

December 1998

LS news

SPECIAL FEATURE

Purification of Waste Water

INDUSTRIAL APPLICATION

Vesta Wind Systems

NATIONAL PAGES

LEISURE

The Silk Route

ENCOUNTER

Interview with Roland Dautrey,
Computer Services Manager for
Leroy Somer.



Urban water treatment

Water, an element which we take for granted but must not fail to protect. Today, this natural resource is in question. The cost is becoming more and more severe.

Happily, environmental pressure is focusing on improvements with consequent changes in legislation. European directives and Community rules are imposing stricter quality controls.

Leroy Somer as much as it is a specialist in electrical drives has also become involved in this movement and has used it's expertise to advise specialist companies involved in water treatment, drinking water and management of industrial and domestic waste.

Polluted water contains a number of organic materials which degrades the aquatic environment by de-oxygenation. During recent years, it has been reported that excess nitrogen and phosphor in the water is promoting the rapid development of algae which destroys the aquatic life by "eutrophisation".

THE PROCESS

Before being discharged into rivers, the urban water is subjected to a mixture of treatments as described below:

1 The pre-treatment

The first purification phase allows the elimination of degradable elements for the following process. The general procedure consists of three operations.

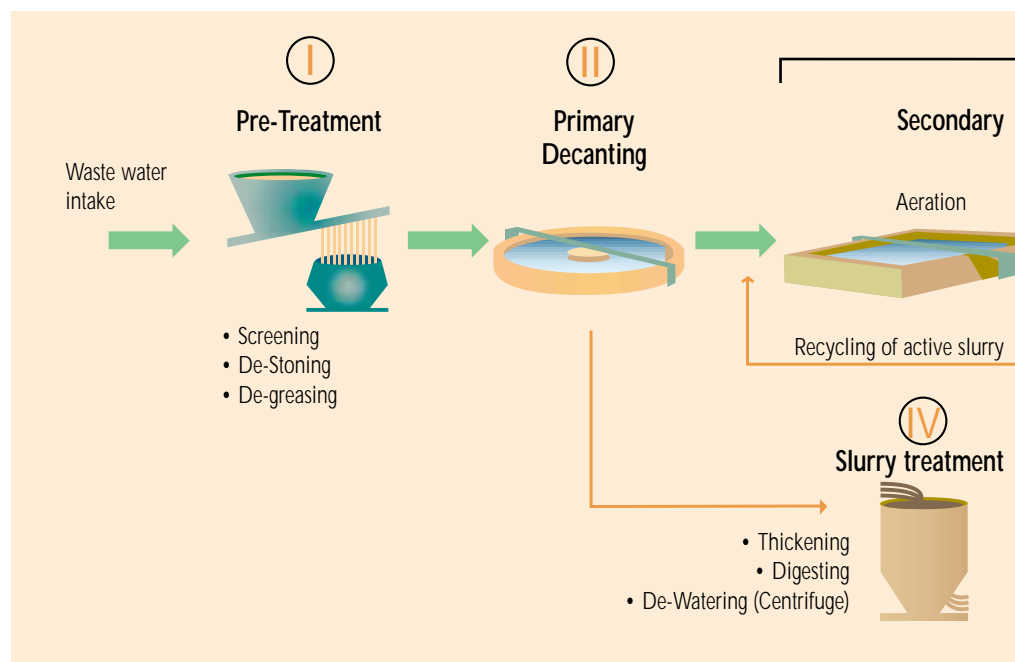
- Coarse screening or grading of the large size materials such as bottles or plastic packaging.
- De-stoning operation to eliminate high density particles such as stones or sand .
- Degreasing which removes low density particles such as oil and grease.

II. Primary decanting

This is the stage which removes materials held in suspension, by decantation.

III. Secondary treatment

Despite the new techniques employed today



to improve the quality of successive treatments, the biological purification process remains a central part of the procedure.

It consists of mixing microbes with the organic pollutants which completely digest them. In fact, it is basically a conversion process of waste material into a more manageable product.

This type of aerobic purification is more often reserved for the agricultural water treatment or an industrial process producing a high level of pollution.

The treatment by activated sludge means

development within the polluted water a bacteria supplied with oxygen in the form of air.

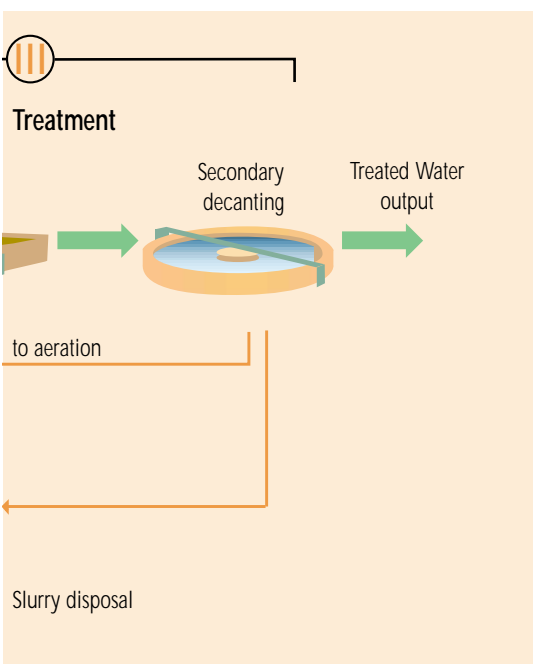
We can identify two phases of treatment: Aeration and Secondary decantation. First, passing the polluted water into an aeration tank allows a reduction of pollutant. The micro-organisms multiply and reform into an active sludge which is "alive". Afterwards separating the sludge by decantation. Finally the sludge is sent back to the aeration tank to maintain a dense microbe population. Following constraints imposed by new

legislation, the purification stations must remove not only the organic waste but equally nitrogen and phosphor.

In fact, the systems developed today allow an active treatment in many stages eventually removing all waste. In this case a chemical purification (generally known as Tertiary treatment) is used to completely purify the water.

IV. The sludge treatment

The water is treated and discharged into the



rivers. There always remains a non negligible amount of untreated sludge. The objective is to drain progressively reducing the volume; thickening, digesting and afterwards de-watering using a centrifuge. The final stage of the treatment depends on the nature and the volume of the remaining extracted waste and is often incinerated .



The new purification station at Angouleme comprising 143 Leroy Somer drive systems. Capacity 97000 equivalent population, Output, 9000 to 27000m3/day

Leroy-Somer: a complete range of adapted products



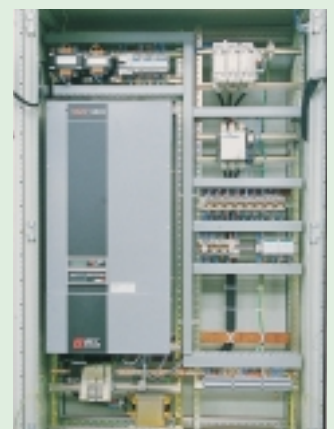
• The electric motors

For driving pumps, aerators and fans. Efficiency and power factor optimised to reduce energy consumption, noise levels and anti-corrosion paint allows the best integration in the different processes.



• The gear motors

For driving low speed pumps and pre treatment equipment with a range created specifically for agitation and aeration equipment.



• Variable speed controllers and starters

For the largest flexibility and control of energy consumption,

- to regulate the volume or pressure
- to increase the life of the equipment
- to reduce the cost of operation.

Vestas Wind Systems A/S



Vestas is the world's leading manufacturer in the field of wind technology. With factory facilities covering 108,680 m² and an annual production capacity of 500 MW, Vestas is well-consolidated and well-placed to enjoy continued growth. As a supplier on an international scale, Vestas can provide wind technology and know-how for every requirement - from a single turbine to major turnkey projects and combined wind and diesel systems.

With its own production facilities for machinery, blades and control systems, and with its own service organization, Vestas is well-equipped to meet the stringent demands of the international market for competitive wind technology. Throughout its many years in the business and its pioneering development work in the field, Vestas has held to a clear goal: to demonstrate that wind energy is and always will be an economic,

competitive source of energy.

Both production departments and Vestas' extensive service department are approved according to the ISO 9001 Quality assurance standard.

Vestas has 1,871 employees of whom 157 are abroad. In addition, a further approx. 380 are employed in our associated companies in India, Italy and Spain. Vestas has subsidiaries in Denmark, Sweden, Holland, USA and Germany.

Vestas offers wind turbines from 225 kW to 1650 kW: The range of pitch regulated turbines consists of: V27/29-225 kW, V39/42/44-600 kW, V47-660 kW, V47-660/200 kW and V66-1650 kW.



Blade production

The number of installed Vestas wind turbines, more than 7,000 with a total capacity of approx. 1,870 MW installed in 35 countries, is also another result of Vestas' ability to stay one step ahead, as the world leading manufacturer of wind turbines.

The cooperation between Vestas and Leroy Somer started back in 1996, where the size of the delivered generators from Leroy Somer was 600 kW. Today the size of the generators is more than doubled.



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Tower production



Cool motors and neat compressors



Many years' experience in producing electric motors tailored to customers needs and specific experience of the compressor industry helped LS to produce the perfect drive solution for Hydrovane Compressors.

CompAir Hydrovane Ltd is a British Company based in Redditch, England specialising in the design, manufacture and sale of rotary vane air compressors. This type of compressor is gaining popularity in the market, due to its quiet running properties and low maintenance requirements.

Hydrovane has sold more of this type of unit than any other manufacturer, to customers throughout the world, building a reputation for quality and reliability that is second to none.

The new Series 9 Air Logic Range is the largest they manufacture with a free air delivery of up to 213 litres per second, this version being a fully enclosed design. This makes heat dissipation extremely important and can result in the temperature rise in the motor increasing substantially.

Large factories use the Series 9 as their main source of compressed air, so reliability is a major requirement. The range takes advantage of the latest microprocessor technology. The controller may be easily repositioned within the enclosure to suit individual installations. The unique control software includes energy saving features, oil condition monitoring and a log of key service information.

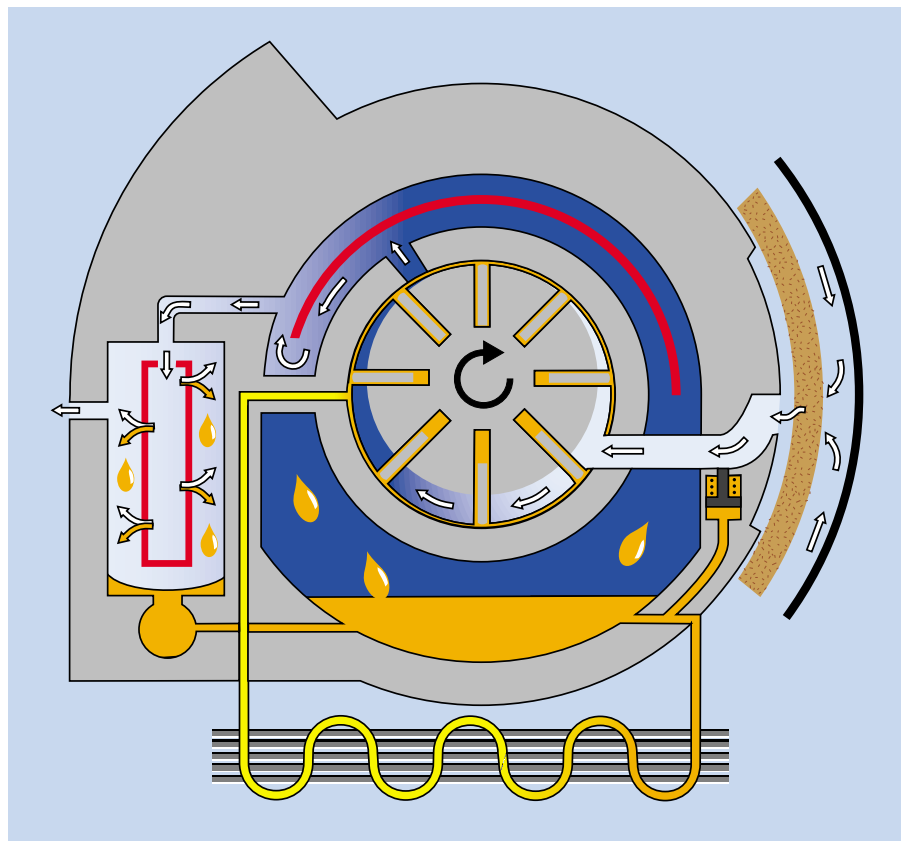
Knowing of their reputation for producing adapted motor designs, Hydrovane decided to contact Leroy Somer.

The motors supplied are the LS250 MP 55KW and LS250 MK 75KW both are 4 pole B35 mounting fitted with a special shaft and flying leads for the motor and thermistor connections.

Using optimised design techniques the result

is a motor temperature rise of only 60°C, which is extremely low for motors of this size and operating in a closed environment. This has resulted in additional benefits of a longer motor life and a more efficient compressor unit, using less power for the same air output.

Other reasons that LS was selected, include the availability of world- wide service and support, the excellent reputation of the products and even requests from Hydrovane distributors, familiar with the LS products. All in all, a remarkable reference for the company and every reason to believe that it may lead to other developments in the future.



Customisation wins big c

When Sappi wanted to increase production at its Feniscowles Mill in Blackburn, there was fierce competition for the contract to supply the motors.

Leroy Somer Ltd won the contract because it is able to supply motors that are specifically designed to meet the requirements of individual customers.

Sappi planned a £40M refurbishment programme.

Current plant capacity was to be increased and the production line rebuilt to manufacture wood-free graphics papers for glossy magazines. Total output would be raised to 80,000 tonnes, a 60% increase.

The new system is required to run 24 hours a day, 365 days a year, so not only does it need to be very reliable, but planned maintenance also has to take place without causing disruption to production.

The papermaking process uses 63 AC motors, the largest of which are rated at 338 kW. To provide tight control of the high-speed, continuous process, each the motor uses a closed loop control system and all the motors are networked using high speed CT-NET.

In order to keep costs down, the components in the system are carefully matched to the system performance.

The specification requires some of the motors to provide full torque down to 1Hz. Usually, to achieve the required power, an inverter controls a de-rated motor, but considerable savings can be made with a specially designed motor that delivers the required power without de-rating.

The environmental conditions within the paper plant also present difficulties. Paper dust can be abrasive and the chemicals used in the process can corrode the motor mechanism. The design of the motors needs to consider these factors in order to perform reliably. For example, to protect the shaft encoder, it is housed inside the motor casing.

Using computer models of its motors, the company simulates the performance of different motor designs by varying the motor parameters. The motor simulation software enables the design team to change the diameter of the winding wire, number of turns, number of slots, pitch, lamination, as well as the physical dimensions.

With this facility Leroy Somer is able to design a motor that meets the current, torque and speed requirements, whilst



optimising the size of the inverter.

Once ordered, Leroy Somer designed, built and delivered the motors within three months - knowing that the design would be right first time.

In addition to the performance profile, the motors are required to meet the Class H

Contract for Leroy Somer



insulation category - providing a higher operating temperature and improved 'anti-flash' resistance. To withstand the demanding environment, the motors are finished with two coats of a special epoxy protective paint.

Leroy Somer is growing its business by offering value-added services. Up to 50% of its business is provided by customisation. A

detailed understanding of motor technology and an investment in IT enable Leroy Somer to supply the best possible solution. When coupled with efficient manufacturing and effective operations, it also delivers it profitably.

For further information, please contact:

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STEEL

MITSUBISHI ELECTRIC CORPORATION

Following a visit by the Mitsubishi team to the Head Office in Hayes, LEROY SOMER has been chosen to supply over 400 motors for fixed and variable speed applications.



MITSUBISHI ELECTRIC CORPORATION have won large contracts for the supply of Inverter drives, motors geared motors and electrical services for two Steel Mills.

The first of these is for a Rolling Mill and Processing line to be installed at EREGLI DEMIR (ERDEMIR) one of the most important steel mills in Turkey.

The second is a new Hot Dip Continuous Galvanizing Line to be installed at SHENG YU STEEL CO. LTD (SYSCO) in Taiwan.

FLSC motors will be used for the High Alkali and Acid areas using the System III finish

applications and Geared motors from the CB2000 range also fitted with the FLSC motors will be required.

UK INFORMATION

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The silk route

Two routes perfumed with spices and smelling of riches, two routes to many tales which have crossed the centuries from all over Asia, their story we shall try to imagine.

Travelling in China today

China, tourist destination previously unheard of, is today quite possible with the large Tour Operators at an attractive price. Be careful of the quality of service to be expected demand to know the category of the hotel or you will be disappointed and make sure exactly the name of the establishment.

Once there, you are able to purchase in Yen or Dollars: credit cards are accepted by the hotels and the larger restaurants. You are not able too take out any cash of the Bank of China.

Do not buy anything with your eyes closed and barter: the same product can be bought for one third the price of the government shops.

Xi'an

Xi'an, the starting point of the Silk Route, is a destination today often taken. One can find the most beautiful museums of China the famous clay army on the mausoleum of the first emperor, Qui Shi Huang.

Underground galleries display the troops in battle formation. Warriors on foot, chariots, cavalry and infantry defying the passage of time for the pleasure of the visitors.

The most popular attraction are the soldiers in armour and their proud Warriors.



We are in the first century, reckless men transport treasures in their baggage along the Northwest SILK ROUTE, those who link Chang'an (today Xi'an) with dreams of the East, traversing immense deserts and mountains.

Many merchants suffering from thirst and the cold ...raisins, nuts, Grenadines, spices and perfumes, bags full of medications, of jewels by the hundred carried with silk serving as money or barter.

Arriving at their destination merchants attached to their camels with tusks of ivory, racing horses, lions musical instruments trading for silks, bamboo, lacquer and iron... Where they change to the Gregorian calendar discover the secret of paper making or with worse consequences, gunpowder.

Their way traces through the Southwest confronting formidable forests and water torrents: they succumb to abominable fevers. Their loads are incredible, silks, gold, paper, ceramics or iron and tea semi-precious stones, jade and pearls, mother of pearl and shells all carried on the backs of horses or mules.

Much later, due to progress in navigation there is established a new Silk Route by sea....



Logistics, a key element for customers



Leroy-Somer sends more than 4000 shipments a day all over the world !

The organization of logistics, the different information management systems and similar activities become more and more complex.

How does Leroy-Somer adapt to this permanent evolution ? We met Roland Dautrey, Manager of the Leroy-Somer data processing department, who agreed to discuss this subject with us.

What systems are implemented by Leroy-Somer to ensure a uniform management of order handling and stocks ?

Leroy-Somer uses for all commercial and production units a unique information management system. This system consists of :

- a product definition tool. A company like Leroy-Somer has several thousand products, each day approximately fifty products are added to the list. Once a product has been created it can easily be found again. This tool also enables the quick identification of customer needs and to propose a solution perfectly adapted to his requirements.

- a sales administration system ensuring the complete logistics.

Let us take the example of a customer using the EDI system. As soon as he issues his order, he automatically starts a series of procedures which vary depending on the complexity of the required product : product with short delivery time available on stock, products requiring the assembly of components available on stock or products to be manufactured.

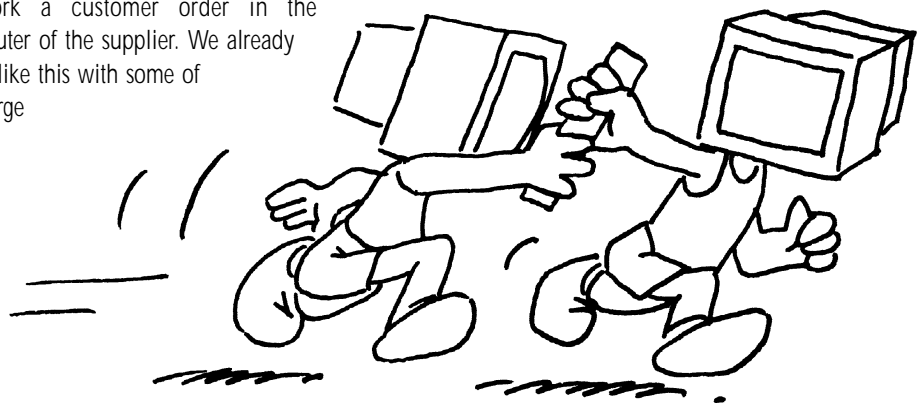
In fact, people often talk about the EDI system these days. What it is about ?

EDI means « Electronic Data Interchange ». This is a language governed by international standards which enables computers to communicate between them. Thus it is possible to exchange external as well as internal information and to avoid data entries and the time for manual transmission. For



Jean-Pierre Visconte, Patrick Viaud, Jacky Bonneau, Roland Dautrey, Frédéric Fivet, Alain Mobili.

example, a purchasing order of a customer in the computer of the customer becomes after its transmission via the communication network a customer order in the computer of the supplier. We already work like this with some of our large



satisfaction!

customers.

Could you please explain us more precisely how the customer order is processed ?

In fact, the data processing system automatically carries out the basic operations. If, for example, the customer needs a product requiring an assembly, the system issues an assembly order describing the different components and ensuring their reservation. Depending on the details specified by the customer, the team at the mounting center will receive the instructions necessary for the assembly. In case of an adapted product which has already been manufactured before, the customer order automatically generates a manufacturing order in the corresponding production unit.

How does the organization of logistics enable Leroy-Somer to differentiate ?

The fact that we have a uniform system for the different production units and for the main European sales offices, obviously offers several advantages.

First of all, the different departments concerned can follow the evolution of the order at any moment and thus inform the customer effectively.

Leroy-Somer is able to respond to every new logistic organization (EDI, bar code, etc.) of the customer while respecting local peculiarities (languages, legal obligations, etc.).

Obviously, this system will be compatible for the passing to the year 2000 and will enable

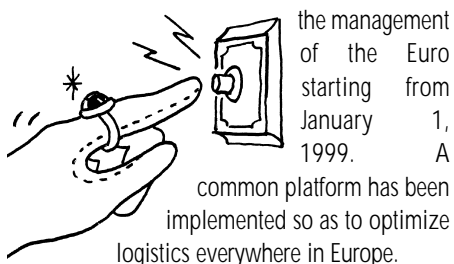
Just In Time

Leroy-Somer implements progressively a process which consists of saving time between the placing of the order and its shipment. In fact, this is a Just in Time organization, i. e. a production with short delivery times and tight flow. This approach is made up of two different parts:

- The continuous progress which consists in involving the highest number of persons in the resolution of malfunctions so as to optimize the time needed at all levels of the company (administration, production, etc.).
- The use of specific tools such as Kanban or

Hoshin. Kanban enables the management of a tight production flow. Hoshin is a method of production and information flow reorganisation enabling the reduction of waiting time and to obtain a tight production flow.

These two means cannot be dissociated and are complementary. In fact, when one process has been optimized, it immediately causes numerous malfunctions which have to be adjusted with the persons concerned.



In practice, what are the new services offered by Leroy-Somer ?

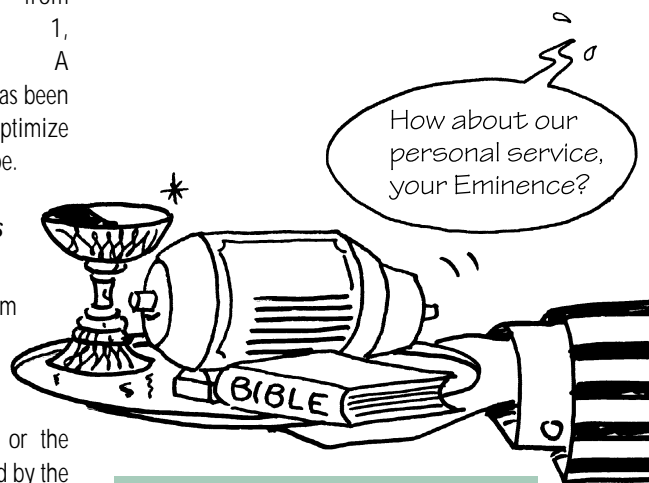
At present, in addition to the EDI system and the management of bar codes, the tendency is to offer a more and more customised service, for example, the realization of customised labels or the direct delivery to a destination specified by the customer.

In this context, logistics together with a high performance information management system become a key element for the satisfaction and the loyalty of a customer.

What are the future prospects ?

It is obvious that the Internet will strengthen this phenomenon. The customer will be able to directly follow his order on the Leroy-Somer Internet site, like it is already practiced with certain express mail companies. Progressively, the customer will place his order in our Internet site wherever he is in the world. But we do not want to leave out stages, as a first step we would like to make available our

present information management system 24 h / 24 h and 7 days / 7 days.



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Roland Dautrey



WHICH WOULD YOU TRUST

There are some things which require particular care to transport. A sudden start or an overload without control and this could be a catastrophe.

Progressive start.

To begin the adjustments are simple, the Digistart allows the limitation of current during the starting phase and delivers a very smooth acceleration without stopping.

Absolute control

Due to digital technology, the Digistart controls all the phases of motor operation.

Integral protection

The Digistart is equipped, as standard, with a number of features which reduces the requirements of ancillary equipment, therefore reducing the cost of starters and labour for installation.

Areas of operation

The DIGISTART is not only recommended for belt conveyors but also for applications such as pumping ventilation and grinding and many others.

With the Digistart electronic controller, your load arrives!



**LEROY
SOMER®**