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The European magazine of Leroy-Somer

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Recycling now available for electrical and electronic equipment (EEE)

Last year, the European Union introduced legislation on the disposal of electrical and electronic equipment (EEE). The objective is to ensure maximum recycling, and optimum processing of any waste that cannot be recycled. The obligations of companies producing or distributing EEE are fairly clear. But what are the responsibilities of companies using EEE?

The response of the European Commission is very simple: there is no specific legislation on this matter in Europe. Companies, like households, are encouraged to practise selective sorting, and to manage discarded electrical and electronic equipment as responsible citizens, by being aware of the need to preserve the planet and its resources for future generations.

"Companies should refer to the legislation in force in their own specific countries," advises the European Commission on the Environment. "In the European Directive, the only point legislated on is the obligation of users to finance the cost of collecting EEE purchased before 13 August 2005, if this equipment is not collected by the vendor when replaced by an equivalent appliance."

One-to-one, and nothing for the bin

From 13 August 2005, distributors must agree to take back a used appliance when a new product of the same type is purchased. Producers must mark all their new products with the symbol of a crossed-out bin so that future users know that they cannot be thrown away alongside other waste. They are also responsible for collecting used EEE in proportion to their respective market share, by joining a collection organisation or setting up their own system.

What are the options for your discarded EEE?

If your EEE is not taken back by the vendor at the time of replacing with a new model (the principle of one-to-one), you have two possible options: contact a specialist company to collect your used electrical and electronic

equipment (see below), or give it a second life by offering it to a school, charity or social economy enterprise that will recondition it and offer it to new potential users.

Your partners in managing waste EEE

Various selective collection companies and organisations have been set up throughout the different countries of the European Union over the last few years. Some thirty references,

Europe. Set up in 2002, its mission is to facilitate the collection of EEE throughout Europe.

Why introduce legislation on waste EEE?

Electrical and electronic components are used in a vast range of increasingly common-place equipment that is being replaced with ever greater frequency. In 1998, the countries of the European Union produced 6 million tonnes of



classified by country, appear on the WEEE Forum site (www.weee-forum.org). The WEEE Forum is a non-profit-making association, that brings together various organisations actively engaged in the collection of waste EEE in

waste electrical and electronic equipment, i.e. 4% of the total volume of waste generated. And experts are predicting an increase of at least 3 to 5% a year, three times greater than the average increase for all categories of

waste. Each inhabitant of the European Union produces between 17 and 20 kg of waste EEE a year.

EEE contains different materials and substances, some of which are dangerous and must be treated appropriately before incineration or disposal. These are mainly heavy metals (mercury, lead, cadmium and

What happens to recycled EEE?

The EEE collected is disassembled by hand. Components containing harmful products are processed in specialist facilities. The purified casings are ground up, and the different materials separated.

Metals never lose their inherent qualities and can be recycled an infinite number of times.



chromium), halogenated substances such as chlorofluorocarbons (CFC), PCBs, PVC, bromine-based flame retardants, asbestos and arsenic.

Currently, more than 90% of discarded EEE is disposed of in landfill sites, incinerated or recuperated without any form of prior treatment, creating considerable risks in terms of air, soil and water pollution.



This symbol reminds users that the appliance they own must be dealt with in a specific way. Producers of EEE must mark it on all electrical and electronic equipment placed on the market after 13 August 2005.

Ferrous metals are reused in the production of new metal products, such as car bodies or containers. Non-ferrous metals are melted down and refined to produce new cables or electronic components.

The glass in screens is reduced to fine particles and reused in the manufacture of cathode ray tubes.

Plastics are reduced to fine particles, then cleaned and dried. Polyethylene, polypropylene and polystyrene are then transformed into granules, recoloured and reused in the furniture manufacturing and automotive industries.

The history of WEEE and RoHS

In order to manage pollution problems caused by discarded electrical and electronic equipment, the European Union has adopted two directives. The WEEE directive (Waste Electrical and Electronic Equipment) aims to reduce the amount of EEE incinerated or placed in landfill sites, by promoting reuse and recycling. The RoHS directive (Reduction of Hazardous Substances) aims to reduce the use of dangerous substances in the design of EEE in order to limit the risk of end-of-life pollution.

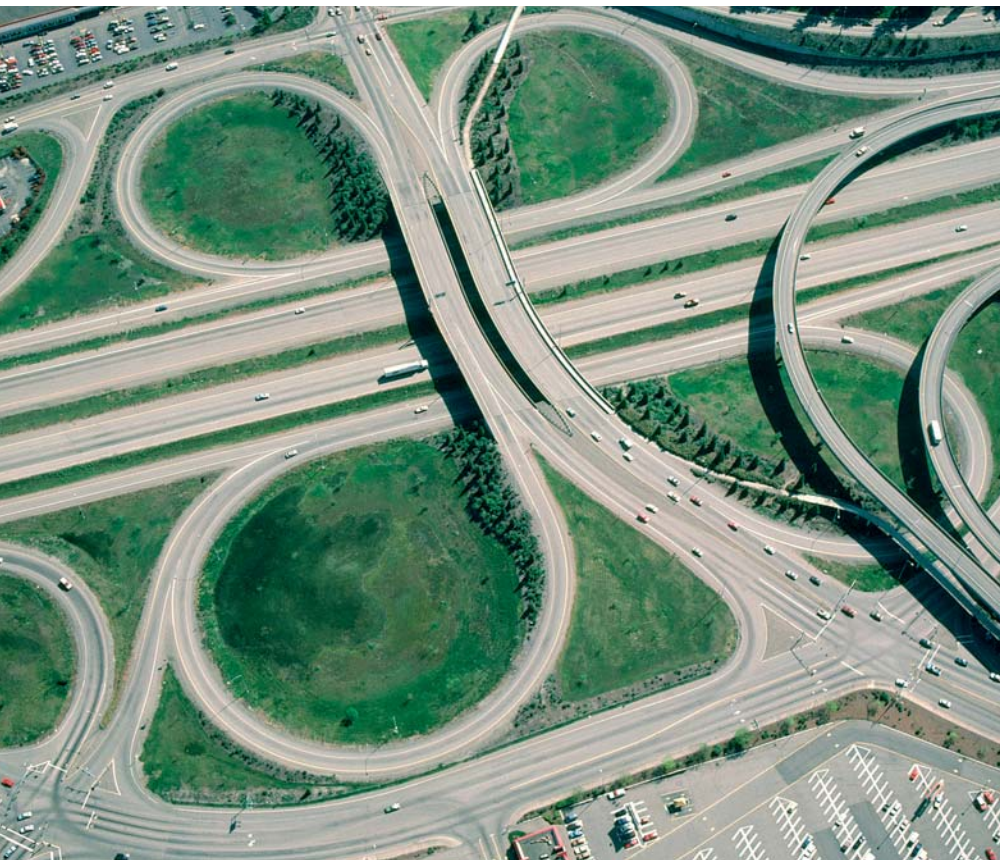
Both directives came into force on 13 February 2003, with transposition into national legislation of member states taking place on 13 August 2004. Member states then had one year (until 13 August 2005) to set up a system of free collection for waste EEE and to arrange its financing by producers. By 31 December 2006, each member state must have attained a selective collection rate of 4 kg of waste EEE per person per year.

Sources and useful links

- <http://europa.eu.int/scadplus/leg>, a section of the European Commission's site, providing a summary of all European legislation in simple and accessible language. Select the heading Environment / Waste management / Waste electrical and electronic equipment, in the language of your choice.
- www.weee-forum.org, the site of the association of waste EEE collection systems in Europe.
- www.recupel.be, for comprehensive information on the life cycle of products, the different treatment options available, and the "second life" possibilities for each type of appliance.
- www.orgalime.org, the site of the European Engineering Industries Association representing the interests of the mechanical, electrical, electronic and metalworking industries.

Drive systems powered by electromagnetic induction

TCI-Engineering has developed an assembly truck for the Liebherr factory in Bulle (Switzerland) using the very latest technologies. With the precision of a Swiss watchmaker and in close collaboration with Liebherr and Leroy-Somer, the company has created a veritable "marvel" that supports and transports diesel engines under assembly.



The trucks designed by TCI-Engineering are the result of close collaboration with Leroy-Somer in the choice of drive technology, dimensioning and installation of the motors, facilitated through use of the CONFIGURATOR to rapidly import 3D drawings of the different drive systems. Fine-tuning of prototypes, and testing and validation of the solution were also carried out on a collaborative basis.

The 20 trucks are currently active in the Bulle plant and every day the completed diesel engines leave the assembly lines to be fitted on hydraulic shovels, mobile cranes and other Liebherr construction machinery used on civil engineering sites throughout Europe.

In order to manufacture this truck, it was necessary to comply with certain requirements expressed by the end customer: the brief was to provide independent and cable-free mobility in a relatively small space for 1700 kg engines under assembly.

TCI-Engineering installed a contact-free electrical power supply, provided by the company Wampfler, which is based on the principle of electromagnetic induction. The voltage supplied by the induction receiver is 560 Volts DC.

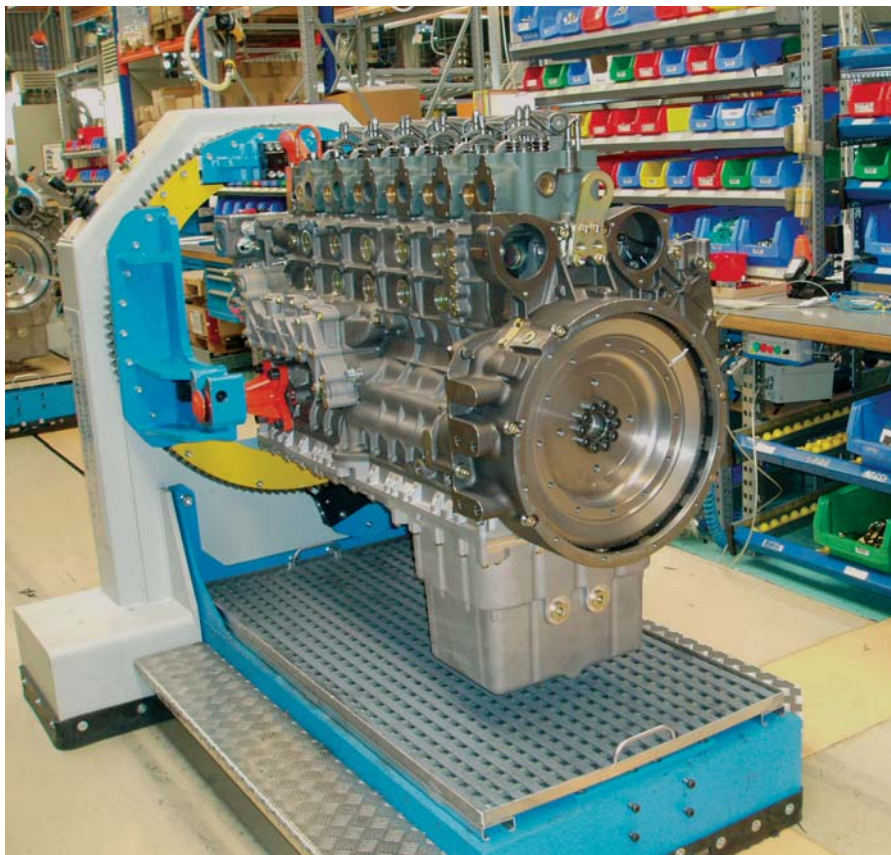
How is it possible to operate an assembly line using a 560 VDC current while conserving all the advantages of asynchronous motors? This

is the question that Leroy-Somer's engineers were faced with. As Christian Ruffier, the Project Manager at TCI-Engineering, explains: "Leroy-Somer was the only supplier to give us a fast, simple and cost-effective answer to this problem by suggesting a direct 560 VDC supply to the frequency inverters and use of the existing 24 V output to supply the control components, thus greatly facilitating the development of the entire production unit".

Leroy-Somer supplied two drive systems for each truck: one for traction, the other for rotation of the diesel engine under assembly. Each system is connected to a frequency inverter (Proxidrive for the traction motor, and Varmeca for the rotation motor).



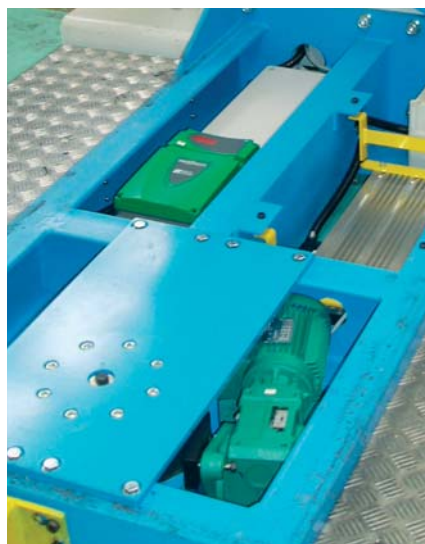
TCI-Engineering, innovation and pragmatism



The Swiss company TCI-Engineering has been developing "special machinery" since 1984.

It is active in many different sectors, ranging from automotive assembly to the food industry, to the medical and pharmaceutical sectors. The company's machines can be fitted with robots capable of handling loads from 1 to 500 kg. Areas of expertise include design, construction, assembly and maintenance

of its machinery, allowing the company to offer a customised high-quality service, or to manage the entire process, from the feasibility study to the after-sales service. Each machine is the result of a pragmatic approach, based not only on areas of expertise within the company but also on those of its suppliers.



Liebherr, a market leader in Public works machinery manufacture



Founded in 1949, the Liebherr Group is a leading manufacturer of construction machinery, specialising in the public works and civil engineering sector. It employs almost 22,000 people in 100 sites around the world. In order to ensure that its products are of the highest possible quality, the Liebherr Group has acquired expertise in key technologies and manufactures large sub-units in-house. The Bulle plant in Switzerland produces high-performance diesel engines and drive system and control components for machinery manufactured by the Liebherr Group.



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Innovations and perspectives in intralogistics

Quality and cutting-edge technology 'Made by Hanel'

As one of the world's leading suppliers of dynamic storage systems, Hanel has specialized in vertical carousels and vertical lift modules.

The Hanel microprocessor control systems with integrated inventory management provide an overview of all the important storage data such as parts inventory, minimum inventory levels and storage location. The storage systems can be integrated quickly into a logistics concept thanks to their high networking capability.

The experienced Hanel engineers develop the optimum combination of hardware and software that fits the customer's requirements perfectly and can be expanded without difficulty!

Hanel Lean-Lift – optimal storage rationalization and goods protection in one

The Hanel Lean-Lift stores parts by a height-optimized system that ensures there is no wastage of space. This means that maximum storage capacity can be achieved on a minimal footprint.

The Hanel Lean-Lift is both storage rationalization and goods protection in one: at the center of the 'cabinet' is a computerized positioning elevator – called the 'extractor'. In front of it and behind it are the storage shelves. This is where the articles are stored in containers.

The storage locations are accessed under automated electronic control by the extractor. It stores or retrieves the requested container. The system is operated comfortably at the optimum ergonomic height in the retrieval zone.

The pluses

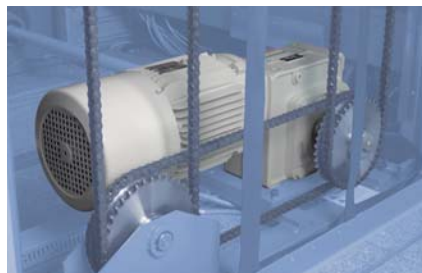
- More than 60% more storage capacity!
- Optimum utilization of storage volume thanks to height-optimized storage!



- Fast storage and retrieval times!
- Protection of the storage articles!
- Storage and handling of bulky and heavy parts!
- Load-carrying capacity per container up to 1,000 kg!
- Load-carrying capacity per Lean-Lift up to 60,000 kg (statics tested)!
- The principle is goods to man instead of man to goods: this saves time at the workplace!
- High cost-efficiency and cost savings!

Hanel's new generation of Lean-Lifts in high-speed version

In cooperation with Leroy-Somer, Hanel has developed high-performance drive systems for the new generation of Lean-Lifts in their



high-speed design.

For the vertical travel the high-speed Hanel Lean-Lift has drive motors with an output of 4–6kW, and for the horizontal travel, motors with an output of 0.37– 0.75kW. With the optimization of these drive systems, it was

possible to increase the drive speeds by up to 300%.

Lean-Lifts with a container load of up to 500kg can reach the following drive speeds:

Vertical speed:

with empty extractor 2.3m/sec,
with loaded extractor 1.0m/sec!

Horizontal speed:

jolt-free 0.5m/sec!

In addition, each Hanel Lean-Lift is equipped with a soft-start control with frequency converter.

Ideas that move the world . . .

For further information:



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ZF SUPPLY customised gearbox to keep flight simulation on schedule at Loughborough University

ZF Industrial has supplied a custom Graessner gearbox for testing apparatus used to simulate airflow through new engine components to the Rolls Royce sponsored Aeronautical Research Unit at Loughborough University. In order to drive the test rig compressor system and provide the correct results, the replacement gearbox needed to produce output speeds of 5,000rpm. As the original gearbox was no longer manufactured, ZF supplied a PowerGear unit with a custom lubrication system as a drop-in replacement, which offered high performance operation and extended wear life.

In continued efforts to reduce emissions and fuel consumption from modern aeroplanes, Rolls Royce Aerospace sponsor the Aeronautical Research Unit at Loughborough University. To improve the performance of the combustor units in gas turbine engines, Bill Rasmussen and his team operate a test rig which simulates airflow over and through new component designs. By artificially recreating engine conditions, cooling, quality of airflow, the efficiency of air/fuel mixing can be monitored and the results used to develop higher performance engines.

The test rig itself consists of compressor disk assembly driven by Leroy-Somer 81kW LSK motor and 4:1 ratio gearbox operating through 90°. To test engine hardware such as fuel injectors and diffusers, the rig requires input speeds of 5,000rpm to the compressor system in order to create an accurate simulation of airflow through a jet engine. 'We were previously relying on a bevel gearbox from another manufacturer

for the application, which had begun to run hot due to oil starvation' explains Mr Rasmussen. 'When we made initial enquires, we were informed that the unit had been discontinued, we then had difficulty finding a suitable replacement until we contacted ZF, whose range of gearboxes promised the high levels performance required as well as direct compatibility'.

David Morgan, the ZF sales engineer in charge of the project, recommended a P240H Graessner PowerGear unit fitted with a bespoke oil feed system as the optimum solution. 'The Graessner unit acted as a drop-in replacement and provided the high speeds and levels of accuracy required to drive the compressor blades and produce the precise airflow needed for accurate results. The forced through oil lubrication system keeps the gearbox cool despite the high output speeds while contributing to a longer wear life'.

Options available include 2, 3 and 4 way shaft configurations and gear ratios ranging from 1:1 to 5:1. With Gleason bevel gearing providing high levels of efficiency (98%), and a parameter optimised gear tooth contact pattern that promotes uniform load distribution, the units are able to offer high levels of torque (up to 7,800Nm) compared to their diminutive size.

The PowerGear gearboxes are backed-up by the resources of one of the most respected manufacturers of driveline technology in the world. ZF Industrial is part of the worldwide ZF Group of companies with production centres, partners and representatives on every continent. In the industrial sector, ZF is at the forefront of developments, from individual units to complete systems solutions for all types of machinery and production units, including those used in robotic systems and the factory automation sector.



'Originally designed for compact machine tool applications, the PowerGear unit occupied minimal space in the small cellar room where the test rig drive assembly is situated, allowing for simple fitting and easier maintenance. The housing and flanges of the PowerGear units are made of spheroidal graphite iron for maximum rigidity and the use of high quality taper roller bearings allows a high axial and radial load capacity, making them ideal for the test rig applications.'

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BAA Gatwick Airport has selected the Proxidrive range of inverters manufactured by Leroy-Somer

BAA Gatwick Airport is the busiest single-runway airport in the world and the second largest airport in the UK. Welcoming over 32 Million passengers a year, Gatwick is set to continue to grow and a reliable baggage operation is vital to its success.

The departures baggage system in Gatwick South Terminal is a conventional conveyor system installed in 1997/8. Last year the system of 530 conveyors handled around 8.5 million bags.

With increasing numbers of passengers travelling and airlines requiring efficient and timely aircraft turn round times prompt delivery of baggage is essential. Any delay can have serious consequences to the flight schedules and passenger perception of the whole airport experience.

Therefore unplanned stoppages or breakdowns of the system are not acceptable and BAA Gatwick decided to replace 450 inverters with a reliable alternative.

In looking for a suitable replacement the search criteria was set at – high reliability, maintenance free, simple to configure, and cost effective.

Working in partnership with BAA Gatwick Airport's motor supplier, TA Boxall and Leroy Somer, the Proxidrive inverter was trialed on site and met these criteria.



Subsequently an order for 450 units was placed and a phased installation commenced in November 2005 to be completed in time for the summer season in 2006.

The installation of the inverters is being carried out by the baggage maintenance team at BAA Gatwick Airport. This allows flexibility in the programme and minimises disruption to the operation of the baggage system, while having the additional benefit of developing the skills of the technician teams and developing their product knowledge.

Ken Goldsmith
Baggage Maintenance Planner
BAA Gatwick

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SOMER**

www.leroy-somer.co.uk

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electronic

shaft mount

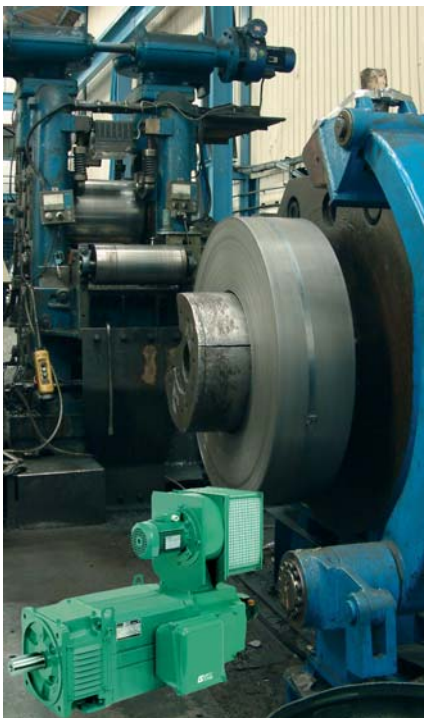
geared motor

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Drive system upgrade from WYKO delivers a five fold increase in production for cold rolling steel mill

WYKO has supplied a complete control solution to Graham Perry Steels Ltd. delivering an increase in production of rolled steel from 80ft to 300ft per minute on a Schmitz cold rolling mill. Two control cabinets were designed and populated by WYKO to replace outdated DC control systems. One is employed to control a 110kW motor driving the main work rolls of the press and the other governs the winding on system. WYKO also supplied an 80kW motor off the shelf for the winding-on process that produces 5 tonne reels of rolled steel ready for distribution.



The original system at Graham Perry Steels Ltd. Wolverhampton site was based on two functioning, but obsolete, resistor based DC drives that were becoming time consuming and expensive to maintain. The first was used to drive a 110kW motor powering the main rolling mill through a right angle reducer gearbox and a two-way splitter box. A second DC drive controlled a 80kW motor used for the winding-on assembly that recoils the rolled steel coming out of the press into 5 tonne 25" diameter reels, ready for dispatching. This second motor was failing and needed to be replaced along with the drives so a request had been submitted to the nearby Tipton branch of WYKO to quote for the supply of new units.

Initial analysis had shown the control system as a whole was operating at less than 50% capacity, making complete replacement the optimum solution when maintenance time and projected increases in output were considered. As a result, Roger Evans and Victor Harris both WYKO drives and motors specialists were called upon by the branch to design a completely new control system. Sprint Electric PLX drives were selected to be fitted into two new control panels and a new 80kW Leroy-Somer DC motor specified.

Vic Harris explains that 'the complete system was designed, delivered, installed and commissioned within the Christmas shutdown week. This was no mean feat considering that the drives specification required close work with Sprint Electric, motor selection by us and Leroy-Somer, tacho generator upgrades by the WYKO servo team, custom panels to be designed and built, with final commissioning to be done by our staff here at WYKO Aintree'.

The final cost of the upgrade was under £30,000 and has increased the control and power to the press to such a degree that it has made it possible to increase the steel throughput from 80ft min to a rate of 300ft per minute. The result is a 500% increase in production. After some scheduled service work has been completed on the main splitter gearbox, the Schmitz mill is expected to run safely up to 1,000ft per minute. This is an impressive increase when you consider the rolling press can exert a million tonnes of pressure to reduce 8mm thick high carbon steel to 2mm thick strip. The resultant steel strip is used for applications in a broad range of industries from automotive to white goods.

Overall speed control has been kept simple for ease of use, a manual speed change offers ten pre-set speed levels and the power ramp-up and synchronisation is done automatically. The new 80kW Leroy-Somer motor fitted to the on-wind recoiling system is driven in torque mode at 5% above the speed mode of the main mill, offering simpler, more economic and reliable operation than the old fluid coupling based limiter. Wyko also designed the cabinets as two identical main panels, with a central panel being used for attaching the main power cables into the system to facilitate initial installation by the Graham Perry electrical engineers and power distribution to the DC drive panels.

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Classic car race around the ramparts of Angoulême

For the 28th time, the historic centre of Angoulême will rumble to life as dozens of exceptional cars escape the confines of their luxurious garages to race through its streets, showing the world what they are made of.



In what has now become a yearly tradition, enjoyed both by the inhabitants of Angoulême and classic car fans, the third weekend of September sees prestigious classic cars do battle in a series of races along the ancient ramparts of the town. The goal is one of pleasure only, as access to most of the site is free and the winding track is a driver's dream.

The 1279 metres of the course include two bends, two right-hand turns and three hairpin bends. There is also a long straight section in which the fastest classic cars can reach 110 mph.

Times may have changed, but the spirit of the show with its showcase of classic models has remained the same, attracting hundreds of cars and a handful of great names to perform on this course since 1939: Wimille, Sommer,



Behra, Gordini, Trintignant and even Fangio, at the wheel of marvellous mechanical machines with evocative names such as Maserati, Bugatti, MG, Austin and Bentley.

Elegance, prestige and dreams

A whole series of events are organised around the Sunday races for the delight of both knowledgeable fans and spectators in search of a little piece of nostalgia. On the Friday evening, in the green setting of the Jardin vert, thirty vehicles parade for the Prix de l'élégance. Drivers and passengers in period costume compete with great flair and imagination to set off their car to best advantage and wow the jury.

On Saturday morning, 150 teams will set off on the Rallye international touristique, a drive of some 125 miles through the local country-

side, which can only be described as poetry in motion...

On Saturday afternoon, the elite of the most authentically restored and best preserved cars line up on the lawns of the town hall to take part in the Concours d'Etat. A prestigious must-see display for fans interested in fine detail and historical accuracy.

*"Whether they are popular or prestigious, used as working or racing vehicles, or whether they are 30 years old or 60, they have the powerful capacity to lift us above everyday life and to allow us to reminisce, smile and dream ..."**



Sources and useful links

* <http://www.circuit-des-remparts.com>, the official site for the event.

For fans who can't travel to the event, Le défi des remparts, the 50th Michel Vaillant cartoon album drawn by Jean Graton, provides an opportunity to enjoy the vistas and atmosphere of the race. (Graton Editeur, 1988)

Alimentary, my dear Watson

Because hygiene is of the utmost importance, the facilities for processing foods for human consumption must be impeccable! Cleanability, the absence of retention zones and smooth surfaces are all essential concerns of machine manufacturers and end users in the hygienic design of agri-food equipment.

Thanks to its long experience in this area, Leroy-Somer is now able to offer a series of solutions that are unique to the market, allowing this sector to benefit from appropriate products and services at a competitive price.



also encourage the risk of rapid corrosion.

Pressure exerted by end consumers and major finished product distributors has prompted manufacturers to find new solutions that guarantee increasingly safe hygiene standards.

Three solutions adapted to different operating environments

With several years' experience in applications for the agri-food industry, and after conducting "on the ground" surveys with maintenance, production and quality-control managers in the industry, Leroy-Somer can now offer the best solutions for the three "atmospheres" identified.

The first range is designed for **standard atmospheres**, as is the case, for example, in packaging or bottling areas. It consists of the Leroy-Somer "standard" ranges developed to operate in environments where machines are subject to splashing of liquids with no significant risk to drive systems and without additional humidity or impact constraints. They are also suitable for ATEX standard environments in applications such as distilling and flour processing.



Frequent cleaning operations and permanent humidity

Agri-food facilities are subject to frequent and prolonged cleaning operations – up to several hours a day in abattoirs for example – that are usually carried out under high pressure using relatively aggressive products. The drive systems currently available are standard motors protected by stainless steel housing

capable of resisting such treatment to a greater or lesser degree. This method does, however, present certain disadvantages, including the risk of bacteria proliferating beneath the housing itself.

The conditions under which drive systems operate, such as low temperatures and permanently humid operating atmospheres,

The second range has been developed for **aggressive environments**, and is based on the IA series which has been in existence since 1999. This range has been specially designed to operate in areas where machines are subject to frequent low-pressure cleaning using special detergents and disinfectants. Machine sealing has been improved and both the nameplate and screws are now made from stainless steel. Protection using stainless steel housing may still be necessary in some cases.

The geared motors in this range for aggressive environments may also be combined with a separate variable speed drive, such as the Proxidrive, that has been specifically designed to resist this type of environment (moss resistance, prevention of water retention zones in the design, etc.) or with an integrated drive such as the Varmeda.

The third range, intended for **highly aggressive environments**, has been designed on the basis of user feedback on the previous range. This new range is particularly suitable for high condensation environments subject to splashing of foods, in which the machines are frequently cleaned under high pressure using aggressive disinfectants and detergents.

A range unique to the market

In order to manufacture this new product range, Leroy-Somer has developed a geared motor that is unique to the market. Made out of cast iron, it offers better resistance than Alpax to chemical damage and high-pressure cleaning. Before being painted, the cast iron parts are treated for corrosion, giving them excellent resistance to the most aggressive environments (600 hours in saline mist!). This anti-corrosion protection under EPOXY paint also strengthens the degree of impact resistance. In order to validate this new offer, Leroy-Somer has set up a battery of tests, known as KP tests, that fully confirm the exceptional performance of this new range.

Many other improvements have also been introduced; for example, the elimination of retention zones and the relocation of nameplates to less sensitive areas such as the cover of the motor terminal box, where the risk of bacterial growth is lower.

The fan in the motor, a component susceptible to the development of bacteria, has been removed, and the motor dimensioned electrically to promote operation with a frequency inverter over a wider speed range at constant torque.

In the gearboxes, special attention has been paid to the Multibloc which represents the largest market share. This has been fitted with a protective cartridge that improves sealing around the hollow stainless steel shaft and guarantees corrosion protection of the coupling with the client shaft.

Truly unique to the market, this range dispenses with the need for housing and targets the different needs of the agri-food market while continuing to be fully competitive in terms of cost.

And not forgetting truly local service

In order to ensure optimum operation of its drive systems, Leroy-Somer has developed a dedicated service for the agri-food industry, known as Agroservice. It is provided by a network of partners who offer a local service, from assistance with selecting the most appropriate drive to 24/7 breakdown cover, as well as regular monitoring of installations and their performance. An essential high-quality service now offered as standard with the product range.



The 3000 range: A new generation of geared motors



For many years now, Leroy-Somer has offered a variety of solutions for adapting the speed and torque of electric motors to those of driven machines. Thanks to feedback from machine manufacturers and end users, the best known and most widely used types of geared motor have been completely updated: Compabloc (aligned shafts), Manubloc (parallel shafts) and Orthobloc (perpendicular shafts). The new 3000 range of geared motors is a user-focused solution harnessing Leroy-Somer's expertise to provide better performance, ruggedness and adaptability.

A range offering multiple advantages

Performance

Leroy-Somer has achieved a real feat by significantly improving the performance of its new gearboxes while retaining their compact dimensions. This means that gearboxes in the new 3000 range can deploy up to 30% more torque than gearboxes in the previous generation.

Sealing

Radical redesign has resulted in a gearbox that is more resistant, more flexible to operate and less likely to suffer from sealing problems in the long term, with monobloc housing, access cover with gasket, independent seal on the output flange side, etc.

Long service life

The "monobloc" design, with its more rugged housing, also offers better resistance to external stresses, even in the most demanding applications. Through the use of CAD modelling and specific calculation software, the overall resistance of the gearboxes and their capacity to withstand radial forces have been improved.

Compactness and design

For given output characteristics, the 3000 range is more compact, which means that in certain cases the space required for installation or integration in a specific application can be reduced. The design of the product has also

been enhanced to facilitate integration into client machines.

Modularity

For many years now, Leroy-Somer has been developing motors, gearboxes and variable speed drives that can function together from the very outset and form reliable and powerful drive systems. Such an advantage is rarely equalled in a market characterised by the offerings of numerous separate manufacturers.

The three gearboxes in the 3000 range are fully interchangeable. Leroy-Somer has thus expanded the number of geared motor combinations possible and further widened its integrated system offer, enabling it to meet the needs of its customers as closely as possible.

Service and local support

By reducing the number of components necessary in the complete system (motor-gearbox-electronics) at the final assembly stage, Leroy-Somer simplifies the work of its partners as they work locally with the end customer to short-lead times, resulting in better response times and greater efficiency.

Service and integration

The components for mounting the equipment onto the customer's application, and flanges in particular, have been standardised and can be installed directly, allowing easier final assembly by the machine or process manufacturer.

From the standard range to the customised gearbox

It is no longer enough for a manufacturer of drive systems such as Leroy-Somer to focus solely on the provision of standard geared motors to customers. It must also understand the nature of the customer's business, any constraints they are subject to, the operating environment, and be capable of offering them customised solutions.

This is why Leroy-Somer has made the 3000 range available in derived ranges that meet specific needs in terms of functionality, environments or particular standards. VARMECA motors, for example, integrate a variable speed drive as part of the original design. In other cases, the entire geared motor is adapted for use in particularly aggressive environments, for example in the agri-foods industry, or is capable of operating in explosive atmospheres (ATEX certification).

At the request of some customers, Leroy-Somer has also developed other powerful and reliable solutions, adapted to very specific technical requirements. This development work, which results in systems that are customised both in terms of technical specification and cost, is carried out in close collaboration with customer engineering offices.



Examples of application areas

Quarrying

Quarrying activity results in machines being subject to extremely tough constraints in terms of dust, humidity and impact. For this type of environment, Leroy-Somer offers a brake motor system with anti-corrosion protection, connected to a gearbox from the standard Orthobloc 3000 range. The Leroy-Somer "quarry charter" guarantees the best delivery times for a wide selection of products.

Lifting, handling and cranes

The systems that are used on travelling cranes in particular require compact motor equipment integrating different speed functions. For this type of application, Leroy-Somer offers among other solutions a standard motor connected to a Manubloc 3000 gearbox and fitted with a Varmeca drive.

Agri-foods industry

Geared motors installed in agri-food units are subject to aggressive operating conditions (frequent cleaning, risk of corrosion, etc.) and must comply with increasingly stringent hygiene constraints. In order to meet these requirements, Leroy-Somer has designed new products derived from the 3000 range that are particularly suited to this type of industry (see article on the agri-food industry).

Explosive atmospheres

Each component of a drive system must be ATEX-certified if it is to be used in a potentially explosive atmosphere. In addition, and perhaps more importantly, the entire motor-gearbox-electronics assembly must have ATEX certification. All systems containing components from the 3000 range obviously comply with this obligation.

Pumping applications

Slow speed pumps used to transport fluids must be driven by compact systems that also integrate various speed control functions. A standard motor connected to a Compabloc 3000 gearbox and fitted with a Varmeca drive corresponds perfectly to these requirements.

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