Dear readers,

It is becoming increasingly difficult to begin the year with a reliable forecast. If you follow the evening news, you will quickly understand why there is such uncertainty at many companies. The geopolitical crises and associated uncertainties regarding sales opportunities on the world markets have made companies less willing to invest. This is in conjunction with the turbulence on the currency markets, which can have both positive and negative effects on the economy as a whole. The mood for 2015 has nevertheless improved somewhat in the first few months. According to the German Association of the Automotive Industry, VDA, the upward trend in the global automobile market will continue even despite the international crises. Growth is being driven in particular by China and the USA.

Western automobile manufacturers are investing more in research and development in order to achieve success in China and further increase their competitive edge. Alongside lightweight vehicle body construction, one area where development has advanced greatly in recent years is engine technology. In addition to e-mobility and the trend towards engine downsizing, there have been further improvements to existing engine components,

Cost reduction made in Germany

ECOMPACT represents the development of a cost-, space- and energy-optimised coating concept for tubes and aerosol cans

When it comes to reducing costs and, as a result, the sales price of goods and wares, one tends to look towards the domestic automotive industry. This industry uses many opportunities to lower manufacturing costs, including the development of new production and manufacturing sites in distant countries and the use of clever modular strategies.

The modular strategy also offers the potential to reduce manufacturing costs even to medium-sized companies such as Sprimag, which has committed to keeping its manufacturing location to Germany and has only limited opportunities for transferring production. This is demonstrated by ECOMPACT, the latest development of a small, reduced-power series from Sprimag for the internal coating of tubes and aerosol cans. Besides the fundamental basic data such as system speed (>570 tpm/cpm, 1-row asset transfer), the product management team also prescribed strict cost reductions. Standard assemblies should be used and an identical system platform should be created for the internal coating of tube and aerosol cans.

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I hope you find it informative and enjoyable to read.

Joachim Baumann, Managing Director of Sprimag

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Despite their high quality, these systems, such as Primag, confirm the benefits of retrofitting measures. Customers have their old systems modernized for this reason alone. On request, the control system can be replaced with an up-to-date ProfiNet system with local peripherals. In addition, the Atlas Copco drive system is replaced with cutting-edge drive technology from Siemens or Baumüller with the Safety on Board functionality. After these components have been replaced, the entire drive and control technology of the HIL-42 is as good as new. The system is also provided with an up-to-date HMI panel with an intuitive interface instead of its existing control panel, meaning that retrofitting also improves system usability.

Sprimag service technicians carry out all retrofitting measures quickly and easily. Because they completely replace the existing control cabinet and its connection cables, they can achieve the highest possible quality of modernization while keeping any disruption to production to a minimum. The extensive conversion measures can often be carried out within one week of maintenance work, so that the loss of production is negligible.

In addition to ensuring that replacement parts are available for many years to come, modernization measures of this type provide the system operator with a manufacturer’s warranty for the new components and open up entirely new opportunities for carrying out remote maintenance on the system. Further benefits for the system operator include the standardization of control concepts across systems with different years of manufacture and, last but not least, a significant reduction in storage costs as a result of using up-to-date components in all systems.

Retrofitting measures can be carried out on almost all old Sprimag systems. Sprimag is currently experiencing an increased demand for retrofitting, both for internal coating systems and for surface-coating systems, which include Round Table and Chain-on-Edge coating machines.

**Sprimag coating machines are known for their sturdy, robust and durable design. As such, it is not uncommon to see these machines still in operation after 30, 40 or even 50 years. Despite their high quality, these systems no longer meet current requirements for safety and system availability. However, it is not always necessary to invest in a new system — there are often considerable advantages to retrofitting an old system. The most likely reason to modernize control, drive and automation components is that the components used have been discontinued. In such cases, the supply of replacement parts can no longer be guaranteed, updates are no longer provided and system availability can no longer be ensured. “Using customer-specific modernizations, we ensure that systems continue to be usable in the future, while also increasing machine capacity, boosting energy efficiency and improving ease of use,” states Mark Gotzmann, Head of Customer Service at Sprimag, confirming the benefits of retrofitting measures.

Sprimag has successfully retrofitted the internal tube coating systems HIL-42 many times. The original PLC components and drive system found in machines from this series which were built before 1999 have already been discontinued. Sprimag recommends that its customers have their old systems modernized for this reason alone.

The extensive modernization measures for the HIL-42 include replacing the Siemens S5 control system with an up-to-date Siemens S7 or TIA control system. On request, the control system can be equipped with a Safety Integrated feature in order to implement a more efficient safety concept. The Profibus system is replaced with an up-to-date Profinet system with local peripherals. In addition, the Atlas Copco drive system is replaced with cutting-edge drive technology from Siemens or Baumüller with the Safety on Board functionality. After these components have been replaced, the entire drive and control technology of the HIL-42 is as good as new. The system is also provided with an up-to-date HMI panel with an intuitive interface instead of its existing control panel, meaning that retrofitting also improves system usability.

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**Improved machine capacity thanks to retrofitting**

With retrofitting measures from Sprimag, old systems can meet the current demands of machine capacity, energy efficiency and ease of use.
Special coating methods for modern engines

Sprimag offers special coating methods, using its proprietary application technology, in order to meet the strict requirements on the coating of engine compartment components in automobiles.

The car is still the most popular means of transport among the Germans. A great deal of importance is attached not only to engine performance, but also to the appearance of the vehicle: A trendy color, polished rims and an attractively designed interior. It goes without saying that the visible parts of the car often have painted surfaces. However, many of the hidden parts also have coatings which are applied using very special methods, and which often have a purely functional rather than a visual purpose. For example, pistons, connecting rods, bearing shells, vibration dampers, drive components, drive shafts, gearbox parts and even diesel injection pumps are all coated. The reasons for coating components may vary greatly. Reduced wear, increased performance, protection against corrosion, ease of installation, increased operating temperature range, reduced weight and even cost savings are all reasons. For example, pistons, connecting rods, bearing shells, vibration dampers, drive components, drive shafts, gearbox parts and even diesel injection pumps are all coated. The reasons for coating components may vary greatly. Reduced wear, increased performance, protection against corrosion, ease of installation, increased operating temperature range, reduced weight and even cost savings are all reasons.

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Sprimag offers an extremely wide range of different systems, which can position the flow gun onto the surfaces which require coating. The preferred systems to use for this are small robots or two-axis systems, which can position the flow gun over the slowly rotating component. The surface performance is limited due to the processing conditions.

The variety of possible coatings for subcomponents in the engine compartment is therefore wide – almost as wide as the variety of ways in which these special coatings can be applied. Sprimag offers an extensive range of different systems which have been designed to ideally meet the requirements of coating any metal components, not just those in the engine compartment.

Sprimag has been successful in the field of anti-friction coating, as in many other fields, for years, and boasts a great many reference projects. We are constantly developing new application solutions in our in-house Applications Centre in order to meet very specific coating requirements. If you have a requirement of this nature, we would be happy to work with you to define a suitable application.

Axel Bolowich
When it comes to anti-friction coating, Sprimag has been working with lubricant manufacturer Klüber Lubrication for years. In addition to joint customer projects, we have already conducted several trials in the field of anti-friction lacquer at our own booth application centre in Kirchheim-Teck. In the interview, Rudolf Zechel and Heike Thamerus of Klüber Lubrication München SE & Co. KG explain exactly what is behind the special anti-friction coating.

**What were the demands that led to the development of the anti-friction lacquer?**

Originally, anti-friction lacquer was developed to provide reliable lubrication for the aerospace industry. The industry is known to handle extreme temperatures and safety is the first priority. But it wasn’t long before people recognized its additional uses in the automotive industry, the clean, dry lubricant has many positive characteristics, such as the consistency of the friction coefficient over a long service life, protection against corrosion and fretting corrosion/tear corrosion, improved intake and the prevention of Stick-Slip (slipping back), and all this along with substantial hygiene benefits. Thanks to the expertise of Klüber F & E, it is now possible to modify existing anti-friction lacquer for use in many technical areas and applications, or even to offer tailor-made solutions based on new technologies.

**What is the functional principle of anti-friction lacquers?**

As a rule, the functional principle of anti-friction lacquer is based on transfer lubrication. This means that a small amount of the anti-friction lacquer coating is chalked off when the machine is put into operation and is deposited in the surface roughness of the counter body. After this running in effect, the anti-friction lacquer coating provides lifetime lubrication within a narrow range of friction coefficients. However, there are also anti-friction lacquers that achieve excellent friction coefficients without significant chalking and, for example, prevent contamination of the belt strap in the safety belt pillar loop. Anti-friction lacquers can guarantee this lifetime lubrication thanks to their optimised friction behaviour and resistance to ambient media, as well as their UV and vacuum resistance.

**Which specific demands must be met by an anti-friction lacquer?**

The demands on anti-friction lacquer are as diverse as the possible applications and their functions. In reality, anti-friction lacquer must protect against wear, and usually within a defined friction coefficient window. In order to protect against wear, there needs to be a transmission of force between the surfaces that are in relative movement to each other. These forces are reliably transmitted as friction in the anti-friction lacquer coating. The dry surface frequently helps coated parts, for example in automated assembly, to be separated easily and prevents sensors in the vicinity of the friction point from being contaminated with lubricant. This secures its role of signal provision. Depending on the base material, it must also be possible to elastically deform the anti-friction lacquer, for example when working with elastomers, without suffering damage. To improve its comfort characteristics, it should also eliminate squeaking noise.

**What needs to be taken into account when using anti-friction lacquers?**

Anti-friction lacquer can only be as effective as permitted by the application and, in particular, the surface pretreatment. It is therefore very important to carry out intensive degreasing and cleaning of the surfaces before coating, followed by micro-roughening of the surfaces to be coated, using a phosphating or sand-blasting/hot blasting process. The actual application of the anti-friction lacquer can be performed in various ways, namely in mass processing and in spraying or rolling processes online (for example, integrated as a process step in the manufacture of elastomer profiles) or offline. In all process steps, special hygiene requirements must be observed concerning the absence of dust and dirt in the application environment. Thanks to many years of experience, Klüber is able to provide valuable support at all stages of the process, from selecting the anti-friction lacquer right through to detailed solutions for surface pretreatment and application.

**Are there different types of anti-friction lacquers?**

As anti-friction lacquers are used on a wide range of substrates (metals, plastics, elastomers) and also for diverse applications (for different temperatures, wear conditions and media influences), there is of course also a variety of differently composed anti-friction lacquers. For example, the anti-friction lacquers differ according to the bonding agent (and thus by criteria such as temperature and chemical resistance, staying and hardness conditions or flexibility) and according to the quantity and combination of solid lubricants (which influence aspects such as friction coefficient and wear resistance).

**Are there any developments that could replace anti-friction lacquers in the future?**

Aside from anti-friction lacquers, there are other dry coatings that may affect friction behaviour, such as metallic and ceramic coatings or speciality plastics. The most suitable coating is selected according to the technical and economical requirements of the application. These technologies are used for different applications and cannot be substituted for each other. We do not foresee that anti-friction lacquers will be replaced by alternative technologies. On the contrary, at present there is a clear trend towards dry lubrication. The importance of anti-friction coated surfaces for construction parts and machine components will increase significantly in the coming year.

“Anti-friction coating can only be as effective as the application allows.”

Rudolf Zechel, Marketing and Application Engineering, Product Management at Klüber Lubrication München SE & Co. KG

**ABOUT KLÜBER LUBRICATION**

Klüber Lubrication is market leader for specialty lubricants for machinery, systems and technical parts and components. In 1939, Theodor Klüber established KlüberLubrication in Munich. The headquarters still remain in the Bavarian capital today. The company employs 1,980 workers in over 50 countries across the globe.

**CALENDAR 2015**

Cannex & Fillex Asia Pacific
June 01 – 04, 2015, Guangzhou, China
Sprimag booth 525
sprimag.de/cannex-fillex

**NEW COLLEAGUE**

New sales representative

The surface coating department sales team is now being actively supported by Matthias Epolle, who joined the team on the 1st of March 2015. Matthias has in-depth knowledge of Sprimag coating machine technology gained through many years working as a design engineer at Sprimag. The qualified industrial mechanical started his training at Sprimag in Kirchheim-Teck into operation and is deepening his training in mechanical engineering before moving into mechanical design, and was most recently responsible for standardizing systems in the development department. With his expertise and comprehensive knowledge of a wide variety of system concepts and areas of application, Matthias Epolle will be able to provide you with expert advice on attracting investment in new systems.

**HEIKE THAMERUS**

Research and Product Development

**IMPRINT**

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