Exact!

Application stories from around the world

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Issue No.16

DOPAG MICRO-MIX 25 years - not out!

1984 was an exciting year for Andre Schlenk, now Managing Director of DOPAG distributor Resin Processing Solutions (RPS) in South Africa. He had recently been appointed DOPAG's distributor for South Africa when he and a colleague decided to drive the 2800 km round trip from Cape Town to Johannesburg in pursuit of an order.

What they found on arrival in Johannesburg at Atlanta Wholesalers and Distributors (pty) Ltd., was a company manufacturing souvenir wares such as spoons and ashtrays, some of which incorporated a small badge. Atlanta needed to dispense a tiny volume (0.09ml) of mixed two component clear epoxy resin onto those badges.

Against the odds and a little to their own surprise, they won the order, and supplied a DOPAG MICRO-MIX Type B, being only the third DOPAG machine they had sold since becoming a DOPAG distributor.

RPS Managing Director Andre Schlenk is reunited with the DOPAG MICRO-MIX that he sold 25 years ago

Fast forward 25 years, the owner of Atlanta is now retired and after regular daily use the DOPAG MICRO-MIX is no longer required.

You might think that that would be the end of the story, but RPS had other ideas. They purchased the machine back from Atlanta and after replacing some leaky pneumatic components, have reinstalled it at a high tech electronics company in Cape Town, processing a two component silicone for the encapsulation of electronic water meters, where it is once again doing what it was designed to do.

New Drum Pump Brochure

Newly available from the Hilger u Kern / Dopag Group is a brand new brochure which updates the entire range of DOPAG ram, bung and wall mounted transfer pumps.

Full technical details are contained in the brochure for every single pump. Copies are available from your local DOPAG office, or can be downloaded on-line by visiting:
ww.dopag.com/upload/docs/Dokumente/Drum_pump_brochure_E2.pdf

Hilger u. Kern / Dopag Group

In the birthplace of industry

Telford based company uses DOPAG ELDO-MIX 101 to produce integral skin foam mouldings

The finished component with its integral skin moulding

In 1779 the world's first cast iron bridge was built over the River Severn in Coalbrookdale, Shropshire, heralding the beginning of the industrial revolution.

It was a phenomenon that attracted engineers and bridge builders from all over the world. Today it is a UNESCO World Heritage Site and forms part of the modern Shropshire town of Telford.

230 years later, industry still thrives in this part of what remains a largely rural County, but the technology has moved on.

Companies, like privately owned, family run Acoustafoam, who specialise in acoustic insulation components and products made from foams, polyester fibres, rubbers and polyurethanes now lead the way.

Applications for their products span a variety of different industries, including automotive, rail, marine, furniture, sports and leisure, construction and the computer industry, typically producing items such as steering wheels, gear stick knobs, headrests, armrests, facias and seating.

A specialist section of the production facility is taken up by the manufacture of "integral skin mouldings", also known as "self skin mouldings."

Simply put, a two component polyurethane reactive foam is injected into a mould after an insert has been placed into the mould. The foam surrounds the insert and quickly cures, forming a smooth skin on the outside, but producing a "squeezable" feel to the finished moulding, probably the most well known example of which would be the steering wheel in your car.

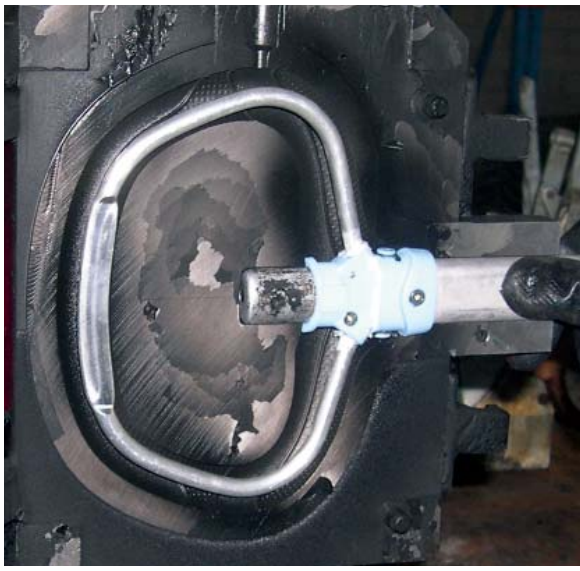
Acoustafoam can produce integral skin mouldings in a variety of hardness factors ranging from 25 to 90 Shore, and in an array of colours.

A DOPAG ELDO-MIX 101 gear pump driven metering, mixing and dispensing machine is the ideal system for this type of application and is used by Acoustafoam to proportion the two components at a ratio of 100:48 by volume and dispense pre-determined shots of mixed material into the moulds.

Mixing polyurethane foams can be a critical process, which normally requires the use of high-speed dynamic mixers to produce a homogeneous mix.

However, in this case, the ELDO-MIX was fitted with a DOPAG static/dynamic mixing and dispensing valve, reducing wastage and eliminating the need for environmentally unfriendly and costly flushing solvents, resulting in cost savings whilst producing perfect mouldings.

ACOUSTAFOAM



The insert is loaded into the mould prior to the injection of the polyurethane foam

Sales Manager for Polyurethane Moulded Products, Mark McKeown with the DOPAG ELDO-MIX 101 used for producing a variety of integral skin mouldings

Lighting up the World Cup

Automated silicone dispensing system increases quality while reducing costs, cleaning time and waste

An artist's impression of the Moses Mabhida Stadium in Durban which will be constructed for the 2010 FIFA Football World Cup (Picture courtesy of Lighting in Design magazine)

The dispensing cell featuring a DOPAG P200 pump, automatic dispensing valve and diaphragm material pressure regulator mounted onto a 6 axis robot

When BEKA won the contract to provide 400 LED lighting fittings for installation on the iconic arch at the Moses Mabhida Stadium in Durban, it represented one of the most prestigious LED lighting contracts ever undertaken in the Southern Hemisphere.

The stadium is one of the venues for the 2010 FIFA Football World Cup, and it's arch, which will reach a height of 110 metres above the stadium ground will be it's architectural centrepiece.

BEKA (Pty) Ltd., is now part of the Schréder Group GIE of Belgium and started it's Southern Africa operation in Namibia in 1978. Their products quickly became renowned in neighbouring South Africa, which prompted them to move to Olifantsfontein, an industrial town situated between Johannesburg and Pretoria.

Each of the stadium LED fittings are 1,800 mm long by 80 mm wide and require a bead of silicone to be applied to the interface between the aluminium casing and the perspex cover that is 3mm wide and 2mm high.

Beka have for many years used a single component silicone to seal their products against the ingress of moisture. However, until now, this has been achieved manually, using 310ml cartridges.

It was decided that to achieve the accuracy and uniformity of bead profile required, the process must take place automatically, so DOPAG's South Africa distributor Resin Process Solutions enlisted the assistance of local automation company Directech to provide an automation cell featuring a 6 axis robot arm, onto which a DOPAG automatic dispensing valve was mounted.

The silicone was fed directly from the original containers by a DOPAG P200 drum pump and the flow rate was carefully regulated by means of diaphragm operated material pressure regulator, the latter allowing the material pressure to be adjusted remotely.

The robot cell was constructed to allow three light fittings to be sealed in one operation, whilst additional jigs were provided for alternative fittings.

The resulting system has enabled the production of the LED lighting fittings to achieve the required quality standards of accurately and uniformly sized beads and has been a triumph in terms of reduced costs through the ability to purchase the silicone in bulk containers, the elimination of cleaning procedures and the generation of less waste.

Dealing with sealing

Major automotive seal manufacturer chooses DOPAG ELDO-MIX 603 technology to dispense elastomers

A developer and manufacturer of high performance sealing systems for powertrain applications, BRUSS have supplied automotive manufacturers throughout the world with high quality seals and gaskets for over 50 years.

This experience and technical expertise enables them to develop products that are specially tailored to individual needs – personally, precisely and perfectly. This makes BRUSS an innovative specialist in providing individual problem solutions in the area of sealing technology.

Worldwide headquarters are located in the town of Hoisdorf, near Hamburg, where the emphasis is on the production of seals that require metal to elastomer bonding.

DOPAG ELDO-MIX 603

One such product is a rotary shaft seal produced for a major automotive supplier, for use in oil pumps.

Using “just-in-time” techniques BRUSS will produce around five million of these seals each year, resulting in a finished product turnaround time for each seal of approximately 3.5 seconds.

BRUSS formulate and produce their own elastomers in-house and in this case a two-component FKM fluoroelastomer is used to fix the seals into the housings. It must be proportioned, mixed and dispensed automatically into the seal housings, prior to the insertion of PTFE seals, following which the assemblies are fed to an injection moulding machine that moulds an exterior seal.

BRUSS chose a DOPAG ELDO-MIX 603 gear pump type system, supplied by Hilger u. Kern to process the elastomer. The two components are fed to the DOPAG ELDO-MIX system from 80 litre capacity pressure feed containers, where they are metered, mixed and dispensed automatically into the housings.

Dispensing takes place via a DOPAG twin valve, which features a “snuff-back” facility in order to ensure that mixed material does not drip from the outlet after dispensing is complete. A disposable plastic static mixer is used to homogeneously mix the two components.

Mixed FKM flouroelastomer is automatically dispensed into the seal housing

Accuracy is important, as each seal requires just 0.06 grams of mixed material to be deposited into the housing at a maximum dosing tolerance of plus or minus 0.01g. Control of the dosing is carried out by a Hilger u. Kern MR20 dosing computer.

Director of Process Development, Sven Ruhsert is delighted with the results that have been achieved by the DOPAG ELDO-MIX 603, which has performed perfectly and trouble-free since installation was completed.

BRUSS

Water Water everywhere

DOPAG SILCO-MIX improves quality and saves money for water tank manufacturer

Mixed adhesive is laid onto the mating flange of the lower half of the tank

Located in Belgium, Eloy Water has been involved in design and manufacturing of wastewater treatment plant for over forty years.

Recently, a new production unit - Eloy Prefab - has become operational, enabling the large-scale production of prefabricated concrete tanks. The tanks are used extensively in European countries as reservoirs for water treatment plant.

The tanks are formed from two halves of similar size. During assembly, the top half of the tank is inverted and gently lowered into position above the lower half, until it rests onto the mating flange of the lower half.

A bead of adhesive has previously been dispensed onto the flange of the lower half of the tank, so the action of lowering the top half onto it squeezes the adhesive to form a watertight bond between the two halves.

Eloy Prefab has recently taken delivery of a DOPAG SILCO-MIX H200 in order to meter, mix and dispense the adhesive onto the tank flanges.

Previously, the adhesive was dispensed using a cartridge gun, but that was found to produce beads of erratic quality, as joins to the adhesive bead were often necessary due to the small capacity of the cartridges.

Now, the two components of the adhesive are delivered to site in 200 litre size drums, which eliminates the problem. Additionally, purchasing the adhesive in bulk enjoys a considerable cost saving.

The adhesive used for this application is a two component epoxy resin containing quartz fillers and is mixed at a ratio of 100:100 by volume.

The DOPAG SILCO-MIX H200 features hydraulically driven metering piston pumps that guarantee a constant mixing ratio and ensures absolute synchrony of the metering pumps. The system is designed to dispense up to 9 litres per minute of mixed adhesive on demand.

The two components are kept separate until they enter the static mixer, where they are homogeneously mixed before being dispensed via a DOPAG twin dispensing valve. The system is equipped with 9 metre hose lengths in order to allow the operator maximum freedom of movement.

Presently, the bead of adhesive is applied manually, but Eloy Prefab plan to automate the application process in the future, further adding to the excellent quality of the joint.

eloy water

www.eloywater.com

The upper half of the tank is lowered into position

DOPAG SILCO-MIX H200

New distributor for Korea

From left to right: Martin Shin - Vice President, Y. S. Jin - President, Mel Taib - DOPAG FAR EAST, Lissa Lee - DOPAG FAR EAST

Located in the Dongjak-Gu area of Seoul, Korea, DP TECH was established in November 2008.

Mr. Y. S. Jin and Mr. Martin Shin, who between them already have almost 25 years experience of DOPAG systems and equipment, particularly in the Liquid Natural Gas shipbuilding industry, head the company up.

DP TECH's core business strategy is to represent DOPAG metering, mixing and dispensing systems throughout Korea. We wish them every success.

Exhibition success in the UK

Putting things together better is something that everyone strives to do. The Fastening and Assembly Solutions Exhibition, held at The RAF museum in Cosford, provides a showcase for innovations in adhesives and their application, as well as for mechanical fastenings.

Only in this narrowly focussed exhibition is it possible to see so many of the latest advances and developments in fastening and assembly products, methods, technology and application practices.

Commented DOPAG (UK) Ltd., Managing Director, Calvin Priest, "This is a sharply focussed exhibition where visitor numbers are relatively small compared to some other exhibitions. However, the organisers endeavour to control entry only to genuine prospects who come to the exhibition looking for solutions to their fastening problems. As a consequence, we are delighted to have made some excellent new contacts."

Forthcoming Exhibitions

21. - 24. September 2009 / BONDEXPO 2009 / Stuttgart, Germany

07. - 09. October 2009 / Eurofinish 2009 / Gent, Belgium

20. - 23. October 2009 / PROPAK 2009 / Johannesburg, South Africa

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