

New fully automatic packaging solutions for monobloc aerosol cans

Sprimag automation technology for end-of-line solutions: The flexible packaging systems guarantee a high level of automation with high production output

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Dear readers,

Get out and hike (... or ride an e-bike): Hiking has long since helped to relieve stress and recover from daily working life. Moving with the times, Sprimag has initiated an e-bike hire model which makes it possible for all employees to easily test this exciting means of transport. We all know that physical activity plays an increasingly important role in staying healthy. In these turbulent times, an

e-bike might be just the thing to keep tempers from boiling over and, in addition to its physical benefits, bring a little more balance to our everyday lives, simply by giving us a useful outlet for excess energy. And once that energy has fizzled out, the electric motor is there to lend its support. Sprimag hasn't just used its energy for athletic endeavors.

The company has also made advances in development, and so this Sprimagazine will introduce you to our new, fully automatic packaging solution for aerosol cans. In this issue, you will also discover more about our orders in China and what makes the coating sector there special, in addition to learning about the comprehensive modernization of our in-house paint shop.



Joachim Baumann,
Managing Director
of Sprimag

Joachim Baumann
Joachim Baumann

Rent a bike from Sprimag

E-bikes are the trend of the moment – everybody's talking about them, and everybody wants one. Yet the new bicycles can be very costly to acquire, and anyone contemplating a purchase needs to weigh up their decision carefully. For a year now, Sprimag follows the spirit of today's "shareconomy", giving its employees the opportunity to borrow e-bikes from the company and try them out at their leisure. Whether they wish to use them for traveling to work, during the weekends or even on holiday, there is a selection of e-bikes to

pick from and test out over an extended period. The scheme can even be used if they want to take a cycling trip with their partner, for example. And, to the benefit of all parties, there is no bureaucratic hassle involved in the borrowing process. The scheme was devised by the Managing Director Joachim Baumann: "Especially if you're buying two bikes for yourself and your partner, the purchase costs are simply too high to make a mistake in this matter and then be left with a couple of bicycles gathering dust in the corner. For a company,



however, it is a manageable investment from which everyone can benefit."

Many employees have now come around to the idea and regularly borrow bikes for an excursion into the surrounding area or to help them get to work. Others have opted to use this "decision-making aid" to help them purchase an e-bike of their own that is suitable for their requirements. Even employees who were previously critical of e-biking ("No-one needs a motor to ride a bicycle!") or were simply never even concerned with the concept have now tested out the e-bikes – and feedback so far has been consistently positive. Particularly so from Managing Director Joachim Baumann – himself an avid mountain biker and endurance sports enthusiast – who has taken a real liking to the e-bikes: "An e-bike also serves as a fantastic training tool alongside cycling as a sporting activity. By adjusting the assistance level from Eco to Turbo, you can determine your own training level. And even if, at the end of the working day, you can scarcely muster up the energy for any form of physical activity – you can still make use of the e-bike, safe in the knowledge that the "assistance" is there if you need it. Indeed, in our mountainous Albrauf

region, there is nothing finer than being able to cycle a few meters up the hillside in just a few minutes, and to be away from all the stress in the great outdoors in such a short space of time." Besides having a positive impact on the environment, cycling is particularly worthwhile for the health benefits it brings – especially so for those who spend the majority of their day sitting at a desk. From the employer's perspective, too, getting out and about in the fresh air is a win, since employees who regularly spend time outdoors and partake in some form of physical activity are, as experience shows, generally healthier and less likely to fall ill. Fitness and outdoor physical activity in particular are emphasized within the company, and so there are other initiatives based around sport offered alongside the e-bikes.

In order to meet the increasing demand within the business, two further e-bikes specially designed for mountain biking – a men's and a women's model – were purchased in June. And to resolve any issues of transportation, a VW Caddy with a specially fitted e-bike carrier can be borrowed along with the bikes if required.

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Coating systems for China

From automotive applications to aerosol cans: Thanks to the economic growth in China, the base of local Sprimag customers continues to grow. Coating systems for brake discs as well as internal coating systems for aerosol cans, beverage cans and D&I aluminum bottles are all in particularly high demand

The most recent issues of our Sprimagazine have already boasted a decidedly international outlook. We want to continue that trend in this magazine with a report on another country, in addition to Mexico and the USA, with which Sprimag maintains extensive economic partnerships. China has experienced a veritable economic boom in the last 40 years and is one of the largest economies worldwide.

In recent years, the automotive industry has also increasingly gained in importance. The government intends to promote technological developments and product quality through subsidy programs. By now, all well-known German car manufacturers are represented in the country with their own production facilities and many medium-sized enterprises have established offices or are trying their hand at joint ventures with Chinese partners. In addition, the market for Chinese cars is growing at an astronomical rate. Sprimag has already benefited from these developments in the automotive

sector for several years, in particular with regard to coating systems for brake discs. In that time, Sprimag has made a name for itself as a system supplier for large brake component manufacturers. Our customers are located across China – from central China, particularly Nanjing, to major cities like Chongqing through to Yantai and Jinan in the east.

The automotive sector is not the only one to benefit from the economic reform of the last 40 years, with many different industries feeling the effects. In many areas, villages have grown into cities of over a million inhabitants in a very short time-frame and China has developed into a highly industrialized and digitalized country.

In China, the phenomenon of everyday digitization can be experienced better than in most other places. While Europe still has a long way to go before becoming a cashless society, for example, and many establishments still do not accept payments by card let alone smartphone, in China, you can purchase a beverage

can without cash at every small convenience store, using the WeChat or Alipay payment functions. China also offers huge potential for growth with regard to cosmetic aerosol cans and beverage cans, as can be seen by our growing customer base for internal coating applications. Our customers include the most popular aerosol can manufacturers, among them Oriental in Shantou, CPCM in Hangzhou and Jia Tian in Shanghai. While our existing customers in the aerosol can sector are continuously expanding their production capacities through permanent investments, we are also adding new and interesting customers in the aluminum beverage can and bottle market with the financial means to invest in new machinery and systems to our books.

In addition to traditional companies, investments regarding aluminum aerosol cans and beverage bottles are being made by new customers, who are looking for interesting investment options and have identified the production of these packaging items as an exciting long-term asset.

One of the most important trade fairs for this sector is Cannex & Fillex, which takes place at the gigantic Guangzhou Exhibition Center at regular intervals. The increasing number of exhibitors and exhibition space are obvious indicators that there is interesting potential for growth.

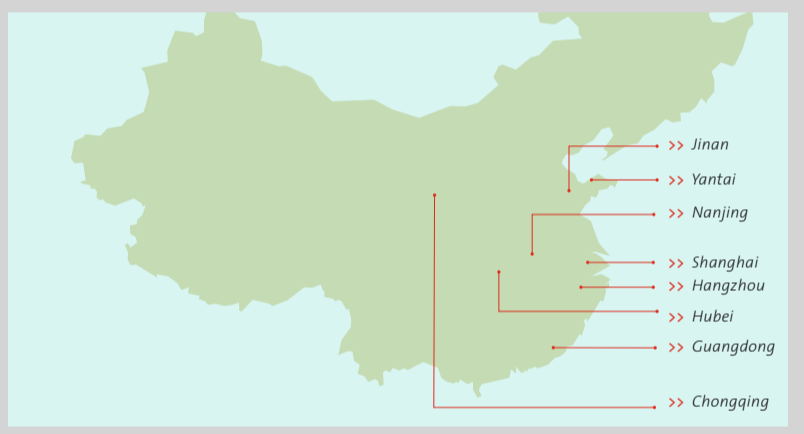
Back to the automotive market: Here, German manufacturers largely determine the requirements for quality and capacity,

COUNTRY COMPARISON CHINA & GERMANY

	CHINA	GERMANY
SURFACE AREA	9,562,911 km ²	357,022 km ²
POPULATION	1,386,395,000	82,695,000
AVERAGE INCOME	7,692 €	38,497 €
UNEMPLOYMENT RATE	4.68 %	3.74 %
EXPORTED GOODS	€2,144,738 million €1.55 million per 1000 inhabitants	€1,542,796 million €18.66 million per 1000 inhabitants
GROSS DOMESTIC PRODUCT GDP	Total: €10,832,699 million €7.81 million per 1000 inhabitants	€3,255,235 million €39.36 million per 1000 inhabitants
ECONOMIC GROWTH	6.9 %	2.22 %

* Source: World Bank, 09/18/2018

CUSTOMER LOCATIONS IN CHINA



The skyline of Guangzhou with the 600 m Canton Tower

NEWS

Sprimag at PaintExpo

In mid-April, representatives in the field of industrial painting and coating technology came together for the seventh time at the PaintExpo in Karlsruhe. Plant and paint manufacturers as well as suppliers from a wide variety of sectors presented a range of innovative products and concepts in the field of industrial coating technology. With 537 exhibitors from almost 30 different countries, this leading trade fair for the painting and coating industry was expanded from two to three halls for the first time this year. Since its inception, the event has grown to become an established international meeting point – as reflected by the number of industry professionals that travel to the event, with attendees from 88 different countries visiting this year. At this year's event, Sprimag focused on the three key topics of integrated

process monitoring, UV technology and special applications within application technology. For instance, in addition to the standard process controls used in Sprimag coating systems, systems to monitor parameters such as coating thickness, viscosity and flow rate as well as the temperature of parts or coatings can also be integrated. For parts that present problems with regard to conventional coating methods, Sprimag offers a variety of application solutions such as special extensions, centrifugal



guns or rotating extensions for non-rotating parts. Many attendees who were in search of a suitable coating solution to the specific application scenarios they had in mind approached us with their ideas. On all days of the trade fair, we noted very promising numbers of visitors to our stand and took part in plenty of interesting discussions as well. We are brimming with anticipation to see what the next PaintExpo in April 2020 will bring.

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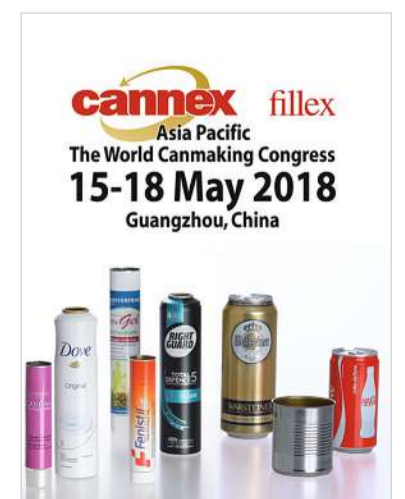


Cannex & Fillex in Guangzhou

China has established itself as a significant market for Sprimag internal coating machines for tubes and cans. The fact that the metal packaging sector there is gaining ground is not least reflected in the large number of trade fairs and events that are taking place in the Asian region. For instance, the Cannex & Fillex exhibition took place again this year from 15th to 18th May in the Chinese city of Guangzhou. The trade fair is the largest of its kind for the can manufacturing industry in all of Asia. With more than 200 exhibitors attending, this year's event was already 30% larger than the previous Cannex held in China. Sprimag also took part, presenting our current range of internal coating machines, dryers and inspection machines. Next year's Cannex will take

place from 1st to 3rd May in Denver, with Sprimag attending as usual.

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New fully automatic *packaging solutions for monobloc aerosol cans*

With a new generation of machines and systems, Sprimag has dedicated itself to the fully automatic robot-assisted packaging of aerosol cans. Sprimag has more than 20 years of experience in the use of robotic systems for complex coating and handling tasks

When it comes to the packaging process that rounds off the manufacturing of aerosol cans, a variety of different approaches exist. While packaging is still sometimes carried out manually in countries with low wage costs, there are a few producers in Europe that have already been relying on assistance from free-arm robotic solutions for packaging cans for several years now. Approaches between those two extremes include semi-automatic or linear guided packaging systems that provide automated strapping solutions. The main disadvantage of these existing solutions lies in their technical complexity and the susceptibility to failure that this brings. Moreover, the systems can be relatively inflexible, which results in a large amount of effort required when it comes to modifications. Up to now, the packaging of complete layers (full-layer palletizing) has not been possible with these solutions.

With the newly developed packaging solutions FPS-01 and FPS-02, Sprimag is fulfilling the increasing requirements placed on aerosol can fillers for layered packaging. In doing so, the bundled packaging variants have not been neglected – quite the opposite, in fact: **Thanks to the flexible packaging systems from Sprimag, it will be possible in future to switch between bundled and layered packaging without the need for complex modification operations, depending on the level of configuration.**

The core components of the Sprimag systems constitute FANUC robots that have been specially designed for handling tasks in packaging solutions, as well as combined grouping and strapping units from MOSCA that can be used to strap all required bundle sizes. The system is complemented by a vacuum positioning unit for transfer from the necking machine, a conveyor feeding unit with a buffer and storage function and a grouping table. Altogether, this forms the basic equipment for a flexible packaging solution from Sprimag.

Sprimag has thus conceived the complete design as an expandable, modular system with flexible speeds.

The Sprimag FPS-01 packaging system is configured solely through the use of:

- Can positioning and conveyor feeding unit
- One FANUC M-10 grouping robot
- Schmalz gripper unit
- Grouping table
- MOSCA single grouping and strapping unit with gantry guide

... and with it, the machine packaging processes that have prevailed up until now are simplified and superseded through the use of robotics. The system is designed to operate up to a line cycle time of 170 cans per minute. At the same time, the system is already designed in such a way that it can also be expanded to the full configuration level of FPS-02 at any time.

The full configuration level consists of:

- Can positioning and conveyor feeding unit
- Two FANUC M-10 grouping robots
- Schmalz gripper unit
- Grouping table
- MOSCA double grouping and strapping unit
- FANUC M-410 palletizing robot

The modular, expandable concept has thus been taken into account, as the basic system can be designed in such a way that a subsequent expansion to the bundling function is possible at any time. This variability can play a vital role for can manufacturers in scenarios where contracts are time-limited and different orders have to be implemented for different customers. Consequently, it is possible to take a first step into full-layer packaging and palletizing for a reduced investment cost, whilst retaining the option to expand to the combined solution of bundled and full-layer packaging at any subsequent time.

Through the use of the core components in two-fold implementation in particular and the accompanying simultaneous creation of two bundles or alternatively full-layered rows of longitudinal cans – in combination with a

two-fold MOSCA grouping and strapping unit – reliable cycle times of up to 200 cans per minute and significantly beyond this can be achieved. And Sprimag is already thinking a step ahead: Thanks to the spacious design of the system in relation to the production speed and the non-hazardous feeding of the cans to the grouping robots, these can also be replaced by collaborative robots. Particularly for the FPS-01 configuration, this allows humans and robots to work together without the need for additional safety devices.

The core components of the Sprimag packaging systems are complemented by optional, peripheral units such as:

- Automatic pallet dispenser
- Cardboard and covering board unit
- Fully automatic tray forming unit
- Pallet transfer rails and pallet turntables
- Pallet vertical strapping unit
- Stretch wrapping unit
- Labeling robot unit

In light of this, Sprimag has already established strategic partnerships with the leading component manufacturers in the market. Naturally, all complete system solutions incorporate a comprehensive safety concept that allows for safe operation of the complete unit.

The key to achieving a higher degree of automation and an associated increase in efficiency in future, while simultaneously reducing production costs, lies in the production-oriented combination of modular core components and optional additional components. Indeed, through the expedient linking of multiple production lines with the simultaneous use of optional components, machine investments and the internal transportation logistics can be significantly reduced.

By automating the packaging process with the use of robots, the aerosol can manufacturing industry can catch up to related products such as glass or plastic bottles, for which robotic solutions are already being utilized for reasons of higher production speeds and the safer, more reliable processes associated with this.

A reliable packaging process with robots accompanied by the inevitable elimination of human-based control mechanisms is only possible, however, if intelligent system solutions take over the method of product monitoring that has prevailed up to now. The CIM-12 camera inspection machine, which has already been presented and successfully introduced to the market, interlinks the collection and packaging process and combines both system components perfectly. By means of a comprehensive test, it allows a guarantee to be made for the first time that every individual, fully automatically packed aerosol can conforms to the quality requirements of the customer. In the course of this process, the Mühlbauer/TEMA camera module installed in the inspection machine re-



FPS-01

- Grouping of cans
- Bundling
- Manual bundle unload and positioning on pallet



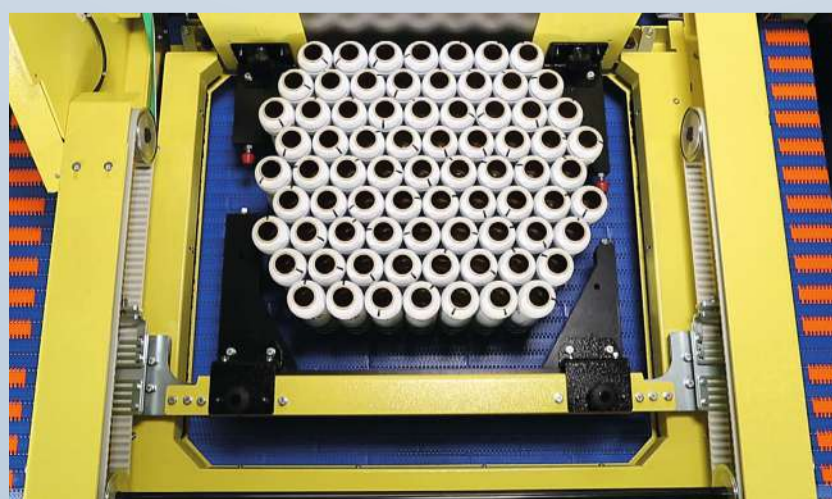
FPS-02

- Grouping of cans
- Bundling of cans or full layer packaging
- Stacking of full layers on pallets



2 X FPS-02 + STRETCH WRAPPING UNIT

- 2 Packaging Systems with central stretch wrapping unit
- Expandable system for integration of multiple lines



MOSCA double grouping and strapping unit

liably identifies production defects and cans that are to be rejected. Joachim Baumann, Managing Director of Sprimag: "Packagers of aerosol cans that rely on the assistance of robots without carrying out an upstream visual inspection are playing something of a game of Russian roulette, or are simply just being reckless with regard to the requirements that their customers have placed on them."

There are now three system solutions in the end-of-line area:

- Camera inspection via CIM-12
- Pneumatic leak detection via LRP-30
- Robot-based packaging variants FPS-01/FPS-02

With these, Sprimag wishes to play a substantial role in this system segment, and considers itself to be well equipped for the task. In combination with a competent service division and its own electronics and robotics specialists, Sprimag is able to provide comprehensive service worldwide. At the same time, through the carefully considered selection of system partners, great emphasis has been placed on offering this service on a consistent basis through all system components at the highest level.

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MODERNIZATION

More than a fresh lick of paint

Since June of this year, the five members of Sprimag's in-house paint shop team have been working in a new, modern facility which ensures higher throughputs while offering state-of-the-art safety systems, environmental protection and energy consumption

Many system manufacturers no longer have in-house paint shops, as this model is not always profitable. But as a manufacturer of automated coating systems, Sprimag did not want to go without its own paint shop. Only when the complicated logisti-

system components, from small brackets to the five-meter high internal coating dryers. Being able to always react quickly and flexibly, as is required for service orders for example, or solving problems directly are further arguments in favor of an in-house paint shop. Sprimag decided to extensively modernize its paint shop to update the technical equipment while also making the employees' workplaces more ergonomic, safer and minimizing health risks.

Thanks to the comprehensive modernization measures carried out in the first half of the year, during which the painting process was outsourced to a hired paint shop in the neighboring town of Wendlingen, the team of five full-time painting experts was able to return to an ultra-modern workplace in June of 2018. An important aim of the modernization work

was to improve the working conditions for the employees in terms of ergonomics, safety and exposure to noise. This was achieved, for example, by reducing the noise level by around 9 dB. Doubling the output of the supply and exhaust air systems, as well as a floor extraction system, benefits the skin and respiratory tract. A new crane makes easy work of transporting heavy parts within the lacquer booths and no longer requires several employees to pitch in with complicated transport equipment. As many parts can now be transported while suspended, this has significantly improved the flow of materials.

Another substantial improvement is the increased throughput: The new

drying room now makes it possible to pre-select much higher temperatures, increasing throughput by 50%. If necessary, this improvement would even facilitate the introduction of two-shift operation in future. The new pre-treatment, which now also makes it possible to clean large components, represents another improvement to the process. Thanks to the water treatment system, which contains a circulating degreasing and phosphating system, and the manual high-pressure cleaning system, laborious cleaning by hand is no longer necessary. To round things off, the modernizations also significantly lower the energy consumption of the paint shop.

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Sebastian Große,
Head of the paint shop

cal processes required for transporting goods to and from external service providers, which are associated with significant risks of damage, are omitted can we guarantee the best possible quality for our customers. Our paint shop team works with all



CALENDAR 2018 / 2019

FABTECH

06.11.2018 – 08.11.2018
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Booth no. B4734
www.fabtechexpo.com



AEROSOL & DISPENSING FORUM

30.01.2019 – 31.01.2019
Paris, France
Booth no. X16
www.aerosol-forum.com



Cannex & Fillex de las Americas

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Denver, Colorado, USA
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ANNIVERSARIES 2018

10TH ANNIVERSARY

Klaus Beck
Daniel Ruther
Thomas Reichenecker



Sprimag thanks all of these employees for their many years of service and for their long-standing relationship with the company.

40TH ANNIVERSARY

Dieter Kouba
» Manager Mechanical Engineering department surface

Horst Jäger
» Mechanic

Uli Nägele
» Mechanic

Ingrid Schumacher
» Mechanical Design Engineering

Bernhard Däschler
» Operation Manager Assembling



These employees celebrated their 40th anniversary in September