LS NEWS

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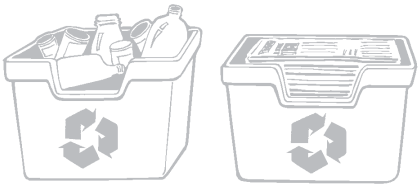
Waste + incineration = good value!



From households or businesses, our so-called "consumer" society is producing more and more waste! Nowadays, we can no longer simply dump this waste as it not only constitutes enormous waste in itself, but also causes many economic and ecological problems. In fact, waste also represents incredible sources of energy and raw materials that can be exploited, converted and recycled.

Incineration is a good example of conversion, provided that substances emitted into the atmosphere are strictly controlled.

The amount of waste incinerated

According to the Organisation for Economic Cooperation and Development (OECD), every European consumer was producing around 520kg of municipal waste per year in 1998.

This average varies from 370kg per inhabitant per year in Greece to around 600kg in Austria and with the exception of Germany it is increasing throughout Europe.

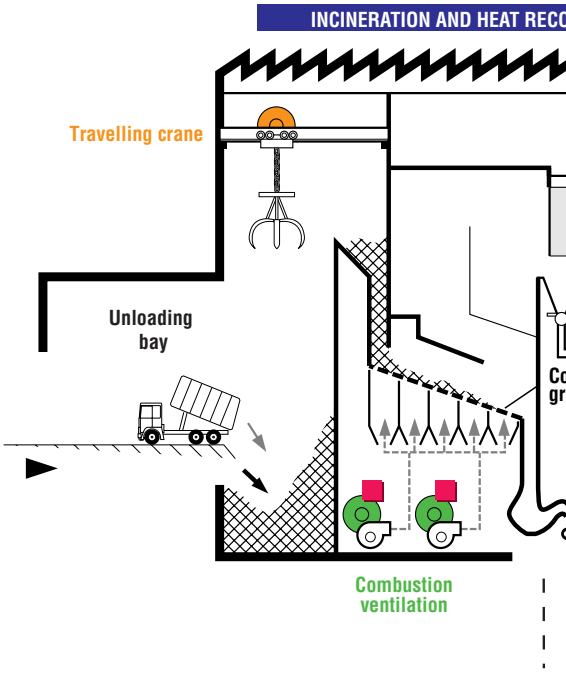
On a European scale, this amounts to some 2 billion tonnes of household waste being processed (60% to the tip, 25% incinerated and 8% recycled).

The proportion incinerated in waste processing systems varies considerably from one country to another. Incineration is principally used in Switzerland, Denmark and Luxembourg and is the second most used method of waste processing in the majority of European countries.

Converting energy

The majority of incineration plants convert the energy released by furnaces. Gases have to be kept at a minimum temperature of 850°C for at least 2 seconds. The heat this produces is then recovered via a steam boiler that supplies a turbo-generator and converts it into electricity. Not only do the plants thereby cover their own electricity requirements, but also they are able to sell on the surplus, which is generally several tens of millions of kWh, directly to the electricity distributor.

In some cases, the incineration plant can allow the steam to be used to heat industrial and residential premises (co-generation).



Converting materials

Residues from incineration referred to as clinkers represent approximately 30% of the initial weight of the waste. After various successive screenings, the metal parts are extracted for recycling by specialist companies and the mineral residue is gradually refined. The clinkers are then sent to

processing centres where they are analysed and crushed before starting a new life, as backfill materials for example.

Smoke treatment

Waste incineration causes pollutants to be emitted into the atmosphere. Before being discharged, smoke is treated in various ways, including being passed into electrostatic precipitators, which remove up to 98% of the dust.

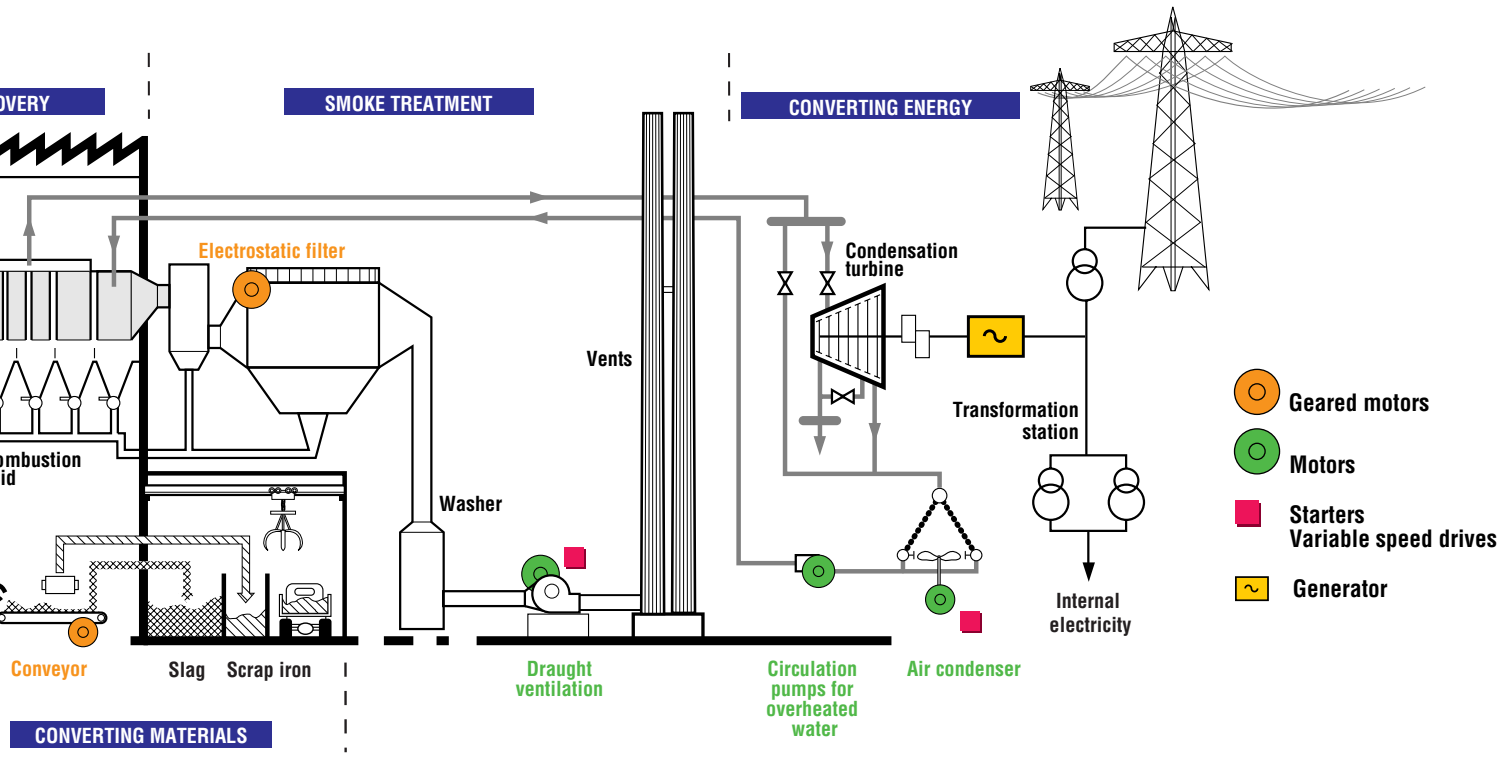
For ten years or so this waste has been subject to increasingly stringent regulations. EU Directive 2000/76/CE on the incineration of household and hazardous waste will further strengthen this battery of legislation.
From 28 December 2005, all existing processing plants in Europe will have to comply with new critical thresholds for disposing of pollutants (heavy metals, nitrogen oxide, sulphur dioxide, dioxins, etc.).

A global supply

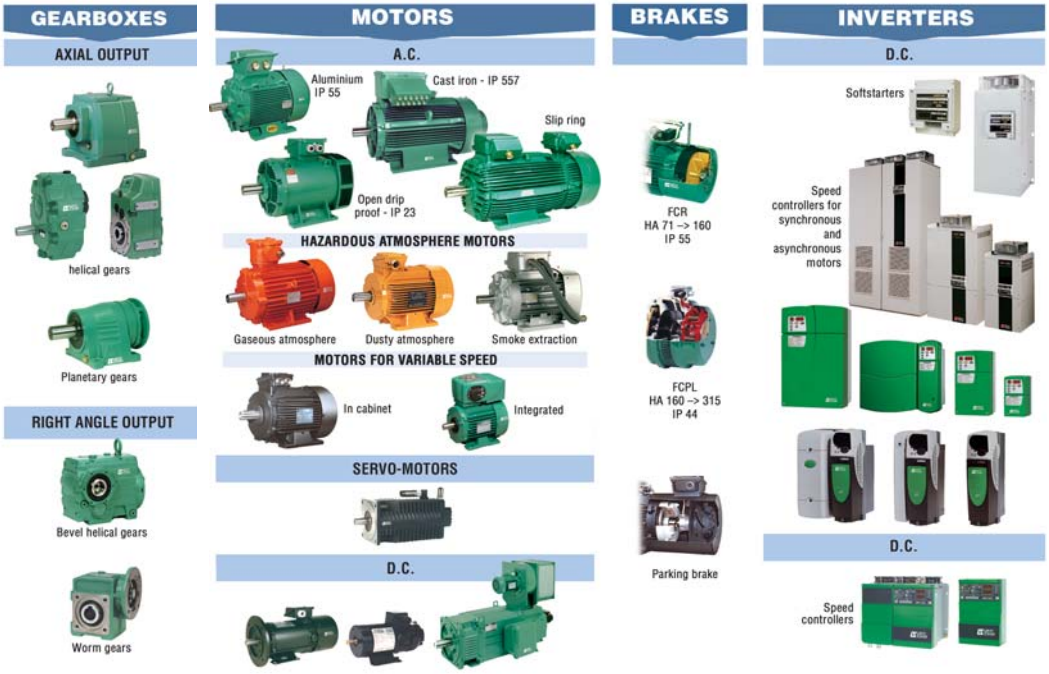
At each stage of the incineration process, there are Leroy-Somer products that directly meet the needs of OEMs. The ranges of motors, geared motors, variable speed drives and alternators are fully adapted to the often severe conditions of use of this waste processing sector. The use of variable speed for exhaust fans, for example, means that variations in work load or differences in combustion power can today be optimised according to the type of waste.

Continuously changing technology and the application of a restrictive legislative framework each day make the incineration system more efficient and less polluting.

For further information on the European Directive, see web site:
http://europa.eu.int/comm/environment/wasteinc/index.htm



Special motors: an expert's job



The manufacture of standardised electric motors is an important core activity for Leroy-Somer. Leroy-Somer has nonetheless become an essential player in designing and producing special motors adapted to the modern requirements of worldwide industrial markets.

With over 80 years of experience, the company is the only supplier on the market today mastering all the functions associated with driving a machine.

Interview with Jean-Michel Lerouge, Director of Communications at Leroy-Somer.

How has Leroy-Somer become the main manufacturer of standardised electric motors in Europe?

The company was set up in 1919 and Leroy-Somer's first electric motor was manufactured in 1924. But mass production actually got going in 1958. Production workshops were set up for each product line. In less than fifteen years Leroy-Somer were developing incomparable know-how in the basic techniques (foundry, winding, cutting, machining, gear trimming, etc.) and became the world leader in their field.

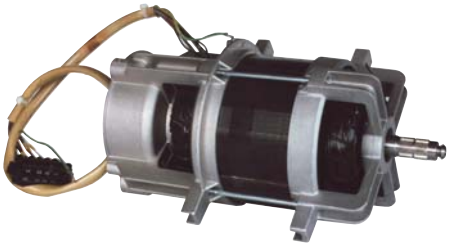
The company rapidly emerged as a manufacturer of complete drive systems, specialising not only in the manufacture of electric motors, but also in the different functions associated with drive systems (starters, brakes, reduction gears, etc.).

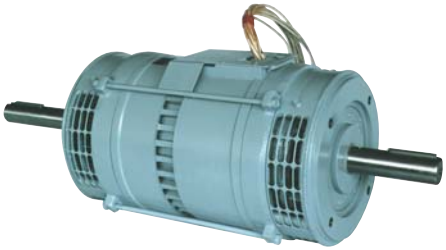
Why did the company move towards the production of special motors in the 1970s?

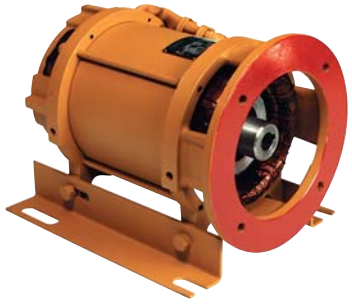
Several factors should be taken into account. First of all, the machines used in industry were becoming increasingly complex. They always had to be more reliable, faster and more precise. They also included new functions. Our market was then fragmenting. To continue to guarantee a machine's efficiency, we could no longer be content with providing our customers with a standard motor. We therefore had to be familiar with their field of operation, their constraints and their specific needs in order to offer them the ideal product for driving their machines. Experience acquired in the various industries we supplied became a valuable asset here.

The economic environment had also changed considerably. The concept of saving energy, for example, had become key. Finally, the many standards and regulations on health, safety and the environment had come to light. The end user's well-being and safety had rightly become fundamental concerns.

Faced with the general change in technical, economic and legislative demands, Leroy-Somer developed a wide range of solutions, which directly fulfilled the requirements of the different markets.







Later on, the electronics that would profoundly alter your product supply emerged, didn't they?

Indeed, but the electronics would not just encourage the design of electronic variable speed drives capable of accurately steering a machine's most complex movements. They would also open up new opportunities, and not just those affecting the motor's "environment" (automatic operation, tuning, supervision, self-diagnosis or communication between motors and/or machines) but also the intrinsic structure of the motors (variable reluctance, permanent magnet synchronous motors and rotors). Today, over 40% of our products operate with a variable speed drive.

What is meant exactly by adapted ranges today?

Today, our customers have two fundamental concerns: the environment in which their machines operate and the specific problems of their trade. And it's here that we can provide them with real added value. Driving a compressor or dock cranes does not have the same constraints as a quarry, an offshore platform or a car assembly line. This is why, based on our standard ranges (protected, closed, cast iron or aluminium motors), we have designed products that include the constraints of the working environment (humidity, corrosion, high temperature, explosive atmosphere), machine function (pumping, ventilation, compression, handling) and the major industrial processes (car, iron and steel, food processing and papermaking industries). We have been using the experience we have acquired over 80 years in the majority of industrial sectors to advise our customers and help them to make the best choice from the various possible options.

So there's real collaboration with the customer?

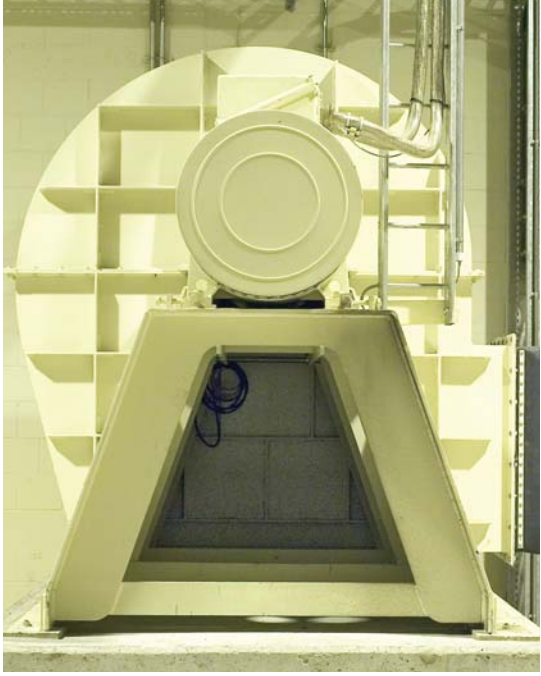
Yes, increasingly. The concern for innovation, the need for competitiveness and technical progress added to the constraints associated with the environment and current legislation often force companies to ask fundamental questions about their products. And it's here that we can provide real added value. With powerful methods of calculation, analysis and modelling, we are able to create hydraulic actuators customised for a particular application, in collaboration with the various customer services (design offices, purchasing department, marketing, etc.) based on a general operational analysis of the machine. For example, by combining an electronic variable speed drive and the technology of the HPM (Hybrid Permanent Magnet) motor to replace a conventional asynchronous motor and a pulley/belt drive.

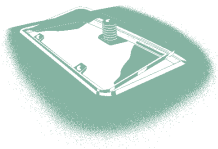
The various motor technologies, groups of geared motors, brakes, speed changers and the experience acquired in many industries are an incomparable set of solutions to the problems of driving machines. And if this were not enough, we are able to create new ones!! Finally, another advantage is the wealth of the range of Leroy-Somer products, which means that customers can have one contact for all the drive systems that are designed to run together. This approach is currently enjoying great success because it can generate significant reductions for our customers in the overall cost of their machine, improve their efficiency and provide the user with new functionalities.

Don't the design and manufacture of special or adapted motors cause problems as far as service and deadlines are concerned?

No, not particularly, because we have both efficient technical teams and modern production methods that are highly suited to the products we produce. We have also set up highly efficient logistics so that we can deliver our products to short deadlines. In fact, our deadline for manufacturing a special motor is no longer than that for a standard motor. It may even be shorter as part of a specific "contract deadline". And finally, we have 470 service sales outlets across the world listening to our customers.

Guardian, serving the car industry





With a sense of freedom and desire to improve visual comfort, glass roofs , tinted windows and liberated by continuing progress in glass roof technology, car designers are unveiling new concepts in car-bodies with glass surfaces to the public, becoming more intensive at each of the largest new exhibitions. Guardian Industries, which started out as a small, windscreen manufacturer in 1932, are supporting this development continuously and have become one of the hundred top suppliers today in the car industry.

Established in Detroit, Michigan, Guardian Industries are world leaders in the glass industry in general and in the supply of car accessories in particular.
The Guardian division factory for Europe is in Grevenmacher (Luxembourg) and employs 500 people. It specialises in manufacturing windscreens, side and rear windows for the original equipment.

Toughened glass is referred to as safety glass. When it breaks, it breaks instantaneously into a multitude of little pieces and involves little risk of cuts. Furthermore, toughened glass of equal thickness has mechanical and heat resistance four times greater than that of annealed glass.

After the various glass cutting stages, tempering consists of creating a thermal shock. The glass is heated beyond its softening point to a temperature of 700°C in horizontal furnaces. It is then taken into a glassblower where the two faces of the glass are cooled. Its temperature has to fall in 10 seconds from 700°C to 70°C. This treatment causes compression in the outer layers of the glass and tension in the inner layer, which increases its resistance.

Guardian has been using the Belgian firm, De Raedt, a leader in industrial fans working specifically in the glass industry, to install the glassblower's extractor fans. To control the cycle times of the process, De Raedt have been cooperating closely with Leroy-Somer, one of the few suppliers on the market able to provide a full range of high-powered drive systems, the various parts of which have been designed from the outset to run together.

Leroy-Somer, who have provided 400kW motors, associated variable speed drives and starters, has also been involved in getting facilities going at the Grevenmacher site.

With the experience accumulated by De Raedt and Leroy-Somer in the glass industry, car designers have even more exciting times ahead of them!

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Compact Power from New Range

Corby based PCM Pumps has announced the launch of their Compact Series Pump. The pumps, designed for low-pressure transfer duties in the food, beverage and pharmaceutical sectors offer a competitive performance/price ratio.

Seven models, each with a four-bar discharge pressure, complete the range. Ideally suited for IBC and tote tank emptying or for transferring liquids around manufacturing plants, the pumps feature fixed or variable speed drives as required and is particularly suited to handling highly viscous and abrasive products. Flow rates range from 1 1/hr for the smallest MR110C4, up to 15000 1/hr at maximum pressure for the MV16000C4, the largest pump in the series.

Conventional pin joints usually associated with progressive cavity pumps are eradicated by the use of a simple but effective coupling system connecting the drive to the rotor. This no-fuss arrangement ensures easy maintenance and cost efficient performance.

As a further innovation the stator, instead of being fixed, is floating in the housing allowing better toleration to dry running and helping to avoid unnecessary damage.

The drive for the pump incorporates a variable speed function that is achieved through the use of the Leroy Somer Varmeca unit. This unit is an integrated inverter in the terminal box of the motor and provides a local speed control at the pump.

Alternative options would allow remote operation in addition to data communication systems that can integrate with process control systems.

Other benefits include, silent operation, constant pulse-free flow, easy integration and tough, simple construction. Product integrity of the pumped product is respected and the units are suitable for hygienic applications where cleaning in place is a requirement.

Varmeca

The satisfaction of **VARMECA** users is an indication of the benefits of integrated variable speed: guaranteed performance in harsh environments, installation cost savings, ease of commissioning, user safety, and many more.

The maestro... FORTISSIMO.

LEROY-SOMER is extending the **VARMECA** range to include **5.5 - 7.5 - 9 and 11 kW** power ratings with 2, 4 and 6 poles.

MORE PERFORMANCE

VARMECA's improved vector control, combined with numerous preset configurations, meets the requirements of any application.

Guaranteed motor performance by autocalibrating the parameters in the factory :

- Constant torque operation using flux vector control accross the entire speed range
- Starting torque calibrated in the factory
- High precision speed regulation with the encoder option
- Optimisation of energy consumption in centrifugal applications by controlling the active current

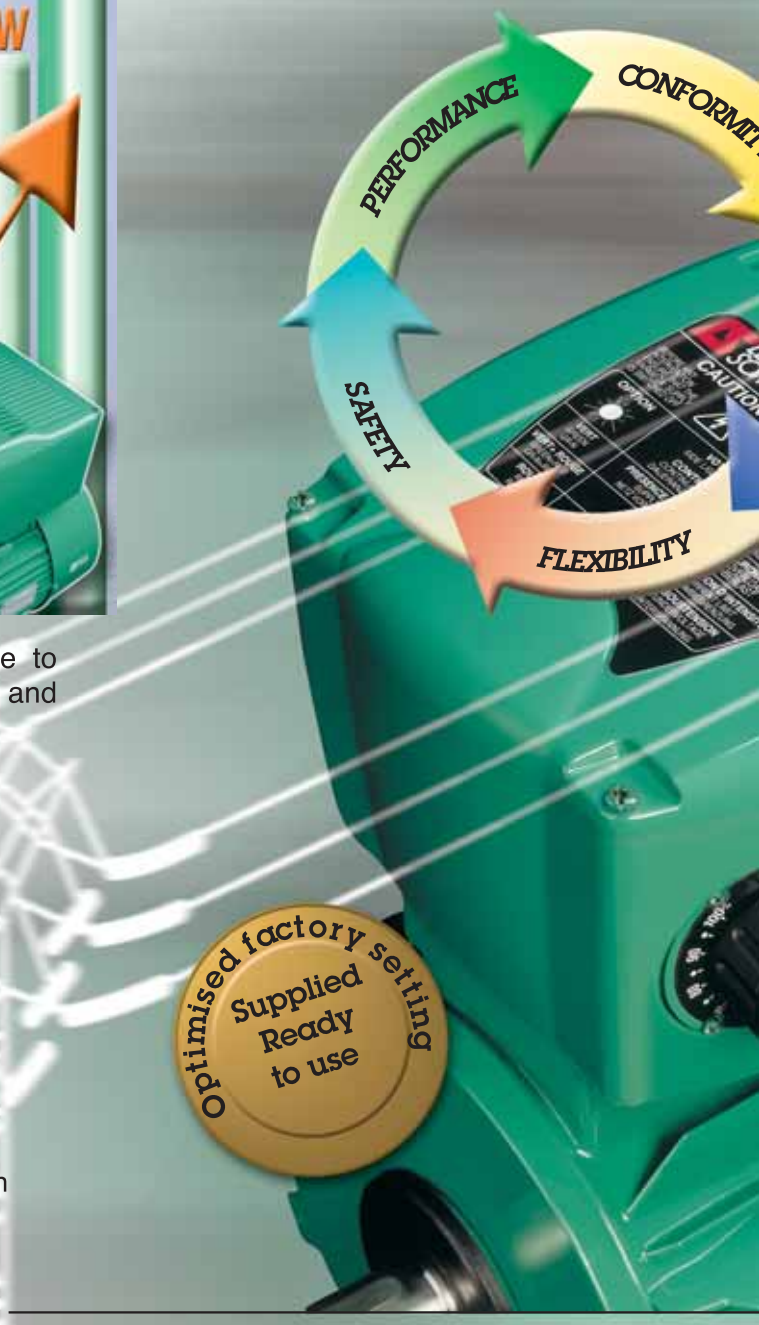
USER-FRIENDLINESS

Simplicity of operation due to preset config

- by application
  pumping, materials handling, ventilation,
- or by function
  faster/slower, multi-speed, local/remote, brake control, motorised potentiomet control, etc.

Several possible ways of setting para console, PC, local display module or copy

Operating event log.



urations:

etc

PID control,
er, torque

meters via
key.

SAFETY

Integrated protection for operation in all environments:

- IP 65 protection index
- Aluminium construction without water retention zones
- Immune from damp and vibrations due to electronics moulded in resin and varnished circuit boards
- Thermal protection of the motor and drive




CONFORMITY

Conformity with EMC electromagnetic compatibility standards with built-in RFI filter:

- Emission EN 61000 - 6 - 4
- Immunity EN 61000 - 6 - 2

Safety input conforming to standard EN 954-1
Safety of machinery - parts of control systems

FLEXIBILITY

From the most simple variable speed...

- Local pushbutton options

... to the management of the most complex systems:

- Fieldbus options

PROFI BUS PROCESS FIELD BUS
INTERBUS
DeviceNet
CANopen

ATEX Certification of Gearbox Assembly Centre

ATEX : Developing a safe environment

Since the inception of ATEX, Leroy Somer have been aggressively involved in developing products that conform to the highest degree of quality and safety.
While ATEX awareness throughout Europe and the UK appears to have been slow, it appears now that an increased awareness exists and as a result, the necessity for rapid delivery and service is now essential.
Leroy Somer have identified this development in the market place and immediately set about the training and certification of our subsidiary GEAR ASSEMBLY CENTRES around Europe.

ATEX GEARED UNITS FROM STOCK

The UK Gear assembly centre (GAC) in Skelmersdale, Lancashire was the 1st of all the assembly centres around Europe to be trained and certified and can now offer complete ranges as shown here :

1. In-Line helical geared units.
2. Parallel helical geared units
3. Right angled helical bevel geared units
4. Worm and wheel geared units

In addition a range of motors to cater for every application in ZONE 1, ZONE 2, ZONE 21, ZONE 22 Gas or Gas and Dust explosive environments from stock.

ATEX AUDIT

The Gear box Assembly Centre (GAC) in Skelmersdale was recently audited by the independent authority "INERIS".
The audit included an in-depth examination of the control of the business, in specific areas including, accurate recording of all relevant details including customer specification, quality control of incoming stock and correct storage, tooling, calibration of measuring equipment and assembly procedures.

We are proud to announce that the audit declared:
"NO ITEMS OF NON CONFORMITIES WERE FOUND"
Leroy Somer continues to develop quality and safe products for industry and this total commitment to the "Hazardous environment Market" is yet another step forward.

Iceland, an invitation to travel

Iceland, a surprising country, a land of contrasts, lunar, volcanic, mineral and desert landscape, lava flows covered in silvery moss, geysers, steam jets, boiling pools of mud, waterfalls that can be as high as 100m, we're offering you a short trip to exotic new surroundings!

An island country between the Arctic and the Atlantic

Situated in the North Atlantic Ocean, below the Arctic Polar Circle, 287km south-east of Greenland and 800km north-west of Scotland, the Republic of Iceland is an island of 103,000Km².

Geologically young and volcanic in origin, 10% of Iceland is made up of inhabitable lava plateaus punctuated by mountainous outcrops.

The majority of the population (93% of some 281,000 inhabitants) lives in Reykjavik, the capital, and in the towns on the surrounding coastal plains.

Intense, tectonic activity

Iceland rests on one of the major fault lines in the earth's crust, the Atlantic ridge. The island has over 200 active volcanoes. It is one of the most tectonically active places in the world. It has frequent earthquakes but they seldom cause serious damage. In compensation, the island's energy potential (hydroelectric and geothermal) is inexhaustible.

A natural, clean and renewable resource

Radioactivity at the earth's core and the intrusion of magma into the earth's crust cause the geothermal phenomenon. The temperature of the rocks rises on average by 1° every 30 meters. Water from rainfall flows over these rocks and gradually heats up. In regions where the earth's crust is fractured, the water emerges in fairly spectacular fashion (geysers, hot springs and jets of steam).

It is thought that only 5% of the geothermal energy is exploited on the island. Hot water from the springs is used to heat houses, swimming pools and glasshouses in particular. Steam turbines can be operated and electricity produced above 120°C.

Flowers, vegetables ... and fruit

Blueberries are fruit that seldom grow wild on the island. However, the potassium rich volcanic soil is particularly fertile and glasshouse production means that the vagaries of a frequently changing climate can be avoided. By using the abundant and cheap geothermal power to heat

the glasshouses, it becomes possible to grow all kinds of flowers, vegetables and, more anecdotally, fruit such as oranges, mandarins and even bananas!

F.L. Smidth Market leader in cement

The Danish F.L. Smidth Group is the world's undisputed leading turnkey supplier of cement technology. The Group offers a broad range of products for the cement and mineral industries, ranging from complete plants and production lines to machinery and customer-designed equipment, raw materials handling and finished goods. F.L. Smidth was established 122 years ago, and today the company is a major international group represented in 24 countries worldwide.

Materials handling and turnkey solutions
F.L. Smidth Materials Handling, part of the F.L. Smidth Group, offers a full range of materials handling solutions from turnkey systems to individual machines. The Materials Handling Group, which operates internationally, specialises in development, production and consultancy relating to the handling of cement, fly ash, coal and limestone.

Variable operational and shunting speed application
F.L. Smidth Materials Handling uses Leroy-Somer LSMV motors for the travel drives on stackers/reclaimers used in raw material storage.

The travel drive on the storage machinery is equipped with a frequency converter used to regulate the speed. The storage machine needs to be able to travel within two different ranges of speed, namely normal working speed and shunting speed.

In operational mode the speed range can vary from 2–20 rpm to 100–1000 rpm. In this mode the machine handles the material and needs the full torque from the motor.

In shunting mode the speed is typically around 3000 rpm, and the motor torque required is much lower than in working mode. Shunting mode is used when moving the machine from one pile to another. The high speed is necessary since the operation must be completed as rapidly as possible.

10 years ago these functions were achieved using two separate motors, namely a DC-motor for operational speed and an AC-motor for shunting speed. This required a special mechanical gear arrangement.

The LSMV motors from Leroy-Somer are perfect for this type of application because they can operate at full torque in the speed range of 1/10 without de-rating or forced cooling. In addition they are compatible with all types of frequency converters. Depending on the application, LSMV motors can be equipped with brakes, encoders and forced cooling if required.

All stackers and reclaimers are equipped with brakes for holding and quick stop in emergency situations. Reclaimers are equipped with encoders and forced cooling when the speed range falls below 150 rpm.

Source: F.L. Smidth Materials Handling, Design Engineer Erik Søgaard

One alternator in four across the world is a Leroy-Somer product!

In less than ten years, Leroy-Somer has become the undisputed world leader in industrial alternators in the world's three major regions: the USA, Europe and Asia. Xavier Trenchant, Vice-President of Leroy-Somer's alternator division, met us and recounted the main stages in this adventure, which has become a real success story today

One market – two segments

Unlike electric motors, where the number of applications is virtually unlimited, the alternator market is highly targeted and directly linked to the energy market. It is generally divided into two main segments:

- Alternators, with power of less than 2MW (low voltage). This is a highly competitive market where over 90% of production is standard. There is one type of OEM customer here: the manufacturer of motor-generator sets currently referred to as an "assembler".
- The second segment is made up of alternators with power of more than 2MW (medium and high voltage). The customers for these machines, the weight of which can reach and even exceed 50 tonnes, are manufacturers of diesel and gas engines and steam, gas and hydraulic turbines. This is a complex market where everything by definition is special. It generally involves major investment projects initiated by a town, region and even a country.

The energy market is the alternator market

For strategic and environmental reasons, energy policies in Europe and in the rest of the world are changing. Generally, investment in mega projects such as large power stations (nuclear, hydroelectric and coal) is diminishing and being replaced by smaller projects better able to meet local energy needs, such as the generation of de-localised energy or co-generation.

SPECIAL PROJECT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For power less than 2 MW, various factors have brought about a substantial increase in demand for motor-generator sets and therefore for alternators. For example, European regulations that are increasingly stringent on safety require the use of emergency motor-generator sets both in the private sector (lifts) and in the public sector (hospitals) as well as in industry. Other, more localised factors have also highlighted this phenomenon: fear of the millennium bug, natural disasters, the development of Internet centres throughout the world and military conflicts. The increase in mobile telephone power, where each mast has its own motor-generator set in case the electricity network breaks down, can also be cited.

Growth is currently not as strong for power above 2MW due to the slow-down in public investment in the energy sector. It remains nonetheless true that the alternator market has been growing on average by approximately 3 to 4% each year for the last twenty years or so.

A real case of education

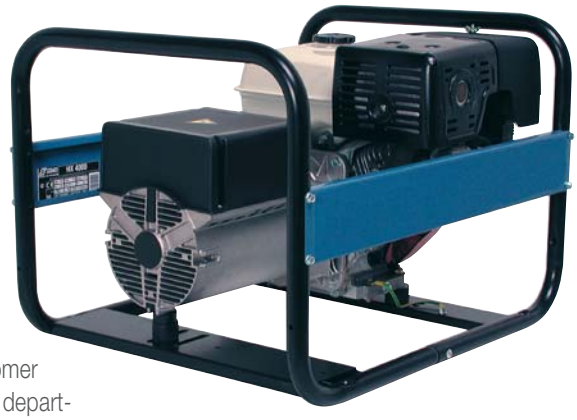
At the beginning of the '90s, Leroy-Somer decided to revitalise its generator department, the world share of which was 6% at best. A series of fundamental strategic decisions formed the basis of a real success story! In less than 10 years, Leroy-Somer was to become a player to be reckoned with on the alternator market.

As Xavier Trenchant explains, "In 1994, after an extensive market survey, we decided to acquire not a competitor, but an "assembler". We chose FG Wilson, the Irish company that was the world no. 2 in its field. FG Wilson was the ideal vehicle for us to get into the market and increase our share. We were, of course, aware that FG Wilson could only accept our products if they were not more efficient than and just as competitive as the alternators supplied by the local supplier.

This challenge will really create new dynamics within the company and unite our teams around a common objective. In order to meet the volumes demanded, an essential factor on this competitive market, various crucial decisions have been taken. Firstly, the decision to create a whole new range of products with the necessary technical and economic performance. Then to modernise the Sillac plant and fit it with state-of-the-art machinery for machining, winding and priming to adapt it to the new demands of competition and productivity. Finally, to build a new factory just like Sillac in Olomouc in the Czech Republic, to guarantee FG Wilson perfect deliveries in terms of quantity and deadline. Today, the "flow time" through these plants is less than 3 days from receipt of order to despatch of equipment.

Ambitious objectives

To achieve these ambitious objectives, Leroy-Somer put in place considerable resources. In the final analysis, these decisions mean that team performance in the alternator division has increased to meet

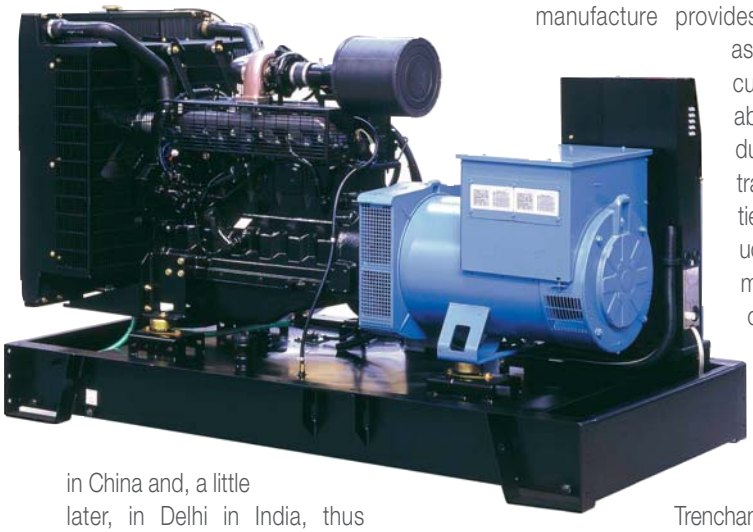


FG Wilson's needs. This progress considerably improved Leroy-Somer's commercial image and position on the market, of course, generating the acquisition of new customers.

In 1999, Leroy-Somer implemented the second phase of their strategy and sold FG Wilson to Caterpillar, the world's top motor-generator set. At the same time, two alternator factories were bought back from the USA (Magnetec, Caterpillar's exclusive supplier for power of less than 2MW and Kato for power above 2MW).

Finally, a very close partnership agreement between Caterpillar and Leroy-Somer confirmed the collaboration between the two companies.

In 2000, in order to support their main customers, including Caterpillar, in their international development, Leroy-Somer set up a factory at Fuzhou in China and, a little later, in Delhi in India, thus completing their presence on the world's main markets.

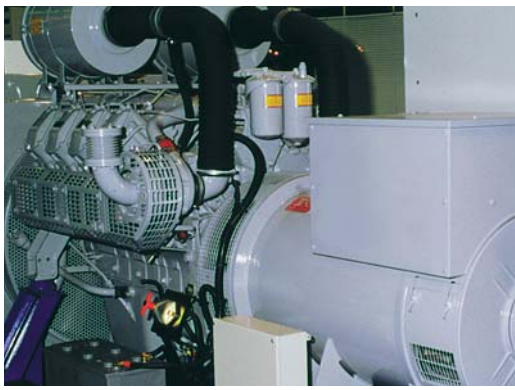


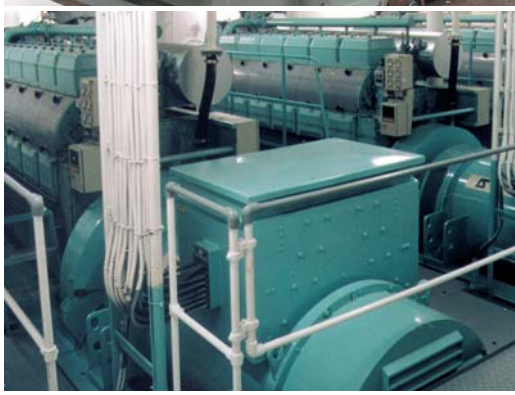
Today, one alternator in four throughout the world is a Leroy-Somer alternator. The company is a world leader with a 27% world market share (including 55% in the USA and 35% in Europe), compared to only 6% in 1993.

World market – local service

"The alternator market has actually become a world market for Leroy-Somer split into three major regions: the USA, Europe and Asia. On each of these markets, Leroy-Somer pursues what is referred to as a localisation policy. For example, products that are made in the USA will be marketed in the USA. This policy is the opposite of a delocalisation policy. It is not about producing alternators in China to sell them in Europe, but about serving the Chinese and Asian markets. On the other hand, local manufacture provides advantages such as protection against currency fluctuations, abolition of customs duties, reduction in transport costs, facilities for adapting products to local requirements and, specifically, offering world leaders who are our customers the products and services they need where they need them", Xavier Trenchant explains.

"The position as leader, however, is not necessarily the most comfortable one because it's highly coveted! Nothing is ever acquired for good and competition remains strong. We should remain humble and continue working to improve our performance in order to maintain our lead", concludes Xavier Trenchant.





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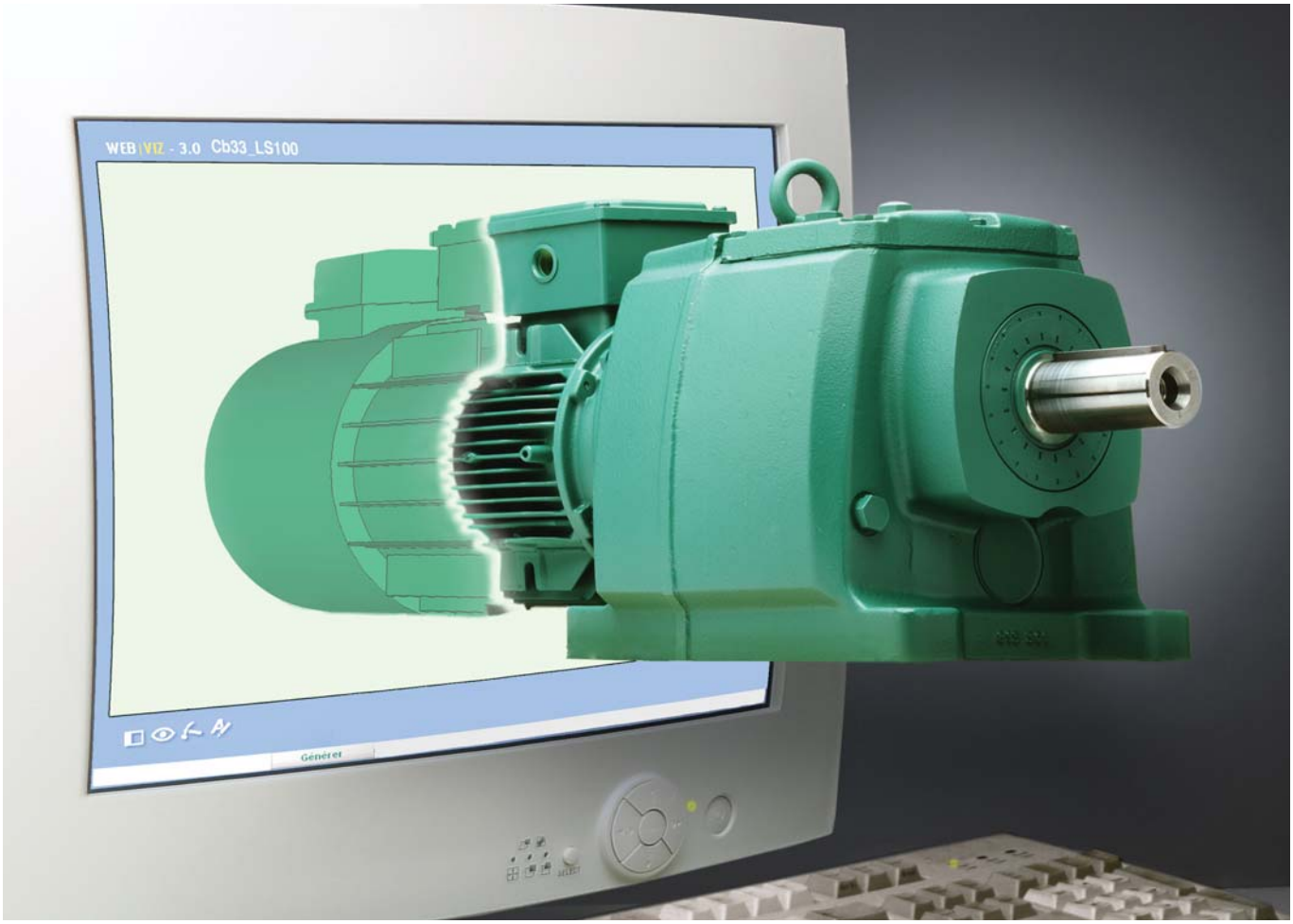

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