May 1999

LS news

STAKES
The petroleum market

INDUSTRIAL APPLICATION
WACO JONSERED AB

NATIONAL PAGES

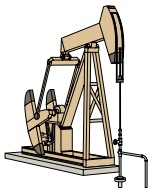
LEISURE
The Italian Great Lakes District

SPECIAL FEATURE
CEB : Three hundred years of industrial tradition

The petroleum market

Over the past few years Leroy-Somer has had increasing success in the oil industry! This good performance is not a chance occurrence, it comes as a result of a process started in the early 90s. Today, Leroy-Somer's oil division is undergoing new, crucial developments. Daniel Wartel, director of industrial relations at Leroy-Somer and Jean-Paul Godart, oil market manager have agreed to tell us about the main aspects of their project.

A complex oil market



It would be too simple to talk about a single oil market. The large groups who are world leaders in the oil market are organised into 3 major lines of activity:

- exploration and crude oil production
- refining and distribution of petroleum products
- petrochemicals

As far as capital investments are concerned, the common characteristic of these three divisions is the extensive use of sub-contracting, known as the petroleum-related industry. The operators, i.e. the oil companies hand over the design and construction of major works (e.g. the construction of an offshore platform) to engineering firms. These firms deal directly with the builders concerned who, in turn, consult the suppliers of drive systems, if necessary. However, before he is approached, each sub-contractor must be on the vendor list drawn up by the operator. He must be a prescribed vendor.

For a manufacturer like Leroy-Somer, a single work site may give rise to hundreds of service requests from various sub-contractors. Thorough knowledge of the decision-making system as well as wide field experience are therefore essential.

An international oil division

In this context, only the international groups with powerful sales networks have the opportunity of forming close relationships with large oil companies and engineering firms.

Because of its business, Leroy-Somer is already involved in a great variety of markets. Our network is organised so as to meet the specific needs of each maker and end user. However, additional support is needed in certain sectors. "This is why we have created a special oil division which reinforces the actions of our network" states Daniel Wartel.

Set up in Courbevoie (Paris), the Leroy-Somer oil division is teeming with activity : it checks that Leroy-Somer is on the vendor lists drawn up by the operators for each defined project, worldwide; it is in permanent contact with the people in charge of that market within the OEMs, in order to monitor the project throughout the decision-making chain; it co-ordinates the information, carries out an in-depth analysis of the specific needs of the sector and assists the sales network in its work. The ultimate goal is to offer the buyer, the engineering firm and the operator a comprehensive and optimised service.

An oil club

"In order to get even closer to our customers, we decided to set up an Oil Club, which now consists of 4 permanent members located in Paris, Bordeaux, Lyon and Milan" adds Jean-Paul Godart. This club will soon be expanding in order to assert our presence in England, the Netherlands and the United States. Part of our development is taking place in these countries and we have an International Division with structures already in place for monitoring projects.

The Elf Tchibou

A buoyant market

Despite seemingly unfavourable conditions with the price of crude at $10 a barrel (March 1999), the exploration and production market has expanded considerably, with capital investments totalling $85 billion worldwide. Leroy-Somer just had to take up this challenge. The company is also involved in the other oil markets (refining and petrochemicals) but these do not face the same difficulties. The network therefore handles the various customer services directly : maintenance, renovation and modernising of the installations as well as co-generation projects.

ela platform in Congo

Photographs courtesy of Ph.Wesolowski

Leroy Somer is one of the main suppliers to ELF for off-shore platforms. UMV variable-speed drives combined with specific transformers are used to control and protect the well-bottom pumps used for oil extraction. The engineering work carried out on site includes protection of the line with appropriate filters. Leroy-Somer also handles preventive and corrective maintenance on these sites.

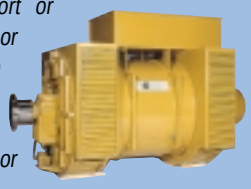
Exploration : a continuous challenge

For the past 150 years, engineers have been performing outstanding technical feats to meet world demand for petroleum products which has been constantly rising despite the crises. More than ever, on the eve of the 21st century, the oil industry is faced with new economic, ecological and technological challenges.
Off-shore exploration represents a considerable market for the petroleum-related industry. In 1995, off-shore production of liquid hydrocarbons accounted for approximately 30% of total world production.

Today, the adventure continues and we hear more and more talk about the deep off-shore which, like the Arctic, is one of the only areas still to be explored and likely to be the site of major discoveries.

Alternators

The 2 ranges of Leroy-Somer alternators - PARTNER alternators (up to 2500 KVA at 1500 rpm) and POWER alternators (up to 25 MVA at 500 rpm) - are offered by numerous generator assemblers for use with diesel engines as well as gas turbines to provide emergency support or even supply on- or off-shore installations with all their energy needs in zone II or out of zone areas.



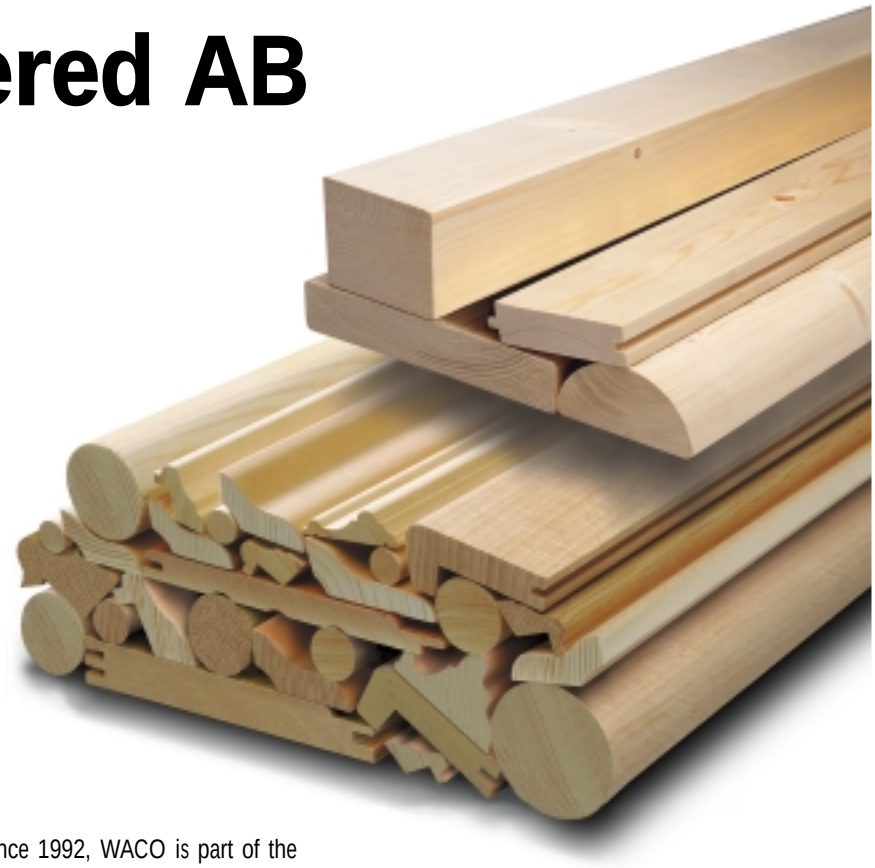
Motors

The FLSD (Eex dII B T4 as standard) and FLSN ranges (Ex nA II T3 as standard) are specially designed for machine drives in zones 1 and 2. Our Low Voltage range covers all requirements from 0.18 to 400 kW and has most oil industry features as standard. In addition, the FLS/FLSC cast iron motors (from 0.18 to 750 kW) meet "out of zone" requirements.
The adaptability of Leroy-Somer motors to the various conditions imposed by specifications, enables our products to be selected according to temperature (T3, T4, T5,T6) or gas ranges (A,B,C). Being familiar with the processes of our manufacturing partners (OEMs), we are able to offer the optimal solution for applications such as pumps, compressors, fans, lifting equipment, etc.)

Electronics

As a supplement to our engine range, we offer to fit electronic components to rotating devices (starters and frequency inverters) to reduce cost and enhance performance. We are also a preferred partner recognised for the design of complete systems used to ensure the operation of well pumps.

Waco Jonsered AB

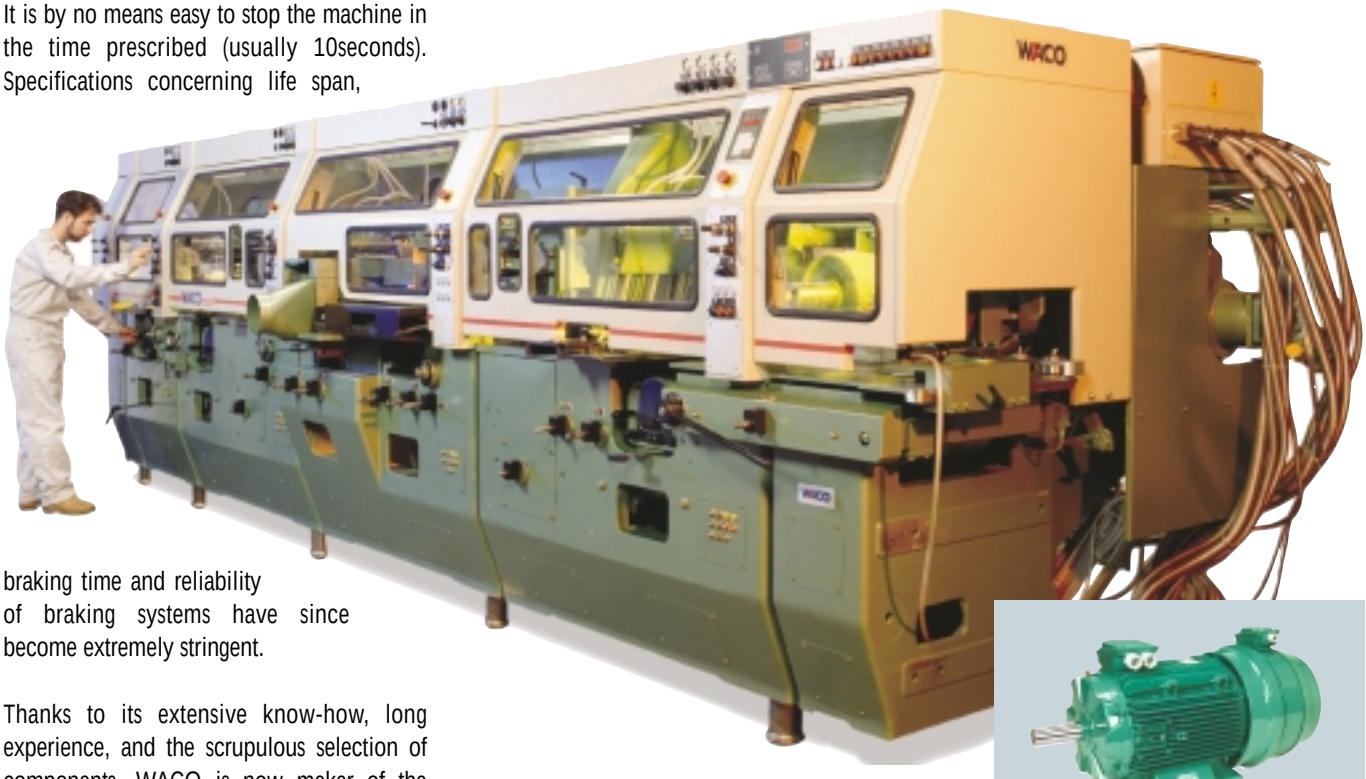


WACO Constructions Mecaniques was founded in 1918 by Albert J. Wahlbeck. The company grew rapidly and became a major exporter. By the 1920s and 30s, WACO machines were delivered to the Netherlands, Romania, Palestine, SouthAfrica the United States, Chili and Peru. WACO's wide experience gained over its many years of business has resulted today in the constitution of an impressive collection of highly reliable, highly productive NC machines.

Today WACO specialises mainly in industrial planers with feed rates of up to 300m/minute. The range also includes saws and complete mechanised systems for the wood industry.

Since 1992, WACO is part of the German group MICHAEL WENIG AG, world leader in planing machines.

Increasing production capacity requires spindles that rotate faster and faster and with greater inertia, which means an increase in power and reduction in braking time. Spindle speeds now reach 6000 rpm with high inertia. It is by no means easy to stop the machine in the time prescribed (usually 10seconds). Specifications concerning life span, braking time and reliability of braking systems have since become extremely stringent.



Thanks to its extensive know-how, long experience, and the scrupulous selection of components, WACO is now maker of the fastest and most powerful planers in the world.

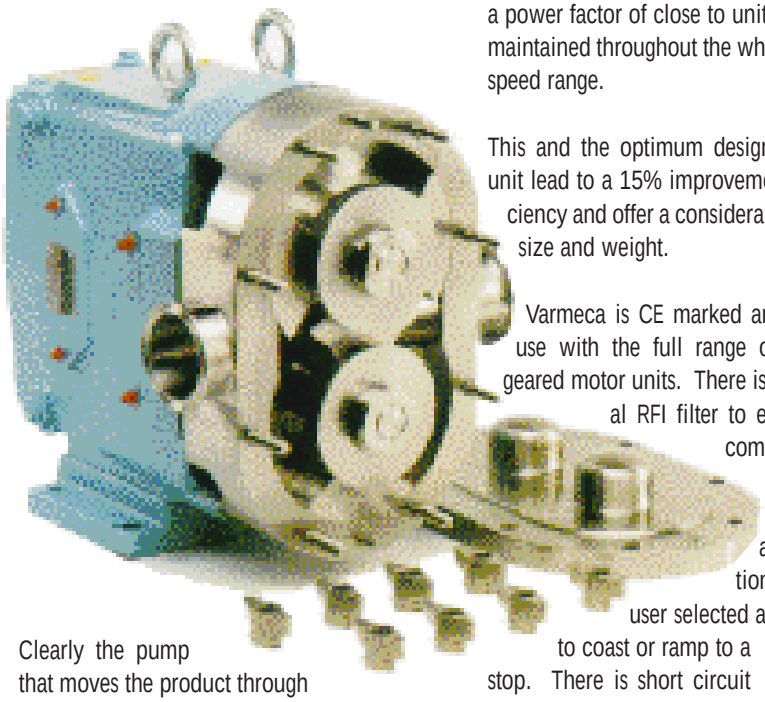
The FCPL built in brake motor used for lathes

Varmeca is food and drink for George Meller

George Meller is a distributor of specialist pumps and other equipment for the food, beverage, chemical and other industries. In order to provide a complete service to it's customers, it needs reliable suppliers of equipment including motors gearboxes.

Leroy Somer supplies equipment on a regular basis and a recent project for a company in the food industry involved using a Varmeca drive and produced some real benefits for the customer.

The first and most important part of the process is to extract the flavour from the herbs or fruit into the oil. For this, the product has to be heated, held at the required temperature for a set time and then accurately cooled.



Clearly the pump that moves the product through the 80 metres of tubing in the heat exchanger while the product is mixed and blended has a vital role to play. The strength of the flavour, the consistency of the product and the cost of production are all dependent upon it.

The pump used is a Waukesha rotary positive displacement pump made of stainless steel and used extensively in the food, canning, beverage, cosmetics, pharmaceutical and chemical industries. Driven by an electric motor, it needs to run at different speeds for different products.

Previously, the motor ran at fixed speed and a gearbox was used to achieve the correct final speed. This was not energy efficient or accurate enough, so an alternative was sought.

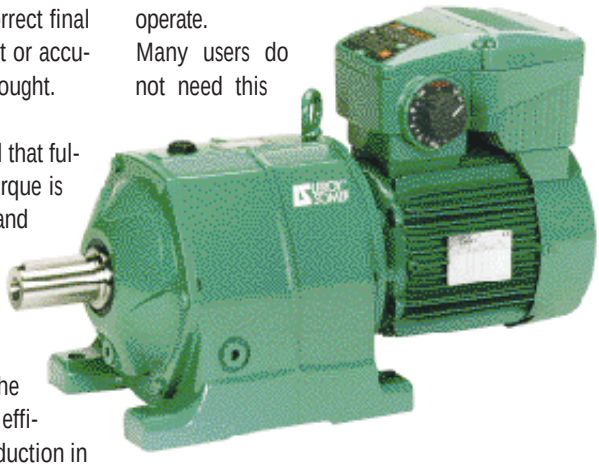
Now, a Varmeca unit has been fitted that fulfils all the requirements. Constant torque is available over a speed range of 1:7 and a power factor of close to unity is maintained throughout the whole speed range.

This and the optimum design of the unit lead to a 15% improvement in efficiency and offer a considerable reduction in size and weight.

Varmeca is CE marked and designed for use with the full range of Leroy Somer geared motor units. There is also an optional RFI filter to ensure full EMC compliance.

Acceleration and deceleration ramps can be user selected and it is possible to coast or ramp to a stop. There is short circuit protection and driver status can be easily monitored via an output LED. There is a 0 to 10v remote speed input and a 0 to 10v remote speed output. Speed may be set at standstill.

Variable speed drives have brought many benefits to industry. The electronics have become very sophisticated and automated control can be achieved for many processes. The problem is that they can also be difficult to install, commission and operate.



Many users do not need this degree of complexity but want variable speed control in a compact, robust and reliable unit. This is the case at this customer and why the Varmeca suits them perfectly. Now the operators know the setting for each of the products, all they have to do, is turn the large black knob on the Varmeca unit.

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Cool motors for Inge

Ingersoll-Rand is an international company with major manufacturing facilities in the UK. From its factories in Wigan, it exports stationary and portable compressors for the European served area, including Europe, Africa and the Middle East.

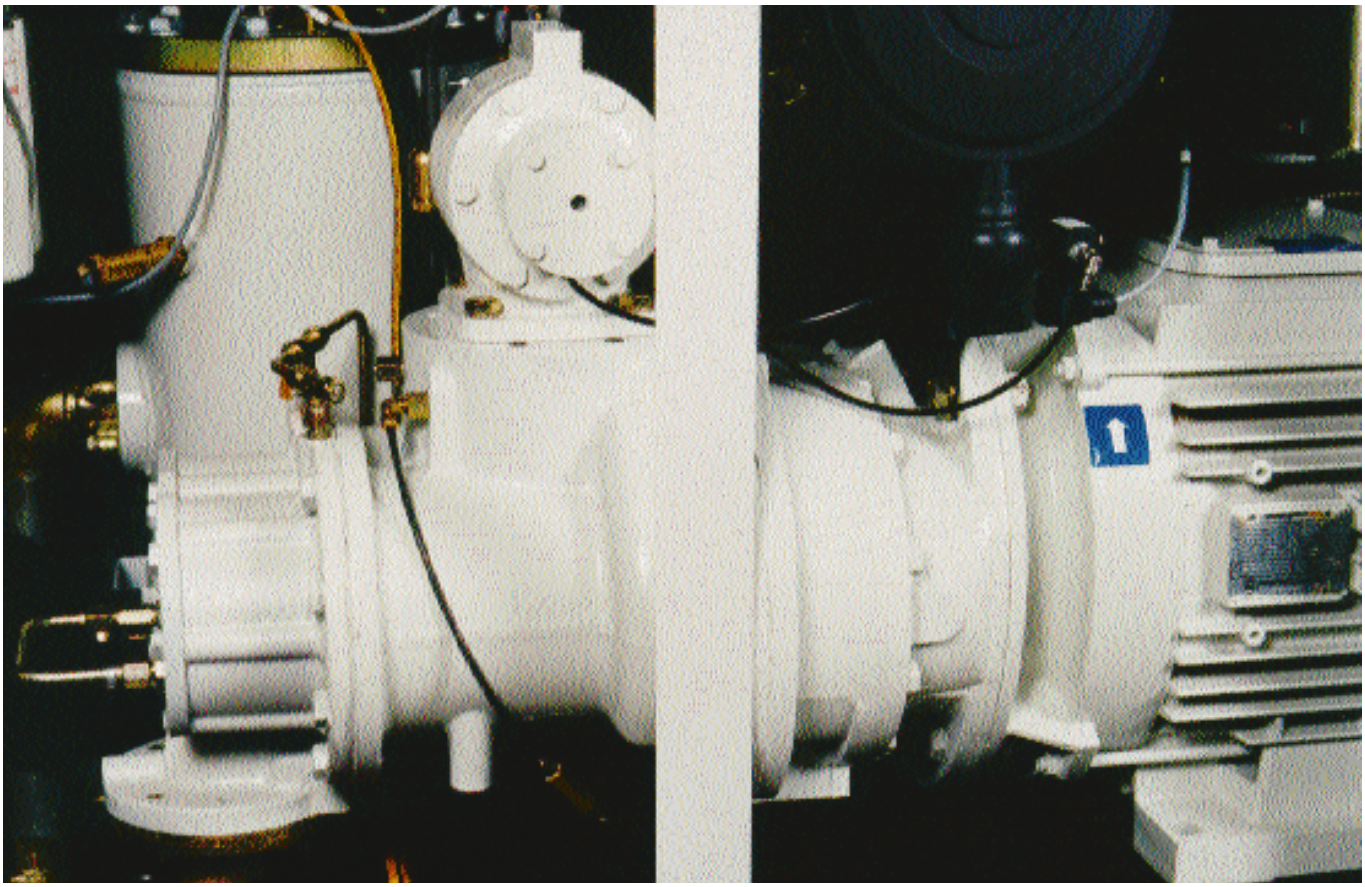
The SSR range of rotary screw air compressors comprises units capable of providing up to 65 m3/min of air and at pressures up to 13 Barg. Each comes complete with a sophisticated control panel for control, sequencing and energy management. Since 1990, adapted Leroy Somer motors have been used extensively to drive units throughout the power range up to 400kw , featuring motors up to LS315MR in Aluminium, FLS355LD in Cast Iron and PLS315VLG in Open Drip Proof.

There are now in excess of 14,000 units in the field. Rotary screw compressors are the most popular source of compressed air in industry today. They are reliable, simple to install and maintain and have a long life. The only moving parts within the compression chamber are the two rotors, held apart by dynamic pressure. As a result of precise bearing alignment and clearances at the tip of the rotors, there is no contact between either the rotors or the rotors and the housing.

The Leroy Somer motors with IP55 and IP22 enclosures are designed to operate continuously at ambient temperatures up to 46°C without the need to de-rate the compressor performance. Even at these high temperatures, the motors are specified to operate with a temperature rise at least 16°C lower than that permitted for a standard class F insulated motor.

As it is generally recognised that for every 10°C reduction in operating temperature, insulation life expectancy is doubled, it is no surprise that the motors last a long time.

Both the compressor and the motor are isolated from the sheet metal enclosure by soft mounts. Together with the attenuated acoustic enclosure, this results in an exceptionally quiet unit that can be installed close to most work places.



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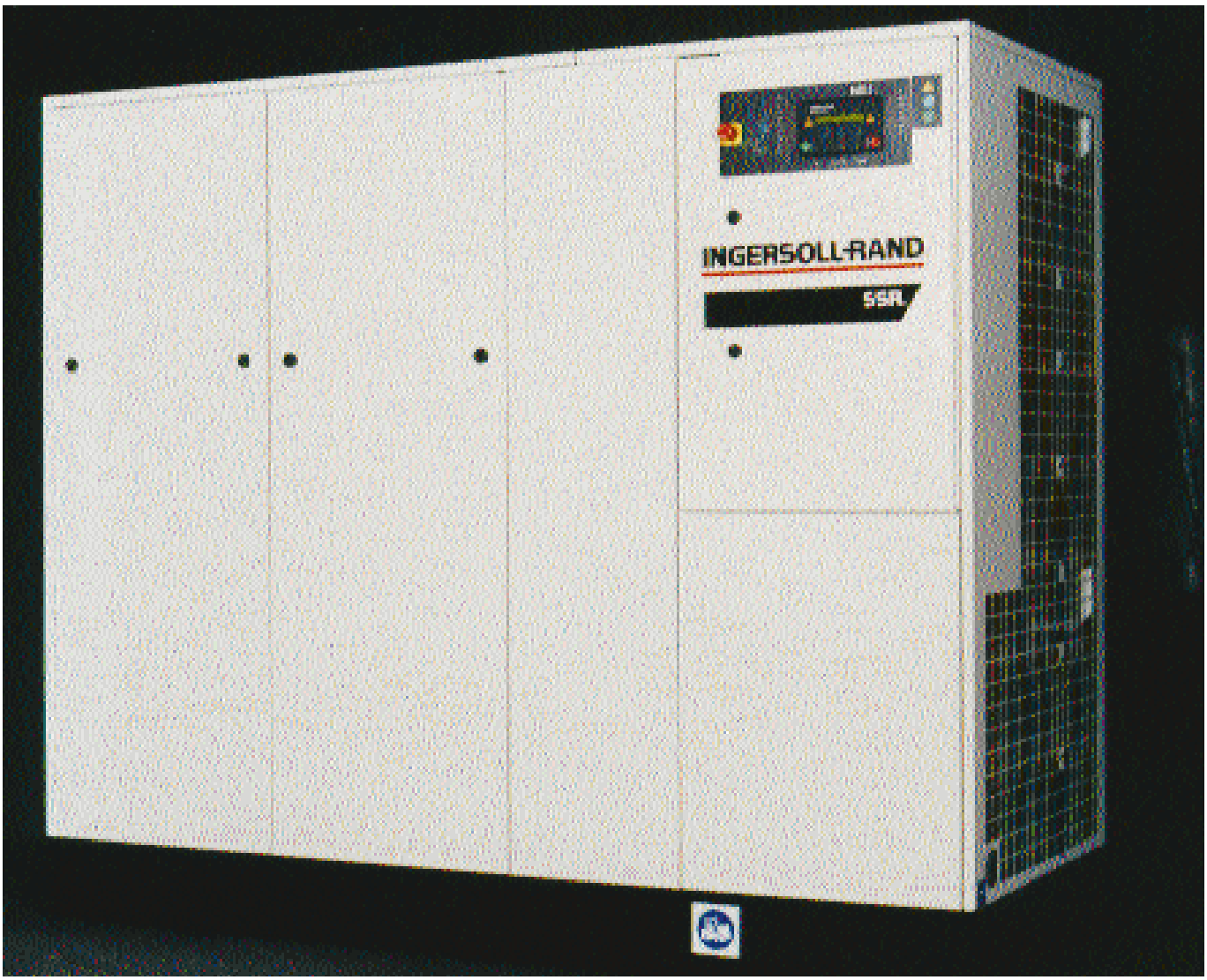

Included in the package is a robust motor starter. Mounted and wired within a lockable IP54 enclosure, the starter and associated control panel only requires power connection and the machine is ready to run and fully protected.

All the compressors are fitted with an auto stop/start energy saving feature for users who do not have a constant air demand. A compressor running unloaded will shut down after running for a short time without an air demand. It will automatically start when demand is restored.

Intellisys microcontrollers allow users to operate the compressor through a touch membrane panel. A local language display indicates the status of all major components inside the compressor.

The compressor is protected against a high discharge temperature and motor overloads. If these occur, the compressor is shut down automatically and the fault indicated on the control panel. An interface is available, if required to allow remote starting and stopping of the compressor.
Clearly, the motor chosen to drive the compressor is a major decision for a Company like Ingersoll-Rand. The fact that they have used Leroy Somer over such a long period of time indicates their satisfaction. LS specialises in motors adapted to meet customer requirements and this is another clear example of the benefits of this expertise.

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A Press event in London

A new innovation for editors of industrial and technical business magazines was created in 1998. Called the First Friday Club, it is a regular meeting of people from the press who meet to have lunch and listen to presentations from industry.

This was the perfect opportunity for discussing the merits of Varmeca, the gear and motor package with electronic speed control built into the terminal box.

In the UK there has been a lot of interest in this type of package and much has been written about it in the press. Many of the competitors systems are full of features, expensive and difficult to set up. Varmeca, is in contrast, simple, cost effective and easy to install.

Peter Waldock, the Managing Director of Leroy Somer welcomed the opportunity to introduce and discuss the Varmeca in person with the editors of the technical press.
On the day, 19 editors, a mixture of Electrical, Design, Process, Control and general Industrial titles, arrived at Rules Restaurant in Covent Garden.

There was a lively interest in the merits of Varmeca, from a well informed audience and subsequent articles, confirm that the product was taken very seriously.

The Italian Great Lakes District

Sparkling waters surrounded by splendid parks, religious gardens and mountain trails from which you can view the seven lakes, the Pô Valley and the Italian and Swiss Alps. This is what you will find at lake Maggiore, second biggest lake in Italy and lake Mergozzo, one of the cleanest lakes on the peninsula.

On lake Maggiore, you can admire the magnificent islands which form(with the historic chateaux of Cannero and the little island of Saint Johnthe Baptist – where Toscanini lived) a splendid archipelago: the island of Bella with the Borromean palace (1670), the island of Pescatori with its narrow streets full of character, the island of Madre, with its renowned botanic gardens full of rare plants and free-roaming animals(peacocks, parrots, pheasants, etc.). But this region has a lot more to offer.

This territory was the site of important events from the feudal period to the fight against the Austrians, not to mention the Renaissance. For four centuries, the region was under the domination of great Italian families : first the Visconti, then the Borromeans who surrounded themselves with writers, artists and architects who left behind a rich cultural and artistic heritage (including historic villas such as Villa Taranto and Villa San Remigio, the Borromean palaces on the islands, the statue of Saint Charles at Arona and the chateau of Massimo Visconti). The list of artists and public figures who came for regular visits is long indeed: from Stendhal to Hemingway, from Leonardo da Vinci to Fogazzaro who found the inspiration for his masterpiece here, from Queen Victoria to the King of Saudi Arabia.

Today, the area surrounding the two lakes has become a tourist resort open to everyone: artists looking for inspiration; families on weekends out; religious conferences and tourists (attracted by the numerous sanctuaries and religious symbols found on the site which was the birth place of Saint Charles Borromeo); sports enthusiasts who come to take advantage of all the opportunities offered by the clean lakes where they can practice all sorts of water sports and the mountains where they can hike and engage in mountain climbing at all levels of difficulty; people who

want to visit the Val Grande, Europe's largest wilderness. In addition, owing to its particularly mild climate, lake Maggiore has been given the name of "Garden of Europe" because of the wealth and beauty of its flower sand plants of all varieties from all over the world.

Three hundred years of

CEB (Constructions Electriques de Beaucourt)joined the Leroy-Somer group in 1982. However, the company dates back three centuries! The first workshop was in fact founded in Beaucourt by Frédéric Japy in 1772.

During the nineteenth century, the family firm developed at lightning speed. In 1870,the company employed a remarkable five thousand five hundred people and was active in various sectors of industry: clock-making, foundry, electric torches, pumps and also phonographs, ironmonger's goods and bicycleparts.

In 1901, the company started producing the first Japy electric motors. Twenty years later a new factory was built which grouped together the production of all types of electrical equipment: single-phase, two-phase and three-phase motors, rheostats for motors with wound rotors, single-phase and three-phase alternators, 50 and 60 Hz frequency converters, and WardLeonard groups.

Subsequently, the industrial experience acquired in numerous fields enabled the factory to develop a whole range of motors designed for specific applications. Among them, increased-safety flame-proof motors (in 1958),and the first torpedo-propelling motors (in 1978).

1982 was to be a turning point for the Beaucourt factory. Beaucourt and other factories in the group rapidly developed synergies amongst them. CEB ceased small motor production and specialised in the design and development of high-power specific motors, their initial vocation.

In 1990,the company was entirely reorganised and significant investments were made : a new machining centre, three-dimensional checking of rough cast and machined parts, a new test-bench, and CAD technology.

As early as 1992, these new investments fuelled growth across the main ranges of motors. Frame sizes reached 450, and low voltage capacities exceeded 1 megawatt. For example, CEB manufactures stem propellers that can reach up to 1300 kW.

Today, CEB covers many specific markets such as the chemical, petrochemical and food industries, the merchant navy and the up-and-coming market of wind-powered devices.

French silos ahead of ATEX

The European ATEX guideline, which will become law as of July 1st, 2003, sets a new danger zone classification, not only for gas but also for inflammable dust.

France has decided to proactively enforce these guidelines on cereal silos as early as August 2000 when all silos with a capacity over 15,000 cubic metres will have to comply with ATEX.
The French cereal industry has therefore only a few months left to bring their sites up to the new standards!
In order to offer an immediate solution for this specific requirement, Leroy-Somer is launching a complete range of motors for explosive dust-filled atmospheres, that comply with all the various specifications laid down by European legislation - the FLSPX range.
The FLSPX range also meets the needs of other industries, such as sugar refineries, breweries, biscuit manufacturers and the pharmaceutical industry.

FLSPX

- CE approved by certified organisation (INERIS)
- Maximum surface temperature guaranteed at 125°C at highest voltage of 400V ± 10%
- Class F insulation
- Certified cable clamp
- Guaranteed dust-proof – IP6x
- Guaranteed spark-proof
- Casing and bearings built for use in aggressive atmospheres.

industrial tradition

A solution for the Swedish paper industry

In the field of paper production with supply voltages often exceeding 500V, the introduction of variable speed is liable to cause certain problems on motors such as premature wear on bearings.

Following various research programmes, CEB, in partnership with a Swedish subsidiary of Leroy-Somer, has developed up with an original solution to this problem by designing motors for paper mills with a shaft that is insulated where it is contact with the bearings.

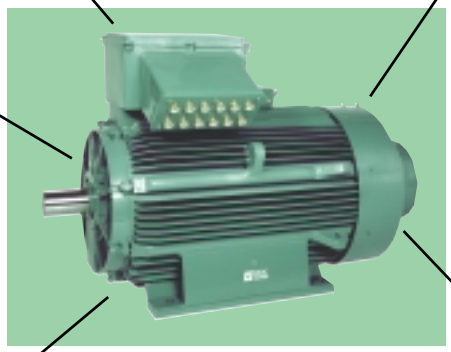
Today Leroy-Somer goes even further by offering a new range of high-power motors suited to variable speed: the FLSMV range.
Combined with the UMV 3301 controller, this new range complements the LSMV range to offer a comprehensive and perfectly reliable set of solutions.

FLSMV (160 ..... 500 kW)

Constant nominal torque over speed range from 2 to 1

Wider range of operating temperatures

Interchangeable with fixed speed motor of same power*



Increased insulation

Forced ventilation encoder

**Exception: P=200kW with 4 poles – FLS frame = 315 LB – FLSM : frame = 355 LA*

Cast iron terminal box

• Standardised power ranges and frame sizes

THE LATEST ON SAFETY

FLSD

Variable speed and flame-proof motors: guaranteed safety

Having performed a great number of tests in extreme conditions, Leroy-Somer guarantees the performance of its FLSD motor combined with variable speed applications.
For more information, please ask for the information brochure, available in French and English.

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Immune from electrical disruption in all circumstances!

Unaffected by voltage drops and power cuts

Specially designed to function in industrial environnements prone to electrical disturbances, the **UMV 3301** ensures the control of your drive system at all times:

- automatic speed adjustment according to the drop in voltage
- motor control maintained during disturbances
- at re-start, automatic setting of reference on calculated speed

Energy savings

Restricting the output of a pump, ventilator or compressor by restricting the opening of valves is a waste of energy. By adjusting the motor speed to requirements, the **UMV 3301** will immediately save you money.

Multi-purpose

The **UMV 3301** offers 3 modes of integrated control as standard:

- open loop vector mode
- closed loop vector mode
- voltage / frequency mode

The operation of the drive system is therefore easily adapted to each application.

UMV3301, the variable speed drive for asynchronous motors of 55 to 500 kW.

For more information, please ask for our technical catalogue.

LEROY SOMER®

Ref. 2771-1.1/d-05.99 UK.