. The Fatronik office is very close to the WITTENSTEIN location in San Sebastian – in fact, it was this proximity which made the business in drive units with WITTENSTEIN's neighbour so attractive in the first place. Again, Thorsten Weiss can recall the steps leading up to the cooperation in detail: "We supplied two TPM drive units to Fatronik for a new machine concept. The Fatronik system is the first robot to machine the Airbus wing tips fully automatically. The same work was previously done manually."

The robotic system won the "International Strategic Manufacturing Award" in 2008, sidelining companies such as SAP, HP and Procter & Gamble in the process.

WITTENSTEIN alpha “Innovative Drive Technology” regional workshops again scheduled for 2009

The successful “alpha on tour 2007”, taking in 13 German towns, was followed up in the autumn of 2008 with a regional series of customer events entitled “Innovative Drive Technology” in Bad Oeynhausen. As the feedback from our guests was so positive, more such events are planned throughout Germany this year.

One such workshop was held for the the Stuttgart region in Staufeneck Castle in Salach on March 10, 2009. Further dates are planned for Chemnitz, Munich and Frankfurt. The latest information about these seminars can be found at www.wittenstein-alpha.de, where it is also possible to register for the events online.

Interactive phases and contents will make these inspiring and informative presentations all the more valuable and useful. Some of these additional elements will be directly linked to the presentations themselves, while others will escort our guests on a tour of the distinctly atmospheric and unusual event locations or involve a shared culinary experience as a follow-up to the event. An exhibition of alpha products, rounded off with additional exhibits related to the presentations, will enable visitors to expe-

rience WITTENSTEIN alpha solutions “with all their senses”.

Developing creative dialogue between companies and customers

WITTENSTEIN alpha is already in very close contact with its customers and stands out positively from competitors thanks to its all-round support services. A highly qualified team provides local support from the regional centres of expertise. A number of other customer advisory services will also be on offer – such as consultations with industry experts, information about the cymex® 3.1 sizing software and advanced engineering services such as SAM and FEM calculations.

WITTENSTEIN alpha additionally intends to use these get-togethers to deepen and extend its contacts with you, our customers, and to profit from even more intensive dialogues to further strengthen our joint development partnerships. The 2009 regional workshops should make this possible. These events are a concise and cost-effective way of demonstrating how WITTENSTEIN alpha and its products can help you hone your development and production activities even more accurately to your targets and objectives.

What awaits our customers?

The free regional events include talks on the topic of innovative drive solutions in numerous industries. Future-oriented presentations will focus on potential solutions from a variety of perspectives. WITTENSTEIN alpha customers will also have an opportunity to contact our expert drive technology and research teams to discuss issues of particular interest to them.

Each event will have a different focus. The specific technical themes include:

Energy-efficient servo drives: *Achieving an ecology and economy balance*

Design freedom: *Right-angle gearheads as linear actuators*

These contents will be supplemented by socially relevant topics such as:

The successful human factor: *The key to project success*





Dr. Dirk Haft and
Dr. Manfred Wittenstein

Nudging the boundaries of the feasible!

With 74 per cent of all shares in the company, WITTENSTEIN AG became the majority shareholder of Munich based attocube systems AG on September 2, 2008. This strategic acquisition paves the way for WITTENSTEIN AG to make big strides in the world of nanotechnology.

There is no shortage of news about 'nanotechnologies' in the high-tech industries. In the somewhat simplified language of popular science, this technology is all about deploying minute, high-precision technical system units and the previously undreamt of uses to which they can be put. Most people, for example, will have heard the story of the mini-sub that transports drugs through the human circulatory system to deliver them in precisely the area they are needed.

Nanotechnology: high levels of innovative potential and growth

These are precisely the kind of technical innovations that interest the specialists at attocube systems. The company, which is a spin-off from the Center for NanoScience at the Ludwig Maximilian University of Munich, currently has a staff of 25 and has evolved over the last six years into a highly sought-after partner in scientific and business projects all around the world.

One of the many interesting products is a patented ser-

vo motor, which works at the limits of what is physically and technically possible – such as at extremely low temperatures (-270 °C), in absolute vacuum or in strong magnetic fields – while ensuring nano-precise positioning. The outcome is an array of applications in the nano drive system, sensor and microscopy sectors. Thanks to these drives and its complete microscope systems, attocube systems has very quickly established a leading position in the semiconductor and biotechnology industries as well as in life sciences, telecommunications and aerospace. The company, which holds numerous innovation and startup awards, reported sales worth around 4.5 million euros in 2007 accompanied by a growth rate of sixty per cent.

Strategic acquisition for WITTENSTEIN AG

Dr. Manfred Wittenstein, President of WITTENSTEIN AG, is confident that the Munich based operation has a very bright future. "attocube is an excellent company that ranks among the world's elite technology firms. Nanotechnology is also set to be much more than just a passing fad for us. In combination with other technologies this strategic cooperation will enable us to conquer new markets and help us revolutionise products and manufacturing processes in many industries. As a drive technology specialist, WITTENSTEIN AG is also poised to become a leading supplier of drive solutions with attocube in these markets."

Now even better in the USA!

US Service Center extends its cover to mechatronics

from Volker Metzger and Henning Wilhelmi/WITTENSTEIN AG

A decision of major strategic importance for mechatronics service in the USA was taken in 2008: in future, TPM motor/gearhead units in the United States will not only be taken in for servicing when required, they will be immediately examined, repaired on the spot and tested for proper functioning before being returned. The ability to carry out initial inspections, repairs and commissioning of the TPM will reduce lead times for repairs in the USA and enable more know-how to be exploited in direct proximity with customers. This will save time and money for customers and WITTENSTEIN alike.

Henning Wilhelmi, Team Leader Customer Service Mechatronics at WITTENSTEIN AG, describes the current process as follows: "In the past customers had to send their TPM to our subsidiary in Bartlett/Illinois. The information provided by each customer then needed to be recorded and the drive subsequently sent to our Customer Service in Germany together with a contact report detailing the problem. The product was then re-examined, a report drawn up and – after obtaining the customer's approval – the repair finally carried out. In the period between writing the report and obtaining approval, all communications with the customer took place via our subsidiary. This procedure was very time consuming, as any uncertainties had to be clarified with the regional office in Germany before continuing. The whole process was additionally slowed down by the time difference between Germany and the USA and the delay sending consignments back and forth between WITTENSTEIN US and Germany."

Full mechatronics service for the USA in future

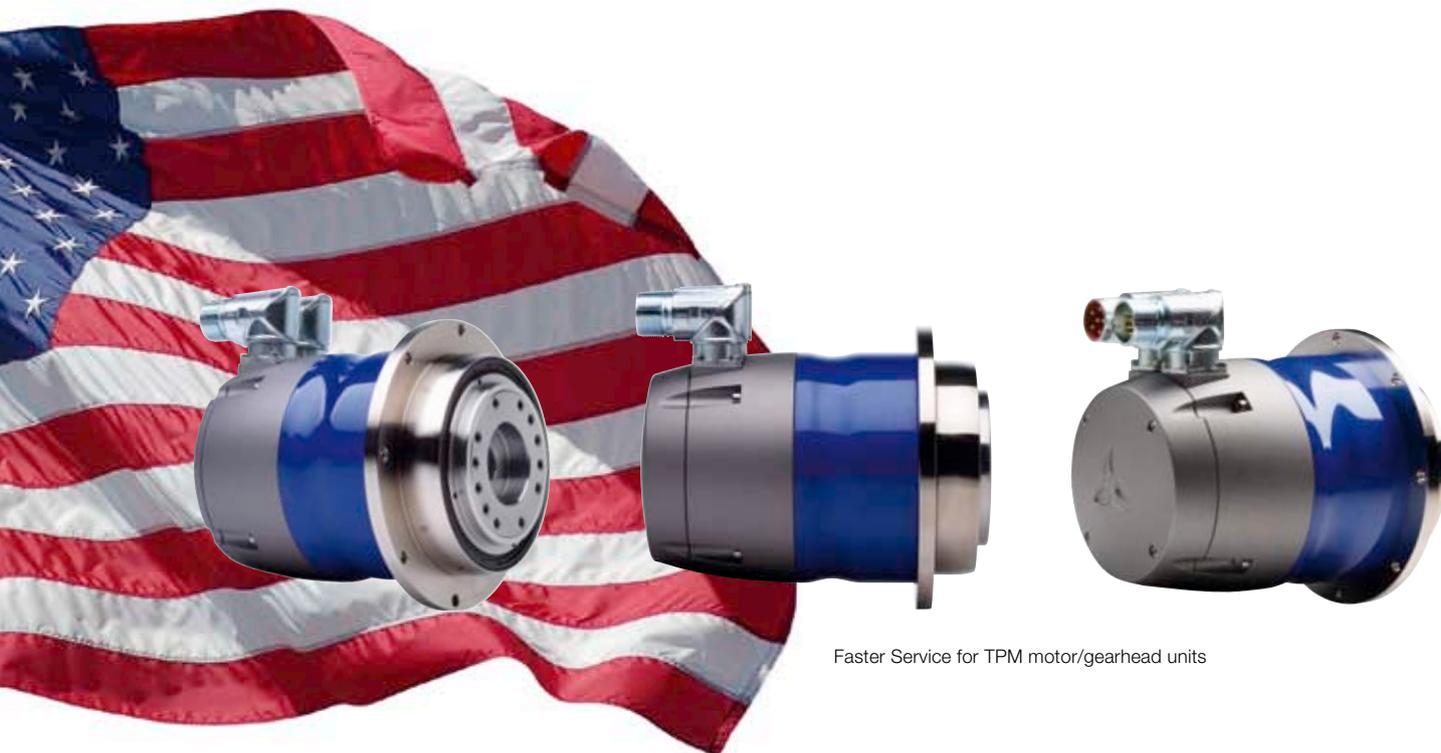
The simplicity of the new procedure introduced in 2008 reflects our corporate strategy and is also a great deal more

effective as a result. All the drives in the TPM series will continue to be sent to the US regional office – the only difference in future is that they will be inspected directly on location, repaired and functionally tested before being returned. This also means, of course, that the report needed for customer approval of the repair will likewise be written in Bartlett. Repairs will thus be undertaken much faster and consequently more economically for all overseas customers. This strategic restructuring will moreover have a very positive impact on costs. Shorter waiting times, faster service, greater customer satisfaction – the win-win situation for both sides is obvious.

Laying the training and technical infrastructure groundwork

The best resolutions for the future are worthless if they are not backed up by an efficient infrastructure. As always, WITTENSTEIN has made it a top priority to ensure that everything needed is in place. The trained mechatronics professional Kathrin Kreißl, currently in the sixth semester of her cooperative degree in Electrical Engineering at a University of Applied Sciences, where she is majoring in Mechatronics





Faster Service for TPM motor/gearhead units

– in other words an “expert” through and through when it comes to in issues in this field – did her practical semester with WITTENSTEIN US in Bartlett from March to September 2008. During her stay in the USA, she worked in the framework of a joint transatlantic project to set up the test bays needed to examine TPMs. These bays were erected and commissioned with the support of American service engineers William Boyle, Greg White and Peter Spiropoulos as well as three electrical engineers: Andrew Stock from the USA and Thomas Nied and Harald Schieß from Germany. The American colleagues made the most of the opportunity to inform themselves in detail about procedures and functions. Kathrin Kreißl also wrote English operating instructions for the test bays to make it easier for operators in Bartlett to use the equipment.

Thomas Pico, a service engineer in Customer Service Mechatronics employed by WITTENSTEIN and responsible for local inspections, repairs and commissioning of the TPM series, followed up Kathrin Kreißl’s training input and taught the American operators everything they needed to know about “operating test bays”. In addition to commissioning, his input also focused on other fundamentals such as sensor adjustments and general troubleshooting. The training additionally included joint inspections, repairs and testing of drives to make sure everyone was working in a standardised way. All the instructions needed for sensor adjustments and commissioning are stored on the WITTENSTEIN data interchange server, which is suitable for shared use; this means that em-

ployees in the USA can access the information online at any time in the event of handling problems.

Detailed planning demonstrates the importance of good preparation

In the run-up to installation of the new procedure in US Customer Service a customised spare parts list was created for Rockwell, the biggest overseas customer for the TPM, and a small spare parts store stocked. A corresponding offer can be drawn up in Germany within just one or two days for any other spare parts that may be required.

According to Customer Service Manager Volker Metzger, the detailed preliminary work undertaken by Kathrin Kreißl on her placement was especially important: “The optimum functioning of the new Customer Service offer in the USA not only depended on relevant specialist knowledge and the acquisition of practical skills but also on the assembly and commissioning of the applicable technical equipment as well as perfect communication between all those involved in the initialisation and practice phases. The incredible amount of work undertaken by Kathrin Kreißl upfront of the project ensured that everyone was well aware of what needed to be done.”

This project confirms once again the importance of international placements during students’ degree courses and shows how they can help companies like WITTENSTEIN make decisive improvements in their products, production and service exactly where they are needed. Last but not least, they also enable us to offer all our customers crucial added value.

Sculptures by Francis Béboux: Works of art as a vehicle for values

from Marie-Claude Buch-Chalayer/Wilfried Buch

“When I arrive at work in the morning, the ball greets me. When I leave again in the evening, it lights up – as if it were shining just for me.” This WITTENSTEIN employee’s enthusiasm is shared by numerous colleagues travelling to or from the company headquarters in Harthausen. The works of Francis Béboux, who came to settle in the neighbourhood in September 2005, enrich our working lives with their beauty and uniqueness. These three, heavily symbolic, chromium steel objects by the eminent Swiss sculptor have long been acknowledged as worthy vehicles of values and imposing landmarks, as predicted by Dr. Manfred Wittenstein and the artist himself – now 93 – four years ago. The big question back in 2004 was “Can art succeed in making our entrepreneurial spirit visible and graspable to staff and visitors alike?”. Manfred Wittenstein opted for three sculptures with the evocative names “Vision”, “Neither without the other” and “Freedom”. With their powerful force of expression, all three bear a direct relationship to the WITTENSTEIN Group and its company philosophy.

A personal bond had already been forged following a series of encounters between the freelance artist Béboux and the entrepreneur Wittenstein, before the fruits of this friendship were publicly manifested in the autumn of 2005 with

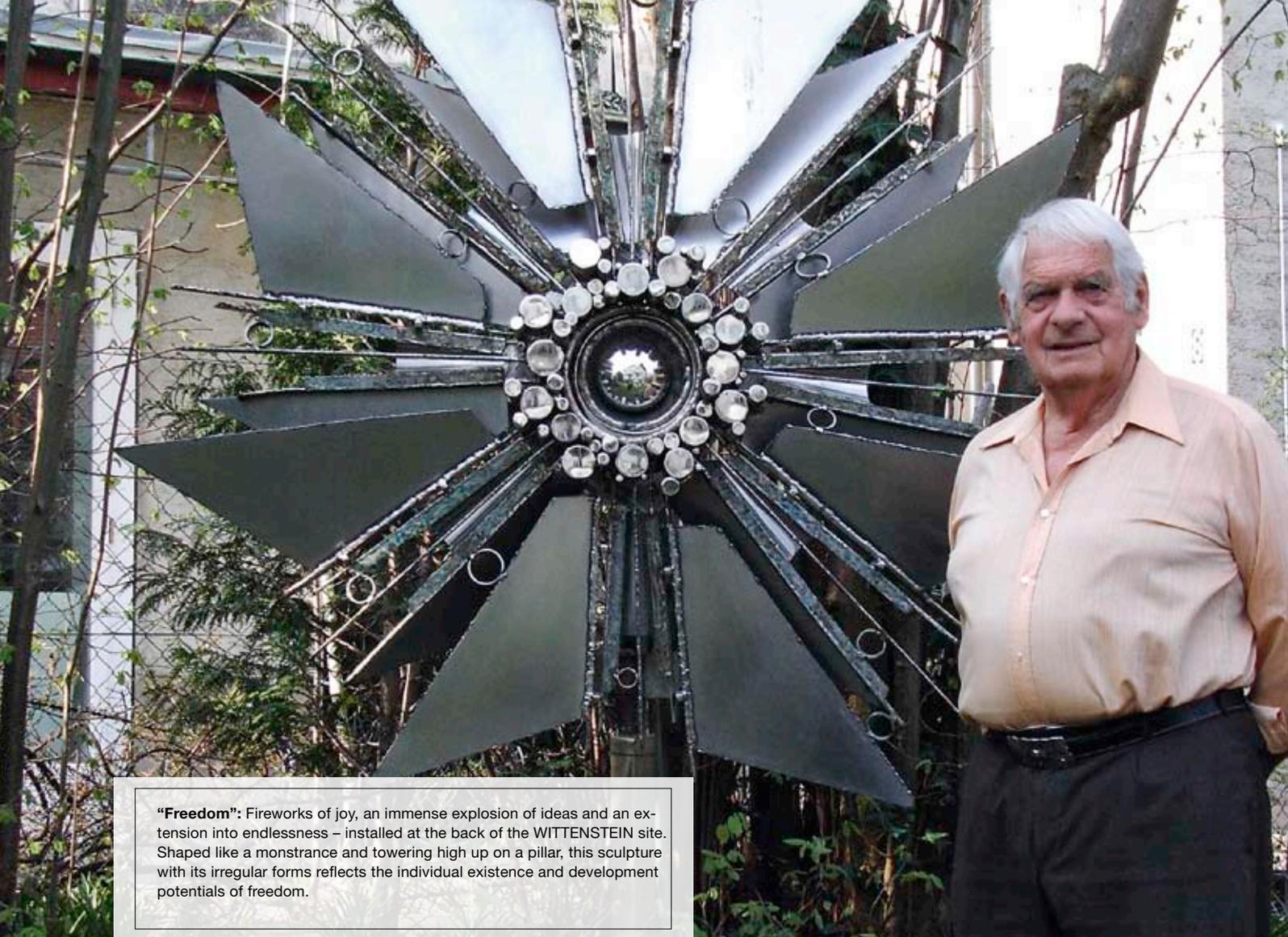
the erection of the three sculptures in the company’s World Garden. Yet what has Francis Béboux really got in common with Manfred Wittenstein? The eulogy to mark the unveiling of the artist’s works provides a clue: “Both share the same fascination for motion, balance and space. Both are endowed with curiosity, an inventive mind and originality as well as the courage to tread new ground. Both are aware that a gift is simultaneously a challenge. And that by accepting this challenge, they agree to bear responsibility, strive for continuity and create a legacy for the next generation.”

The Culture Trail on the WITTENSTEIN site is more than simply decorative – it also generates momentum and acts as a beacon for the company’s future. Francis Béboux’s radiant sculptures have transformed the paths in the WITTENSTEIN World Garden into a “culture trail merged with an exciting intellectual experience”. The Swiss artist is equally moved by this close link between his creative activity and WITTENSTEIN’s innovative technology. His hope: “My works are intended to illuminate the way into the company’s future and act as a kind of Jacob’s ladder for every single employee, opening up new perspectives daily and enabling individuals to glimpse previously unimagined horizons beyond their everyday environment.”

About the artist

Francis Béboux, born on December 10, 1915 in Allschwil near Basle (Switzerland), has worked as a freelance artist since 1972. His favourite material is chromium steel, which he frequently combines with non-ferrous metals. His sculptures are exhibited in Europe and America. Despite winning several awards for his artistic genius, Béboux remains the frank, straightforward, courageous and uncompromising man he has always been. He is renowned for

his eagerness to forge a relationship with the future owners of his works. He refuses to relinquish his sculptures unless he can be certain they will be in good hands. Francis Béboux feels a strong bond with WITTENSTEIN – as a corporate entity and a set of individuals. It gives him great pleasure that three of his works have been accorded a place of honour on the WITTENSTEIN site.



“Freedom”: Fireworks of joy, an immense explosion of ideas and an extension into endlessness – installed at the back of the WITTENSTEIN site. Shaped like a monstrance and towering high up on a pillar, this sculpture with its irregular forms reflects the individual existence and development potentials of freedom.



“Vision”: This contract work for WITTENSTEIN – and a prominent landmark in the World Garden – epitomises the temporal and spatial unlimitedness of visions. At the heart of the sculpture is a high-gloss polished, chromium steel ball that functions like a mirror. Beholders are invited to discover themselves and the visions concealed in the depths of their soul. Raised arms unfold into wings that spread out into infinity.

“Neither without the other”: Adorns the entrance to WITTENSTEIN. This hand-forged, interlocking ball symbolises a living community, diversity and security as well as multifacetedness, all-round thinking and active participation. The work can be illuminated from the inside, transforming it into a source of light.



WITTENSTEIN AG wins the German Lutheran Church`s “WORK PLUS” award

On December 12, 2008 WITTENSTEIN AG was awarded the EKD (German Lutheran Church) ‘WORK PLUS’ award at a ceremony in the WITTENSTEIN talent area, the company’s training centre in Igersheim. The award was presented to the Management Board by Frank July, Bishop of Baden-Württemberg. It was given in recognition of WITTENSTEIN AG’s sustainable corporate policies and pioneering employment models.

WITTENSTEIN AG has already demonstrated its commendable contribution to human resources and employment policies in numerous previous competitions with other firms. Accolades previously won by the company include TOP JOB in 2003, the ETHICS IN BUSINESS 2005 award and the N24 Good News Award. WITTENSTEIN AG also received the coveted ‘Career and Family’ certificate from the Federal Ministry for Family Affairs in 2007 in recognition of its family-friendly human resources policies.

The ‘WORK PLUS’ competitor assessment takes account of categories such as ‘life chances’, ‘opportunities for participation’, ‘self development and realisation opportunities’ and ‘contributions to social culture’.

Companies rated by IWS

WITTENSTEIN AG’s winning status was based on an evaluation undertaken by the Institute of Economic and Social Ethics (IWS) in Marburg/Lahn, which testified to the company’s “consistently good, indeed close-on exemplary results”. With firm roots in the region, a global outlook, a successful business model combined with social responsibility, and an innovative and sustainable human resources policy, WITTENSTEIN AG is a “hidden champion” among employers.

The assessors concluded that WITTENSTEIN’s dynamic development in recent years has made a huge contribution to employment and that, with an above-average trainee ratio of 12.6 percent (2004 – 2006), the company has fulfilled its training responsibility in full. Older employees and long-term un-

employed persons who have been reintegrated into the workforce have also benefited from this positive development.

Comprehensive training and continuing professional development enable the company to safeguard not only jobs but also the employability of the workforce while at the same time securing its own business success. A further plus point in this area are the company’s health and quality management systems, which were rated as significantly better than average.

WITTENSTEIN is also a highly convincing example of good family support policies. The scope of part-time employment opportunities offered and encouraged by the company is markedly superior to that of comparable industrial enterprises and is particularly important for people returning to paid employment after a time away.

WITTENSTEIN AG – conspicuous for its highly developed social and corporate culture

The IWS assessment also states that interaction in the company is shaped by participation, transparency, commitment and a sense of responsibility as well as by WITTENSTEIN AG’s strong commitment to its own social mission. In its final summing-up, IWS reports: “Overall, the company has made, and continues to make, an exemplary contribution to the development of the social world of work (and beyond).”

Board Spokesman Karl-Heinz Schwarz used his opening address at the award ceremony to stress WITTENSTEIN’s awareness of its ongoing social responsibility, even in times when business prospects look somewhat gloomier. He emphasised that the company will do everything in its power to ensure that there are no job losses despite the considerably tougher going. Fortunately, the company is able to count on employees who have shown time and again that WITTENSTEIN can respond with particular force when problems crop up. This is a decisive criterion for the success of the company.

FAIRS AND EXHIBITIONS 2009/2010



CIMT, Beijing (China)
International Machine Tool Show
WITTENSTEIN (Hangzhou) Co.Ltd, China
April 6 - 11, 2009



HMI, Hanover (Germany)
Largest International Industrial Fair,
WITTENSTEIN AG (all Business Units),
April 20 - 24, 2009



Sensor+Test, Nuremberg (Germany)
16th International Fair for Sensorics, Measuring and Testing Technologies
WITTENSTEIN AG, Switzerland
May 26 - 28, 2009



Metalloobrabotka, Moscow (Russia)
10th International Exhibition for Material Processing Technologies,
Intelligent Machine Tools, Equipment and Instruments
WITTENSTEIN alpha GmbH
May 26 - 31, 2009



Paris Air Show, Paris (France)
100th International Aerospace Exhibition
WITTENSTEIN aerospace & simulation GmbH
June 15 - 21, 2009



goautomation days, Basel (Switzerland)
Technology Fair for Automation and Electronics
WITTENSTEIN AG, Switzerland
September 1 - 4, 2009



MOTEK, Stuttgart (Germany)
28th Global Trade Fair for Automation at the Heart of European Industry
WITTENSTEIN alpha GmbH, WITTENSTEIN motion control GmbH, WITTENSTEIN cyber motor GmbH, WITTENSTEIN electronics GmbH
September 21 - 24, 2009



EMO, Milan (Italy)
International Exhibition Dedicated to the World of Metal Processing
WITTENSTEIN S.p.A., Italy
October 5 - 10, 2009
