sprimagazine

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The customer magazine of Sprimag Spritzmaschinenbau GmbH & Co. KG

www.sprimag.com

The HIL-70 Development Team

A Success Story with Multiple Authors

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New **Flexible Three-Axis Coating Machine** for Mexico
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OVERVIEW

Dear Readers,

Old-fashioned and dusty? Not with us! Sprimag is a company rich in tradition with experience in coating technology for 85 years; this history is just what makes us a modern and progressive company. Our Applications Center is equipped with the most up to date technology and offers many possibilities to develop innovative products every year. Some innovations, like the new combi-unit for powder and wet coating that is detailed inside this **sprimag**azine on page 3 is the new benchmark for the industry.

Since the first impression we present to our customers often sets the stage for further relationships, we have dust off and remodeled our entrance hall too. The old and dark wooden paneling has been bleached with a fresh white and one wall now shows the full spectrum of colors, to demonstrate "Sprimag brings color into life!" The highlight of the new foyer is an old HIL-02 tube coating machine which has been completely restored. Now the machine is a refreshment table, but it is still operable. In a record time of four weeks the entrance hall has been completely renovated. Please come and have a look on your next visit. We look forward to meeting you!

Michael Anger

Philippe Nollet

Michael Anger and Philippe Nollet, Managing Directors Sprimag in the renovated entrance hall

Our Focus is Surface Technology

Sprimag Will Exhibit at Several Surface Technology Trade Shows

Two years ago the Sprimag Applications Center was upgraded to the premier application center of surface coating technology. Sprimag customers from all over the world are enthusiastic about the state-of-the-art-processes and equipment available for development. Sprimag is exhibiting at the most important trade shows to inform the industry about our expanded development capabilities.

Internationally Sprimag exhibited at "Interlakokraska" in Moscow as well as the "SITS" international fair in France. "PaintExpo" in Karlsruhe, April 13 – 16 is a leading trade fair for industrial coating technology. This event is one of the important shows for surface coating. Sprimag will display a Fanuc robot and a self-cleaning baffle plate. The labyrinth filters of the baffle plate are equipped with scrapers which cycle and clean the lamellas. This environmentally friendly component reduces maintenance downtime and cleaning costs.

Sprimag will also exhibit at "O&S" in Stuttgart, as well as the "K" in Düsseldorf.

We hope to see you at an exhibition. A list of all Sprimag trade shows is inside this **sprimag**azine or on our website: *www.sprimag.com.*

To present the state of the art products produced by Sprimag, we have redesigned our brochure titled "Surface Coating Machines". Please stop by our booth or let us know if we can provide you with a copy.

Surface Coating Brochure in a new gloss

NEWS + FACTS

Participation Interplastica in Russia

At the Interplastica in Russia

To increase exposure in the Eastern European and Russian market, Sprimag participated in Interplastica Trade Show in Moscow from 26th – 29th of January. Sprimag showed its latest coating solutions for the plastics industry in a shared booth with Induko. Customers visiting our exhibit were very positive, which demonstrated to us that economic recovery has come to the Russian market.

» **Uwe.Ginnow@sprimag.de**

Brake Disc Machine for Volkswagen

Beginning 2009 a double robot coating machine especially designed together with Volkswagen has been put into operation. The respective design makes possible to carry out maintenance works as well as adjustment works at one machine side and at the same time manufacturing at the other side of the machine. This machine concept has been that successful thus currently a second machine identical in design is installed at Volkswagen. With these up-to-date machines Volkswagen will be prepared very well for future tasks.

» **Ralf.Wiens@sprimag.de**

High performance coating of cosmetics packaging

Coating Machine for the Cosmetics Industry

Our expertise coating metalized surfaces, painting and integrating Physical Vapor Deposition (PVD) systems resulted in being awarded our latest cosmetics packaging industry purchase order. As commonly occurs, experience in these technologies was the key factor when the customer awarded this contract. Please check future issues of **sprimag**azine for more details on this project as it progresses.

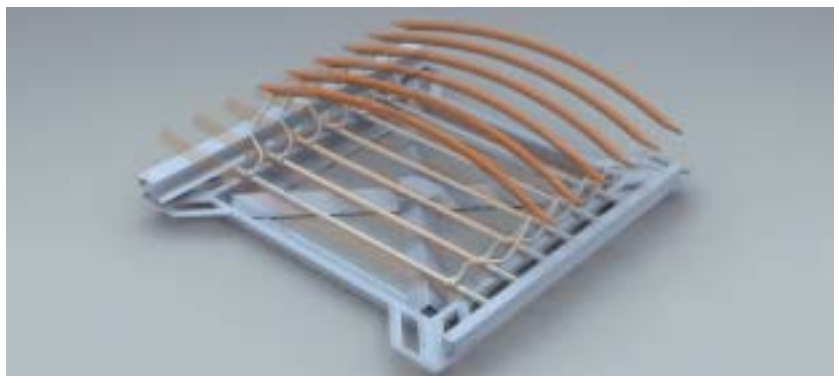
» **Tasso.Karsch@sprimag.de**

Improving Business by Using a Flexible Machine Design

Coating of Different Part Geometries Possible With The Help of a Multifunctional Three-axis Coating Machine

Just before the recent major economic downturn, KI Industries decided to increase their business activities in a new market segment. For their Mexico facility in Santiago de Querétaro, they chose to purchase a very flexible coating system. Industrias KI de México (name of the KI Industries facility in Mexico) can now support customers in the major household appliance industry and the automotive interior component industry with high quality paint finish. The variety of KI Industries products, ranging from parts' geometry, substrate, and performance requirements of parts necessitated the use of the Sprimag multi functional three-axis coating machines. One of the special features furnished to KI is the flip-flop pallet. This unique type of parts' carrier (originally designed for flat parts) allows the possibility of reaching all sides of the parts without integrating a 6-axis robot.

For automotive interior parts and components for kitchen appliances, additional factors define the coating process. Not only parts' geometries differ in large ranges, but also the substrates to be coated vary. A system had to be designed to accommodate a wide range of materials: from the usual ABS-PC, PA, the cost-efficient PP, and all typical kinds of plastics are used in common practice during applications. Additionally, a flaming station was installed for pretreatment, to cost effectively apply single layer paints without reduction in coating quality.



Top left: *Spray station* Top right: *Flaming station* Below: *Flip-flop pallet*

The paint delivery system was designed to process both 1-component paints and 2-component paints. Integral part of the design was short color change times. Items, such as the Sprimag pumps, flow measuring devices, and quick-change spray guns, were important considerations to ensure the seamless operation of the system.

Material handling technology based on flexible pallets with integrated identification system allows a pallet to be conveyed from the first coating booth directly to the oven without having the pallet go to the second coating booth. The flexible pallet technology also allows a pallet to return to the same coating booth, for additional paint layers, before going into the cure oven.

The controls of the KI system were done with a user-friendly operation panel specially developed for this type of painting. All of the parameters of the spray program (such as spray time, speed of the spray axis, spray stroke, and number of passes of crosswise spraying over the pallets) can be stored in separate spray programs for each type of part. The controls offer the possibility of storing up to 30 different spray programs.

The system was designed so that the customer is allowed to operate the system in many different modes. The system is flexible enough that a pallet can be coated multiple times before it is cured. For single coating requirements, pallets processed from both booths can be directly sent into the cure oven; thus, allowing double capacity compared to the sequential operation of the system. The system can easily accommodate geometry changes, as well as color changes, which allows for more frequent product change over. The flexible three-axis coating system permits constant machine utilization, reduced parts buffer, and short quality control loops. Increased flexibility can help KI Industries improve business and build up additional markets.

» **Tasso.Karsch@sprimag.de and Sprimag, Inc., USA, www.sprimag.com**

Santiago de Querétaro

Santiago de Querétaro, a very historical and well preserved city with approximately one million residents is well known for its colonial architecture and was named as a world culture heritage location of UNESCO in 1996. At an elevation of 1,820 meters, an annual average daytime temperature of 24.1 °C, and a constantly very pleasant climate reigns over the city.

Santiago de Querétaro plays an important part in Mexico's history. In 1810 it converted to the cradle of the War of Independence of Mexico. Today the town is known as an attractive industrial location and ranks second on the list of best cities for doing business in Mexico.

» **Tobias Schmitz, member of Sprimag staff, situated in Mexico**

Landmark of Querétaro in Mexico

Baffle plate with self-cleaning labyrinth filter

Energy Efficient Coating

Brake Disc Coating Machine With Heat Recovery Device

A new brake disc coating machine has been successfully installed and commissioned at "prevent fad" in Jelah in Bosnia-Herzegovina.

This state-of-the-art robot coating machine allows "prevent fad" to coat different types of brake discs all mixed on the same line in the same production run. Consistently high quality coating is achieved on this line without adding additional machinery or modifying the machine.

"prevent fad" strives to keep this machine operating on long production runs but it is essential that the system remain energy efficient. To achieve this requirement the air make up unit for this system has been equipped with a heat recovery device. By including this device it was possible to considerably reduce energy cost for the supply air unit.

» **Ralf.Wiens@sprimag.de**

Rubber and Metal Combined Perfectly

Chain-type Coating Machine to Apply Rubber-to-metal-bonding Parts

Recently Sprimag supplied a coating machine with a roller chain conveyor to rubber-to-metal-bonding industry customer, Halcon of Slovakia.

This system includes two spray cabins with drying accomplished using an intermediate and final drier. In order to keep the capital investment and operation costs as low as possible both drying processes have been combined in one common drying housing with a single heating unit.

The spray cabin includes two spray stations each equipped with two internal and two external spray guns. Primer coating of parts is applied at the first spray station, followed by application of a bonding agent at the second spray station.

The coating unit has been designed for part heights up to 250 millimeter with a maximum rotation diameter of 100 millimeter on each spindle. It is possible to handle 200 millimeter diameter parts by loading every other spindle. Cycle times may be adjusted from 10 to 40 cycles when loading each spindle in duplex operation.

This machine design provided Halcon with a fully functional system today and an expandable system for future growth.

» **Uwe.Ginnow@sprimag.de**

Rubber-to-metal-bonding parts

Cross-section of a powdered can. Homogeneous, solvent-free internal coating and optimal thickness of 12–18 microns is now possible with powder coatings

Beginning in March 2010 a new era starts in internal coating of aluminum tubes and aerosol cans thanks to development of the Sprimag HIL-70. For many years the tube and can industry has not provided any real innovation or increases in productivity. Manufactures have limited improvements to small steps surrounding pressure and necking methods. Sprimag demonstrates our leadership role in this industry by integrating powder technology into an internal coating machine in an environmentally responsible way. A new path is now available for manufacturers using the Sprimag HIL-70 system.

Sprimag engineers have devised a dual process manufacturing cell in a single machine. The Sprimag HIL-70 internal coating machine applies wet and powder coatings in the same machine. Manufacturers are able to smoothly transit into a new technology without being faced with a major capital investment. Efforts to incorporate this ability into existing machines were abandoned due to the unrealistic costs and other technical requirements.

The basic methods utilized in the HIL-70 system come from the industry standard Sprimag HIL-64 internal coating machine. The HIL-64 is the benchmark system used by major manufacturers of aerosol cans for many years.

An immediately apparent revision is the widened basic machine body of the HIL-70. This configuration separates the vacuum infeed and discharge drum from the coating cabin. This separation keeps vacuum drums free of powder residue and overspray contamination for more reliable operation. Changing from wet to powder operation or back again is efficiently accomplished with a quick and simple cleaning of the spray cabin only.

The revolutionary features of the HIL-70 do not stop with dual coating capabilities. This system also reaches the long aimed for cycle speed of 250 parts/minute. In wet paint operation the maximum speed is reached by using nine spray gun technology and cycling the conveying chain three times faster. But how could we reach a number of cycles of 250 in powder operation, in case cycle times for coating processes as well as dynamic of the spraying processes are different?

The spray gun holders fixed by a quick change system for wet paints might be changed against holders for powder applications within a few minutes. On this holder eight powder guns are installed, which make possible a reliable internal powder coating also at a max. can length or complex tube caps areas. Longer cycle times compared to wet coating are compensated by a reversible gear, which indexes the conveying chain four times faster.

The HIL-70 is not only fast and flexible, but it is also customer friendly. The powder coating system is designed as an open platform. For customers that have experience with powder coating systems the coating system of their choice can be installed in their new unit. For customers that are new to powder coating, Sprimag includes an integrated complete powder system which like the wet coating process is controlled via the main operator panel.

Predictably when changing from wet coating to powder coating or back again, the exhaust system must also be changed. A specially designed, no tools required, quick change system for the exhaust filter housing facilitates this change in only a few minutes. Incorporated in this system is the ability to connect a powder recovery unit if required.

Sprimag created a fast, flexible and friendly design of the HIL-70. A big financial advantage for this system is the ability to use customers' existing ovens. This helps keep the financial investment low.

First orders Commenting on the success of the new HIL-70 Internal Coating Machine, our Sales and Project Engineer Joachim Baumann states, "Our engineers did their homework, now it is up to the sales staff to show the many advantages of the machine and associated technology to our customers". In doing so he confidently says, "Already after only a short market launch, first orders have been placed with us for this machine. All customers who saw this machine on our manufacturing floor agree. That's the future".

» Joachim.Baumann@sprimag.de

THERE CAN BE CONSIDERABLE ADVANTAGES WHEN USING POWDER COATINGS AS COMPARED TO WET COATINGS

PAM-based wet paints are classified as a health hazard. Powder paints on the other hand are **solvent free** and when applied with a proper exhaust system do **not create health issues**. By being solvent free powder coatings do not require complex and expensive post combustion units. Powder coatings tend to cost more for the material but they are **cost competitive** in today's market. Expanded demand with the associated economies of scale is expected to considerably drive down **powder costs** in coming years.

An example of a product category that is embracing this new powder technology is hair coloring products. **Environmental issues** are leading packagers of cosmetics, pharmaceutics and foods away from solvent based materials in their packaging. Environmentally friendly alternatives for those millions of packages will become good business.

» All customers who saw the HIL-70 agree: That is the future »

Joachim Baumann

Sprimag Sales Manager Joachim Baumann talks to Process Technician André Keller

For continuous process testings and customer demonstrations of the HIL-70, a transfer system with all transfer stations has been installed on the internal coating machine

INTERVIEW

"The Cost Benefit Calculation for the New Chain Lubrication System is Very Convincing"

Interview with Dietmar Ramminger, Manager Packaging Design and Manfred Beck, Customer Service

Sprimag has developed a new drier chain and a lubrication system for the internal coating drier, what was the primary reason for this development?

Chain lubrication systems available today have not kept pace with the demands of continuous manufacturing operations. Until a few years ago manufacturers did not work weekends which provided planned shutdown periods for maintenance. During those interruptions driers were switched off and it was possible to lubricate the cooled down chains. Today production is carried out continuously 24 hours/day 7 days/week.

As production requirements for tube and can manufacturing have changed in the last few years it became necessary to develop a new system. Breaks in production are time consuming and very expensive. Therefore, we had to devise a fully automatic solution that enables the operator to lubricate the chain while hot and during production. Our new system is the solution.

Please describe the development process for the new system at Sprimag.

After the idea for a new chain with lubrication bores was proposed, sample parts were manufactured. The new system and lubricant was verified through testing by competent partners over several months. Extension of the chain was checked using the chain test bed at different temperatures. Lubricating oil was optimized to keep vaporization losses low during the vaporization test to keep the lubrication film as long as possible. Formation of lubricants' residues is very low. Fresh oil also regenerates contaminated chains, to a certain extent a chain is self-cleaning. An important test result was the reduced energy required as well as the improved degree of efficiency by automatic activation, especially at very high temperatures.

Another important advantage compared to previously designed lubrication systems and lubricants is the use of lubrication solvents free of solid lubricants. With previously used lubricants it was very time consuming to rinse all lines after each lubrication process. This was done manually, so complete disassembly occurred at regular intervals.

> » *We had to devise a fully automatic solution that enables the operator to lubricate the chain while hot and during production.* « *Dietmar Ramminger*

Why would a customer invest in this kind of system?

As with many production and maintenance decisions, it all comes down to reducing costs. The cost benefit calculation for this system is very convincing.

Past lubrication systems use considerably more lubricants than the Sprimag method. Along with substantial cost savings, quality is enhanced by fully automatic lubrication along with eliminating synchronization of the sprocket and chain. The sprocket is synchronized automatically with the chain. The chain is never over lubricated and Sprimag oil gets applied only where it is required. Contamination inside the machine is reduced, as lubricants are applied precisely and only where needed.

Last but not least, Sprimag supplies everything from a single source: chain, sprocket and lubricants! By developing the components of this system together, everything functions perfectly as a system. Sprimag customers can count on short lead times on components of this system including lubricants. All items are kept in stock for delivery.

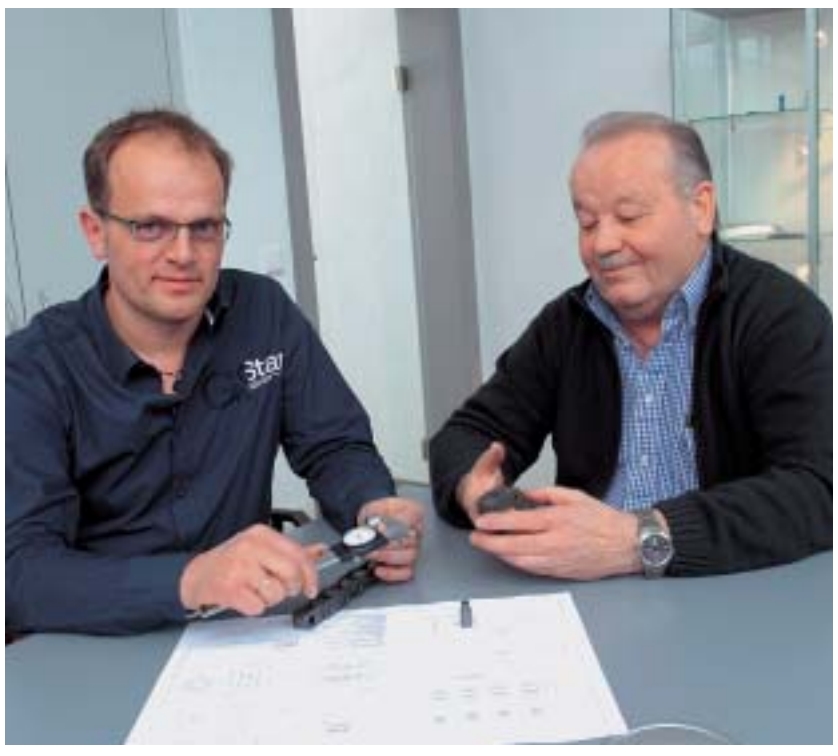
What driers will benefit most with this new product?

The chain lubrication system was designed for use in internal driers with a roller pitch of T20 up to T50, and up to temperatures of 300 °C.

Is it possible to retrofit existing driers with this lubrication system?

Yes, the lubrication system can be integrated in existing Sprimag internal coating driers. The chain lubrication system can be used in older machines, since retrofitting is done without modification to the machine controls. We recommend that each of our customers request an investigation when replacing their chain, they will be surprised at the attractive price of the new system.

» **Dietmar.Ramminger@sprimag.de, Manfred.Beck@sprimag.de**



Left: *Dietmar Ramminger, Manager Packaging Design and Manfred Beck, Customer Service, examine the samples* Top right: *Sprimag Chain Type-S with lubrication bores* Below right: *Example of the built-in chain lubrication system in a one row tube drier*

High Efficiency — Low Cost

Cost Saving New Machine Design for Internal Tube Coating

At the beginning of the year Sprimag focused our efforts on a new machine design to internally coat tubes. The goal is to make investment in new machines financially attractive. We aim to offer a way to eliminate old fashioned and environmentally damaging equipment with an alternative.

The core of the completely new internal coating unit is the HIL-38, a scaled down version of the well-proven Sprimag HIL-42. Scaled down does not mean reduced quality or functionality but merely that some options have been removed. Lowering costs was not the only directive of this project. We also provided more benefits to the customer. Sprimag Sales Manager Joachim Baumann commented, "Both the TGO annealing oven and the TIT internal coating oven are state-of-the-art oven technology, so we meet all requirements on environmental issues, including improved emissions inside the production area. Improved interior emission quality has generated quite a lot of interest in this new machine design. The HIL-38 as little sister of the HIL-42 has one main drive, both ovens, too, are controlled by one drive. This basic arrangement of the drives will also be interesting to customers in regions where simple drive technologies are desired. Customers that have seen the new machine design have provided very good reviews. With this new design we are even better in a position to give our customers what they need to modernize their facilities. This major step will open many doors for Sprimag."

» **Joachim.Baumann@sprimag.de or Dan.Koewler@sprimag.com for information**

CALENDER

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2010/06/02 – 2010/06/04
Booth No. E3B018

O&S Lounge
International trade fair for surface treatments and coatings, Stuttgart, Germany
2010/06/08 – 2010/06/10

Aerosol Congress
International Aerosol Congress and Exhibition, Rome, Italy
2010/10/21 – 2010/10/23
Booth No. 16

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2010/10/27 – 2010/11/03
Hall 04, Booth No. 4A15

IMPRINT

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Sprimag
Spritzmaschinenbau GmbH & Co. KG

Henriettenstraße 90
73230 Kirchheim/Teck,
Germany

Phone: +49 (0) 7021/579-0
Fax: +49 (0) 7021/41760
info@sprimag.de

Responsible for content:
Bettina Hermann

Design and production:
pr+co GmbH,
Jessika Drenger,
Martin Reinhardt
Fuchseckstraße 7
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