

# EUROPEAN RECYCLING MARKET LEADER CUTS MAINTENANCE AND NOISE WITH SWITCH FROM DC TO CONTROL TECHNIQUES AC

**A switch from DC to AC drives at European recycling company Govaerts Recycling of Belgium has resulted in major maintenance savings with the bonus of a dramatic cut in production noise. The new high-tech extrusion lines have at their heart modular Unidrive SPMA drives from Control Techniques.**

With five production lines, Govaerts Recycling, based in Alken, has an annual output of around 8,000 tons of high quality plastic and rubber products – for street and park furniture, decking and flooring for instance. When the company’s five DC driven production lines were facing the need of refurbishment, owner Eddy Govaerts couldn’t find suitable replacements, so set out to build his own extrusion lines.

Granules of polyofines are blown into the weigh and mixing section, mixed with colouring pigments and other additives to give the mechanical qualities required. This is extruded at 200°C and injected into special moulds. Each extruder has 12 moulds. The moulds are water-cooled, the profiles are ejected and, after about 48 hours, are cut to length to produce a wide range of 100% recyclable products for the street, park or garden.

“Our first extruder lines had DC motors and drives,” says Eddy Govaerts. “We bought an off-the-shelf extruder in 1996 to make our first planks and boards for horse stables, but it wasn’t very successful, required many modifications and proved very unreliable. With our wealth of in-house experience in mechanical engineering and automation, we decided to make our own, with huge success. For each part

of the operation we found the very best components on the market and worked closely with our suppliers, who we consider technology partners.

“This policy continued when we decided to switch from DC to AC for two reasons. From our existing extruders, we learnt that most of the maintenance was in the motors and the belts. But we also wanted to improve the overall efficiency of the complete drive assembly – motor, belts, couplings and gearbox. By switching to direct AC drive, a lot of this could be eliminated,” he says.

To keep the motor / gearbox assembly as compact as



## KEY BENEFITS

- IMPROVED EFFICIENCY BY 10%
- MAJOR MAINTENANCE SAVINGS
- DRAMATIC CUT IN PRODUCTION NOISE
- LOW ENERGY COSTS



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possible, Govaerts Recycling opted for an original concept, whereby four 37kW water-cooled AC motors are all direct-connected to the shaft of the gearbox, effectively giving total power of 148kW, but with a total size only 25% of before, eliminating drive belts and improving overall efficiency by 10%!

This new assembly is completely maintenance

free, with no belts or couplings to fail, no air filters, no lubrication required and, what's more, completely safe, so no protection covers are required, cutting build costs.

"Perhaps most surprising," adds Eddy Govaerts, "is how quiet it is. At full power, the noise is only 40dba, about the same as a domestic dishwasher!"

The line's PLC monitors the motor and water temperature as well as vibration levels.

Each extruder has a nominal power of 148kW. In order to provide a facility for the high level of overload generally required on extruders, each line has two Control Techniques modular, heavy duty 110kW Unidrive SPMA AC drives. Every drive feeds two motors.

The units that make up the SPM range can be used to implement most types of system. The separation of the power circuit into rectifier and drive stages enables elegant and compact active input configurations to be implemented. The modular nature of the power circuit allows drive systems to be constructed in non-standard enclosures. The range is part of the Unidrive SP 'solutions platform' AC variable speed drive range that spans 0.75kW right up to 1.9MW. It is configurable into five operating modes – open and closed loop, vector, servo and regenerating modes. With a range of plug-in module options, its on-board PLC can be supplemented with programmable and specialist feedback and communication modules.

Eddy Govaerts likes the Unidrive SPMA solution because he only needs to keep one small module in stock, in case of failure, and not a much more costly 220kW drive. The drive

has an LCD keypad for clear text information and incorporates a plug-in SM-Profibus network card for dialogue with the Beckhoff PLC. A large braking resistor is mounted on the top of the cabinet in the event of emergency braking. The Safe Torque Off function is used to give absolute security for maintenance personnel. All of the drives are mounted into specially sealed marine containers that are air conditioned.

"Each component in the machine is selected for round the clock service," says Eddy Govaerts. "You can't buy a machine like this from an OEM because they build down to a cost. By contrast, we have designed the machine to give the lowest Total Life Cycle Cost – long life, low downtime, low maintenance and low energy.

"That's why we select the very best components with the very best value/price ratio. At Govaerts Recycling our philosophy is; high quality, quick response, fast deliveries and excellent service. We select only those suppliers who have the same qualities – and that's why we have partnered with Control Techniques. We like that they have the power and resources of a large worldwide group with the spirit and service (through their Drive Centres) of a small family company – and that's what I like!" concludes Eddy Govaerts. Govaerts Recycling, started in 1994, makes a wide range of planks, boards, plates and massive profiles. Its products are economic, environmentally-friendly, robust, safe, maintenance-free and extremely durable. They are used in hundreds of applications as street furniture, park benches, stable flooring and decking for terraces and around pools and spas.



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