

# Exact!

Application stories from around the world

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## NEW DOPAG component generation

For more than 35 years DOPAG components are and have been epitome for quality and reliability in the field of metering technology. The new component product ranges 450, which are designed to process oil and lubricants of the NLGI grade 0 to 3, are the result of the experiences of the past and the requirements of the future.

### Chamber metering valves:

In addition to a longer lifetime they are now available with stroke detection to monitor the application process which is an essential part for the quality of the final products.

### Needle metering valves:

These valves featuring an increased lifetime and associated a reduced maintenance effort. In addition the metering range has more than doubled to 3 – 200 mm<sup>3</sup>, which enables using the same type of valve for various applications.



Chamber metering valve 450

### Material pressure regulators:

An improved performance through an optimized material flow combined in a smaller design, these are the main features of the new material pressure regulators.



Needle metering valve 450



Material pressure regulator 450




Hilger u. Kern / Dopag Group



# A tradition of quality

**Amica**

Polish white goods manufacturer counts on DOPAG metering and mixing technology

 Amica Wronki S. A. is the largest Polish manufacturer of household appliances and one of the most rapid developing companies in Poland.

With a wide and differentiated product range the company generated a turnover of more than 355 million euros in 2013.

The company now employs approximately 2,000 people and exports almost 70% of its products in more than 40 countries including key markets such as Germany, Russia and Scandinavia.

At the location in Wronki different variations of stand-alone cookers, ovens and hobs are manufactured. As part of a continuous production optimization the latest production

techniques are always checked for their suitability.

This was also the case when the decision was taken to change the joining technique of product elements towards the use of a 2K silicone adhesive.

POL-MER the local distributor of the Hilger u. Kern / Dopag group was facing this requirement and recommended a solution with DOPAG metering and mixing systems.

Now it is sufficient to apply a 120 - 180 cm long adhesive bead with a diameter of 3 mm onto a steel cover which is then bonded together with the glass front of the oven.

The 2K silicone adhesive is supplied by using two P80 drum pumps. A

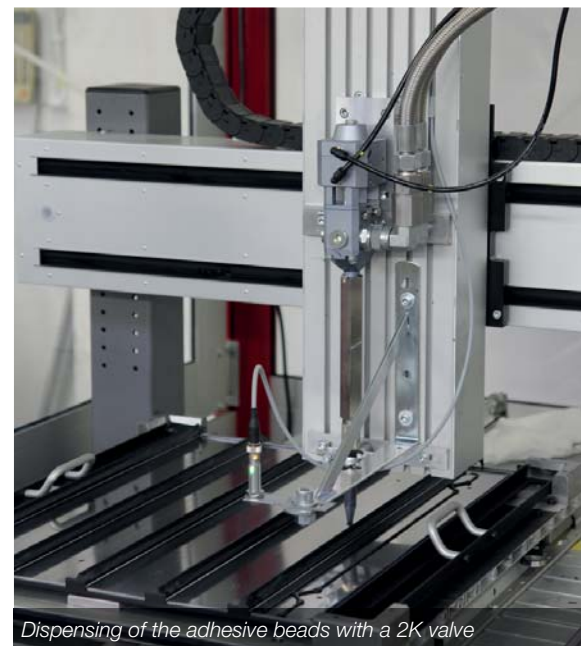
DOPAG metamix system is metering the material in a mixing ratio of 100:100 before the adhesive is mixed and dispensed by means of a 2K valve which is mounted on a xyz table.

This solution helps to achieve the production capacity of 5500 units per day. Flexibility in production and a user-friendly operation of the metering and mixing systems are essential but it also offers additional economic advantages such as the increase in production output.

Commented Zbigniew Biedziak coordinator for application technology at Amica. „We had high efficiency targets associated with the bonding process. Out of today's view it was a good decision to count on DOPAG metering technology.“



xyz table with integrated DOPAG metamix metering and mixing system



Dispensing of the adhesive beads with a 2K valve



# Experience as a door opener



DOPAG metering technology used in door manufacture



The Hörmann Group is Europe's leading supplier of doors. More than 15 million doors have been produced and delivered worldwide since its foundation in 1935.

The Headquarters of the international Hörmann Group is located in Steinhagen, Germany.

There are more than 6,000 employees in 27 plants in Europe, North America and Asia where they develop and produce high-quality doors, frames and drives for the use in private and commercial properties.

At the Brandis plant, near Leipzig, fire doors, house doors, room doors and basement doors are produced.

A door consists of a door frame and a door cover and a liner needs to be bonded onto both these parts.

When one of the existing production processes was adapted, demands such as monitoring the process stability and an interruption free production came along. The existing metering equipment could no longer meet these requirements.

The pasty material used in the manufacture of these doors is now processed by using metering equipment from the Hilger u. Kern / Dopag Group.

Two metering systems, each of them containing a gear metering pump, a volume counter and a membrane dispensing valve, apply the 1K adhesive with a flow rate of

30cm<sup>3</sup> /min. onto the steel plate. The adhesive beads are up to 3 meter long with a diameter of 3-4 mm.

Next the liner is placed onto the steel plate of the door cover and the whole component is pressed together with the previously bonded door frame.

The membrane dispensing valves are mounted on a xyz table which offers the flexibility to manufacture doors of different sizes.

„Hilger u. Kern was known to us as a competent supplier of metering and mixing equipment in the market. From inquiry to commissioning everything worked smoothly“, stated Karsten Germer, deputy plant manager of Hörmann KG.



DOPAG P200 drum pump



DOPAG membrane dispensing valve applying the adhesive beads

# Flexible Packaging



DOPAG Iadomix  
metering and mixing  
system boosts the  
production capacity



As Turkey's leading flexible packaging company, Bak Ambalaj has served his customers with innovative solutions since 1973.

The family owned company is located in Izmir, where more than 400 employees produce printed, unprinted and laminated flexible packaging products. Up to 80% of these products are exported to around 200 customers in 40 countries, mainly in Western Europe.

To meet the different lamination requirements the production facilities are equipped with 6 high speed laminators with a film web of up to 1.3 meter in width.

The production covers both solvent-free as well as solvent-based adhesive application resulting in flexible packaging products with up

to 4 layers. Such high barrier combinations with three or four layers are especially suitable for products such as roasted coffee or tea.

When Bak Ambalaj planned to boost the production of this product range they contacted Günmak, the distributor for the Hilger u. Kern / Dopag Group in Turkey, to find a solution to meter, mix and dispense the solvent-based adhesive.

Previously no such system was in use and the adhesive mixture was prepared manually in a labor intensive process out of 25 kg material containers.

Günmak came up with a solution using two DOPAG Iadomix metering and mixing systems with the patented VOLU-MIX mixing principle.

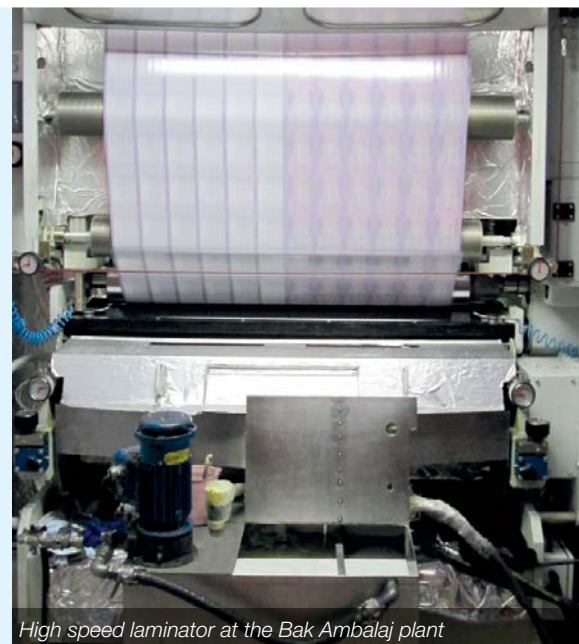
The electronically controlled systems are fitted with 45 litre material pressure vessels which are continuously refilled using transfer pumps to feed the components from 200 litre original drums.

The adhesive components are metered in a volumetric mixing ratio of 100:100:3.75-25 before being mixed in the pre-mixing chamber and the static mixing tube. The mixed material is then dispensed into the film laminator.

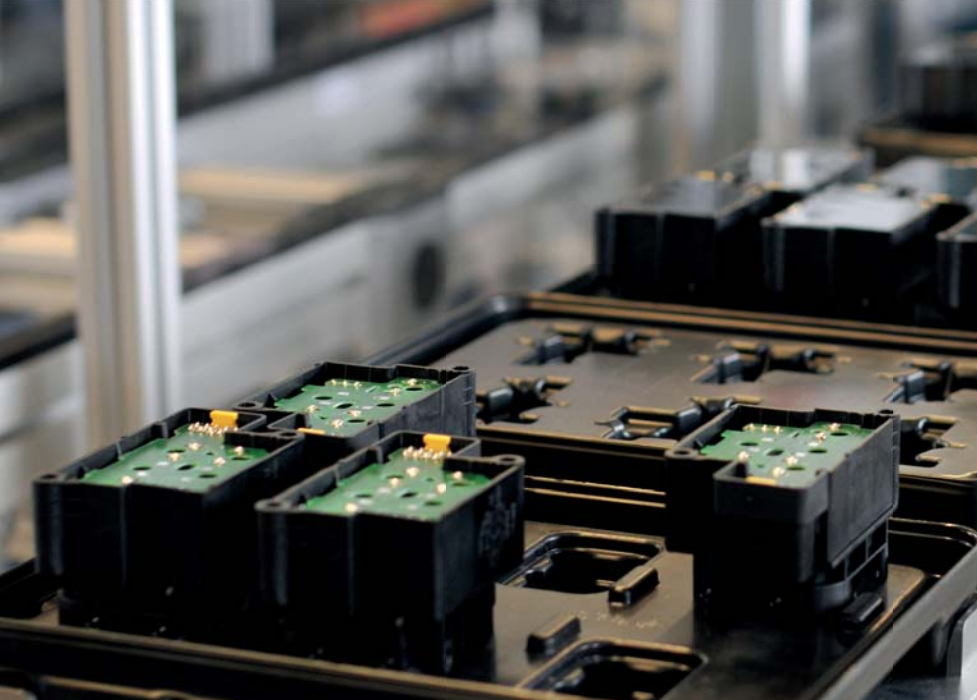
Comment from Bak Ambalaj Production Department Manager Atilla Ozyegen, „The automatization of the metering and mixing process has a positive impact on the production efficiency. The investment for the metering and mixing systems will be amortized due to lower work force cost and less waste of material.“



DOPAG Iadomix



High speed laminator at the Bak Ambalaj plant




# Together for success



**RAPA**  
RAUSCH & PAUSCH GMBH

Compact and powerful  
encapsulation system  
for valve assemblies

 Rausch and Pausch (RAPA) located in Selb, Bavaria/Germany is one of the world's leading development companies of hydraulic and pneumatic valve systems mainly for the automotive industry but more and more into other industries.

Due to a positive business development of these valve assemblies, RAPA decided to increase the existing production capacity and to expand by setting up another encapsulation system.

The main targets were the optimisation of the existing process and the implementation of the latest production technology.

SAR (specialized in automation) and the Hilger u. Kern / Dopag Group have been working together

for many years, always focusing on the customer requirements. This history was the perfect basis for the development of the new encapsulating system for RAPA. Among other things, the challenge was to meet the requirements of two production plants one in Germany and another in the US.

The result being a compact encapsulation system featuring an optical identification of the parts, an integrated 3-axis robot and a DOPAG metering and mixing system with a static dynamic mixing head to apply the 2K material. A master touch panel is used to visualize and control the entire process.

In the first step the components are heated before a pre encapsulation takes place by using the mixing head mounted on the 3-axis robot

to dispense the mixed 2K material. The correct encapsulation program is then chosen automatically based on the data identification of the optical system.

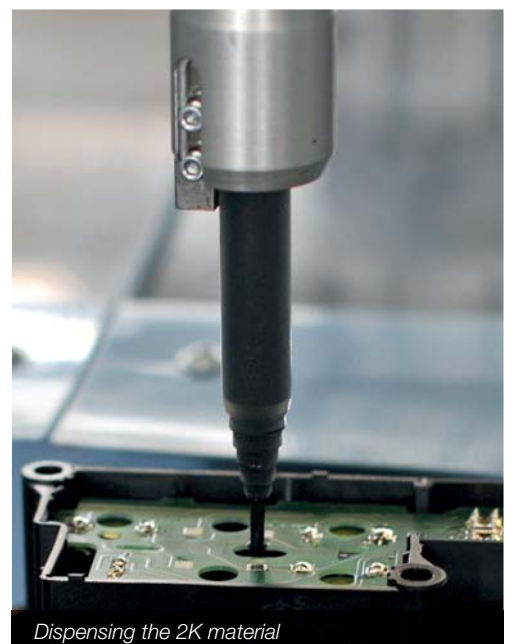
The mixing ratio is controlled by two gear type volume counters at any time if necessary the ratio is readjusted electronically.

A vacuum within the application area supports the degassing of the encapsulant to avoid any trapped air in the material. After the assemblies have cooled down the finishing of the encapsulation takes place.

RAPA is very satisfied with the new encapsulation system which allows shorter cycle times leading to a higher output compared to the previous solution.



Automated encapsulation system for the valve assemblies



Dispensing the 2K material

# Market news

## **3M is one of the world's largest manufacturers of adhesive tapes, adhesives and labeling systems. Which are the growing markets in the area of industrial adhesives?**

The huge advantage of adhesives is their versatility which automatically leads to growth potential. Compared to conventional fastening techniques such as screwing, riveting or welding they can be used to bond different kind of materials without damaging the surface.

The resulting design opportunities are allowing light weight constructions (e.g. combinations of plastic and composite materials), which are of great benefit for those industries where weight reduction plays a central part to reduce fuel consumption and emissions.

Additionally also the electronic industry benefits from these properties as it allows a destructive combination of different materials such as glass with metal or plastic.

## **Which are the latest industrial adhesive innovations from 3M on the market?**

As one of the 5 most innovative companies in the world (study by Booz & Co, 2013), 3M is aimed to meet the latest market requirements with the appropriate product range.

Recently the next generation of acrylate adhesives for construction was introduced, representing a significant improvement to the traditional acrylates due to new product features. The main advantages of 3M DP8805/DP8810 Low Odor are:

- Low odor
- Rapid curing
- 18 month storage life (without cooling)

Another recent innovation is the material Fast-Tack 1000NF. It is the first dispersion adhesive which combines the advantages of water and solvent based contact adhesives:

- Fast tack
- High adhesion force
- High temperature resistance
- One side application
- 0% pollutants

## **What is the impact for the future use of metering and mixing systems?**

The extended application range of adhesives is especially part in industries with an intensive production (automotive or electronic industry). They rely on constructions which are suitable to be produced with a high degree of automatization this is leading automatically to a demand of metering and mixing equipment.

Their importance and distribution is growing as they have not only a process accelerator effect they are also playing an important role for the quality control of the production.



3M is a highly diversified company with a global presence in all relevant future markets. The combination of creative thinking with science-based technology is leading to a constant flow of new solutions.

With nearly 40 business units organized in five market divisions, the company solves problems of the real world with a variety of creative approaches to satisfied clients in various areas.



**Mag. Thomas Stöckl:**

- Business studies, focus on „Entrepreneurship & Innovation“
- Since 2011, 3M Austria GmbH: Product manager for: „Industrial adhesives & adhesive tapes“
- Since 2013 3M Alpine (AT & CH) Product responsibility: Specializing in industrial adhesives

### **Editor**

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Marketing Communication

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