



December 2001

# NEWS

The European magazine of Leroy-Somer N°10

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## ATEX European Directives



### What does ATEX mean?

The term ATEX has been given to two European Directives regulating "Explosive Atmospheres". The first, 94/9/EC, concerns electrical equipment for explosive atmospheres and aims to bring together the various regulations of Member States regarding equipment and protective systems intended for use in these danger zones. The second, 99/92/EC, establishes the minimum protection requirements in terms of health and safety for workers likely to be exposed to risks of explosive atmospheres.

### What is an "explosible atmosphere"?

An "Explosible Atmosphere" is an atmosphere which could become explosive due to local and/or operational conditions. It is a mixture of air and flammable substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire unburned mixture.

### What exactly does the Directive cover?

- Equipment and protective systems intended for use in explosive atmospheres.
- Safety devices, controlling and regulating devices which contribute to safe functioning of equipment and protective systems.
- All electrical, mechanical, hydraulic and pneumatic equipment.

### What is the significance of the date 1st July 2003?

From that date, all industrial companies involved in manufacture, use or distribution of equipment will have to comply with the essential health and safety requirements laid down in the ATEX Directives.

In practical terms, ATEX is not being applied retrospectively: equipment already in place will have to undergo a risk analysis. If found to be defective (worn, etc), it should be replaced with equipment which complies with ATEX. However, new equipment designed to operate in zones where there is a risk of explosion will not be approved for sale unless it complies fully with ATEX.

### What are the obligations on users?

With regard to prevention of explosions and protection in the event of their occurrence, the user is obliged to:

- take the appropriate technical or organisational measures for the type of operation
- make a global assessment of the risks of explosion
- subdivide locations where explosive atmospheres may occur into zones
- put in place a campaign for signalling defined zones

### Which zones for which dangers?

#### Involving gases:

#### Zone 0: CONTINUOUS DANGER

Location in which an explosive atmosphere is present continuously or for long periods

#### Zone 1: POTENTIAL DANGER

Location in which an explosive atmosphere is likely to form in normal operation

#### Zone 2: MINIMAL DANGER

Location in which an explosive atmosphere may form in normal operation but if it occurs, will only persist for a short period.

#### Involving dusts:

The same zones and characteristics apply, but follow a different numbering system:

Zone 20: PERMANENT DANGER

Zone 21: POTENTIAL DANGER

Zone 22: MINIMAL DANGER

### How can I be sure of conformity?

The procedures for assessing conformity depend on the nature of the equipment and where it is located. They all lead to CE marking. In addition, the nameplate should incorporate various special symbols. For example: d = flameproof casing, e = increased safety, n = non-sparking, etc. Where the risk is average or high, a Notified Body must be consulted, as stipulated in the Directive.

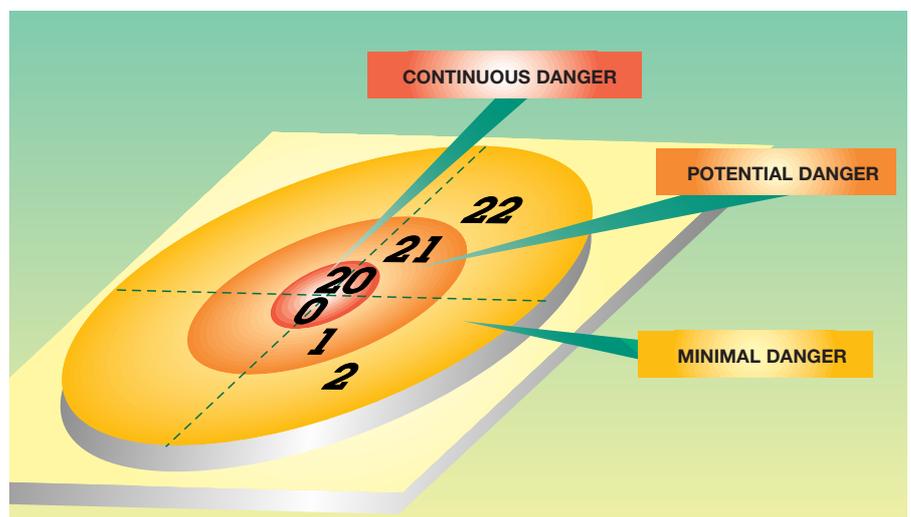
### Who is responsible for what?

#### The manufacturer:

Is obliged to comply with the requirements of the European Directives. **The date of 1st July 2003 will not be extended for anyone or any reason!**

#### The user:

His responsibility consists of using equipment correctly according to the zones he has defined and hence the risks involved. He





should ensure safety is maintained following repair to keep his industrial processes running continuously. From 2003, his installations will have to comply with the European Directives. In addition, if he is also a manufacturer, he will also have manufacturers' responsibilities.

**The repairer:**

Is not covered by Directive 94/9/EC. Nonetheless, make sure that he is trained in the safety requirements concerning materials

and equipment since degradation may occur. However, bodies such as INERIS or LCIE in France offer a recognised qualification which repairers may obtain to demonstrate their competence.

For more information: <http://europa.eu.int/comm/enterprise/atex/>

## The new ranges of Leroy-Somer induction motors



### Motors for explosive dust atmospheres

The new ranges of Leroy-Somer LSPX and FLSPX motors are designed to operate in silos or any other storage area for products which release flammable dust. Conforming to the essential health and safety requirements described in the ATEX Directive 94/9/EC, they are also designed for surface industries, for use in environments where explosive atmospheres, due to mixtures of air and dusts, can occur.

Suitable for use in zones 21 - 22, their main technical characteristics are as follows:

- Guaranteed dust-proof: IP 65 (reinforced seal on shield spigots/hous-

ing/terminal box and shaftways)

- Guaranteed maximum surface temperature: 125°C
- Marking: II 2 D Maximum surface temperature: 125°C
- Declaration of CE conformity provided by "INERIS" French laboratory, approved by the European Commission.

These safety motors can also be used in conjunction with other products in the Leroy-Somer global offer (brake motors, geared motors, variable speed drives).



### Motors for gaseous explosive atmospheres

	<b>FLSD(E) Flameproof Zones 1 &amp; 2</b>	<b>FLSE* / LSE Increased safety Zones 1 &amp; 2</b>	<b>FLSN / LSN* Non-sparking Zone 2</b>
<b>Protection Principle</b>	Resisting an internal explosion Preventing spread of combustion Limiting surface temperature	Avoiding electric arcs Avoiding sparks Limiting the temperature at all points on the motor during all operating phases	Avoiding electric arcs Avoiding sparks Limiting surface temperature
<b>Group and Temperature Class</b>	II 2 G(D) - EEx d(e) IIC T5 T1 (450°C) to T5 (100°C)	II 2 G(D) - EEx e II T4 T1 (450°C) to T4 (135°C)	II 3 G(D) - EEx nA II T3 T1 (450°C) to T3 (200°C)
<b>Design</b>	Robust casing Reduced gaps Reduced winding temperature rise	Same as FLSN + Reduced temperature rise to ensure locked rotor time of 5 s according to EN 50 019, 7 to 10 s according to VIK	Min. clearances between energised parts Min. distances between fixed and rotating parts
<b>Standards and Marking</b>	EN 50 014      EEx d(e) EN 50 018 + VIK extension	EN 50 014      EEx e EN 50 019 + VIK extension	EN 50 014      EEx nA EN 50 021 + VIK extension

- When fitted with heat sensors, these motors can operate as variable speed drives;

- With their IP65 construction, these motors guarantee operation in atmospheres with a high explosive dust content according to EN 50 014 & EN 50 281-1.1. If the limit surface temperatures correspond to the requirements for non-ignition (for example 125°C for wheat dust).

\*on request

## Nemo® pumps - ideal for difficult applications!

Netzsch Monopumpen GmbH is a company belonging to the Netzsch international consortium. For nearly 50 years, Netzsch has designed, manufactured and sold Nemo® pumps throughout the world for the most demanding applications. Nemo® pumps are used to convey fluids in practically all industrial sectors, especially in industries relating to the environment, chemicals, pharmaceuticals and cosmetics, paper, food and confectionery. Another fundamental area of use for Nemo® pumps lies in pumping petroleum.



Thanks to a globalisation process begun at an early stage (manufacturing sites in Germany, the United States, Brazil, China and Japan), an extensive after sales service (distribution and advice centres in 60 countries throughout the world), continuous innovation and its philosophy of partnership with customers in developing products, Netzsch Mohnopumpen now leads the world market for eccentric rotor pumps. This shared approach was the reason for Leroy-Somer being chosen as Netzsch's partner for drive systems.

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<http://www.netzsch.com>  
<http://www.netzsch-pumpen.de>

### General characteristics of the Nemo® pumping principle

The universal process of Nemo® pumps combines the benefits of other pump designs:

- Like centrifugal pumps, the Nemo® pump has no intake or outlet valve.
- Like piston pumps, the Nemo® pump has an exceptional self-priming capacity.
- Like diaphragm pumps or peristaltic pumps, the Nemo® pump can convey all types of non-homogeneous abrasive fluids containing fibres or particles of solid matter.
- Like gear pumps or screw pumps, the Nemo® pump ensures reliable transport of substances with viscosity of up to 3 million mPas.
- Like piston, diaphragm, gear or screw pumps, the Nemo® pump provides a continuous flow which does not generate pulsations, enabling it to be used as a dosing pump.

For dosing pumps, Netzsch regularly uses Leroy-Somer geared motors with Varmeca type integrated frequency inverter, which are particularly suitable for this type of application.



Nemo® dosing pump with integrated Leroy-Somer Varmeca

### Nemo® pump performance data

- Flow rate 0.01 dm<sup>3</sup>/min. to 500,000 dm<sup>3</sup>/h
- Back pressure up to 72 bars
- Viscosity of conveyed fluid up to 3,000,000 mPas
- Temperature up to 300°C



Nemo® pump

# UK Gear Assembly Centre

The gear assembly centre (GAC) based at the Leroy-Somer UK headquarters in Hayes is a vital element in meeting the demanding requirements of an ever-changing market place.



The Leroy-Somer production facility provides multiple levels of availability for gear product, either in, component form, guaranteed availability under contract, rapid assembly or finished product. In addition the UK sub assembly centre provides added control and flexibility often providing regular gear assembly for UK machine manufacturers, particularly within the pump market, where a short delivery times are often required.

In emergency breakdown situations the GAC can provide a next morning delivery.

In addition to the Customer specific stock held at Hayes for larger customers, gear products shown below are available, assembled from component stock.



**Helical in-line (Compabloc):** 0.25 to 15KW Integrated, universal, or primary shaft mounting with:

- I) Standard motors **LS:** 0.18KW – 15KW suitable for single speed or 2:1 variable speed operation

- II) Inverter rated motors **LSMV;** 0.75KW – 7.5KW suitable for constant torque application down to zero speed
- III) DC motors **MFA,** 3000-rpm 180V: 0.18KW -1.1KW

## Integrated variable speed for motors and gear motors (Varmeca / VMA)

- I) 0.25KW to 7.5KW 3 phase power range
- II) With options including; RFI filter, Stop/ Forward / Reverse, and remote control

## Factory delivery within two weeks to the UK can include:

- I) Brake motors with protection up to IP55, integral or IEC shaft
- II) Motors for special applications; Flameproof, non-sparking and EFF1
- III) Motor adaptations: tacho, forced ventilation, encoder, PTC, PTO
- IV) Gear units, worm and wheel, planetary, helical bevel, low backlash and hollow shaft

The modular design of LS gearboxes means that once an order has been received, only a wheel and pinion is required for assembly to the motor and gearbox. This concept means that the same pinion and wheel can be used on three ranges of gearbox, offering flexibility with minimum stock.

## New products

Leroy-Somer prides itself on the annual research and development investment capability, one result of which is the new Compabloc 3000 gearbox. The same modular concept remains central to the design as with the Compabloc 2000 but with increased torque available from the equivalent size.

Many companies are now offering motors with variable speed controllers mounted on top of the motor.

The Leroy-Somer approach is somewhat different, electronics are integrated into the motor and designed specifically to provide a simple control solution or more sophisticated when essential.

This is not a new concept for Leroy-Somer that has been fitting electronic controllers to rotating machinery for over thirty years. It began with voltage controllers for alternators, and now the Varmeca range incorporates a variable speed controller within the motor terminal box. Simplicity has been the main design parameter, and motors or geared motors are delivered ready programmed by the GAC for use on most applications.

Another development is the Varmeca 20, which will bring further enhancements to the range including single phase from 0.25KW to 1.5KW and three phase from 0.25KW to 7.5KW.

A number of options can be fitted and particularly interesting is the data communication capability with systems such as Profibus.

In addition an enhanced capability for long travel drives on **Overhead Cranes** is available to the manufacturer with this new product.

All of which is available from the Gear assembly centre.



&gt;



# COMPABLOC 3

Modularity to suit every need

## VARIABLE SPEED

## MOTORS



• INDUCTION  
VARMECA

DIGIDRIVE



UMV



• SERVO  
UMV



• DC  
DMV



Without brake  
LS, FLS, etc

• INDUCTION



◀ FCR brake



• SERVO  
SMV



• DC  
LSK

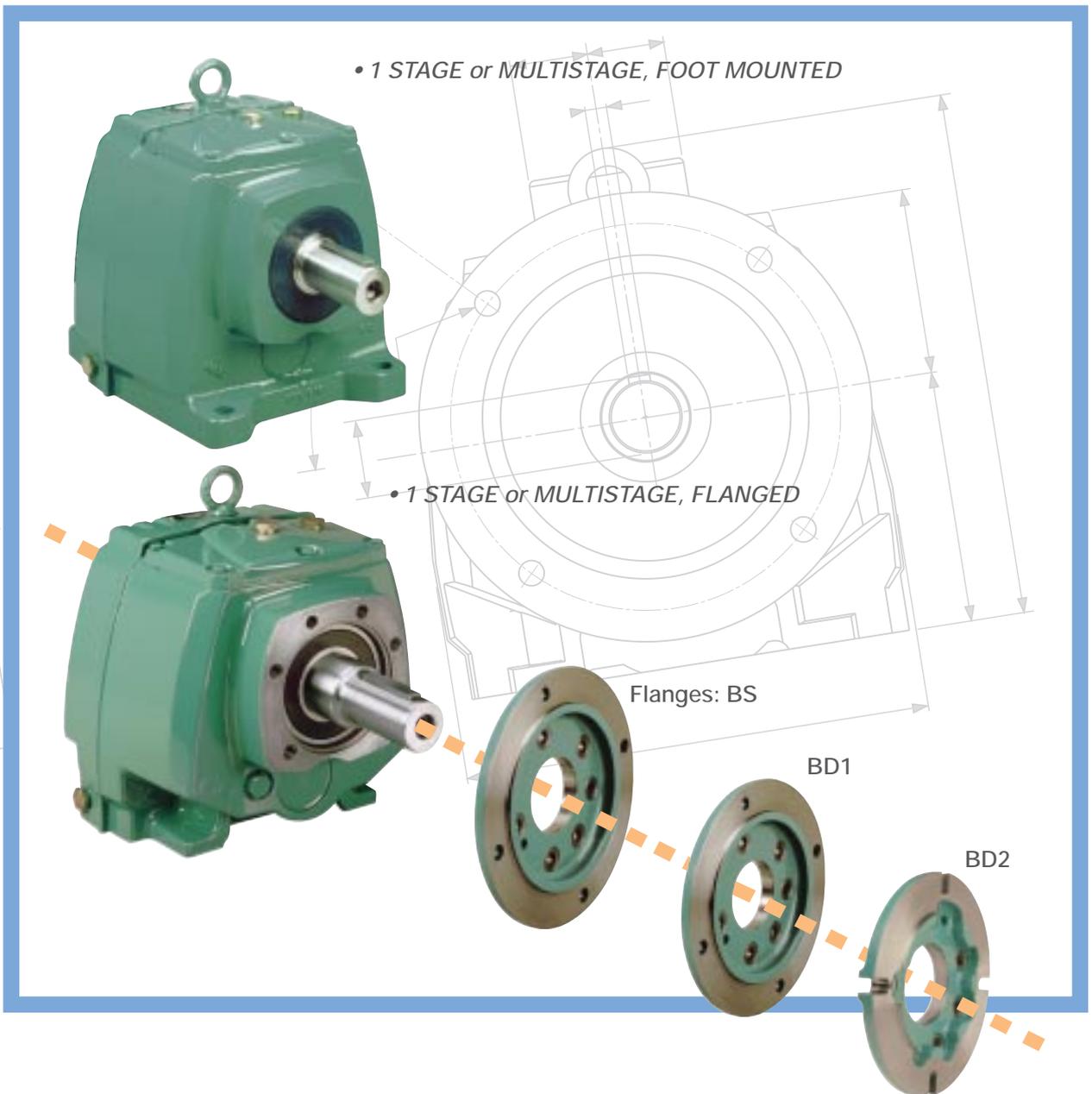


# 3000

The modularity of the **Compabloc 3000** range is evident not only in the choice of foot mounted versions, or versions with different diameter flanges, but also in the variety of motors and drives which can be combined with it. The resulting complete drive systems, with the benefit of all the acquired experience and quality inherent in the LEROY-SOMER name, thus provide a tremendous range of solutions.



## GEARBOXES



## Climate Change Levy (CCL) – Enhanced Capital Allowance (ECA) - Eff1 and Leroy-Somer

In April 2001 the UK government introduced a new tax on energy, affecting every industrial and commercial business, in the case of electricity this tax represents an average 10% increase in the cost to the consumer. The tax known as the Climate Change Levy (CCL) is the result of the commitment by the UK at Kyoto in 1997 to significantly reduce the emission levels of greenhouse gasses.

### Eff1

The European manufacturers of electric motors made a voluntary agreement for motor efficiencies according to three levels Eff1, Eff2, and Eff3.

The standard covers only 2 and 4 pole motors between 1.1 and 90 kW.

The intention was to eventually eliminate from manufacture all but Eff1. The market has virtually driven out Eff3 motors already and Leroy-Somer from the outset stopped producing Eff3 for standard motors and replaced them with Eff2.

The gains in the much-improved level of efficiency, benefits the consumer throughout the lifetime of the motor.

### Enhanced Capital Allowance (ECA)

In order To offset some of the effects of the increased tax the government also decided to allow an enhanced capital allowance for motors that are approved by inclusion in the Energy Technology List.

In order for the motor to be included and therefore approved, it must either meet the efficiency ratings of Eff1 or the efficiency ratings of the Water Industry Efficiency Standards (WIMES).

The ECA enables the cost of supply and installation to be offset against corporation tax in one year instead of spread over a number of years.

When incorporated into a larger item of plant or machinery an ECA approved motor attracts an enhanced capital allowance according to a table published on the website [www.eca.gov.uk](http://www.eca.gov.uk), and represents a significant saving to the business.

### The Approval of Leroy-Somer products

As the leading European manufacturer of electric motors, gearboxes and associated control equipment, it will be no surprise to discover that there is a complete range of products available from Leroy-Somer to benefit constructors and users alike.



### Eff 1 motors 'off the shelf'

Leroy-Somer has a complete range from 1.1 to 90kW available off the shelf and from approved stockists in the UK.

### ECA approved products

Aluminium motors LSES	2 pole and 4 pole 6 pole	1.1 to 132kW 5.5 to 30kW
Cast Iron motors FLSES	2 pole and 4 pole 6 pole	1.1 to 400kW 30 to 250kW
ExN Cast Iron Motors FLSN	2 pole and 4 pole 6 pole	1.1 to 400kW 30 to 250kW
Variable speed motors VARMECA	2 pole and 4 pole 6 pole	0.37 to 7.5kW 0.37 to 5.5kW
Inverter drives	UMV DIGIDRIVE	Variable Speed
		0.75kW to 600kW 0.25 to 15kW



## Lapland, every child's dream

Who hasn't at some time dreamed of catching Father Christmas as he steps out of the chimney and carefully lays out the long-awaited toys under the Christmas tree?

Father Christmas can be traced a long way back in history and his present day image is the product of a combination of various legends and mythical creatures. His story dates back to Nicholas of Smyrna (now Izmir, in modern-day Turkey) who lived in the 4th century AD. A generous, charitable man who loved children, Nicholas often gave toys to the very poorest, just by throwing them in through their windows.

At Lapland in Finland, fiction becomes reality: you can meet a true-to-life Father Christmas!

At Korvatunturi Fell in the Savukoski district in North-west Lapland you will find an amazing sight - the real home of Father Christmas. This children's paradise is a magical place where, all

year long, careful preparations are made for the day so eagerly anticipated by little ones.

Greeted by no less than 500,000 tourists every day of the year, Father Christmas welcomes you in person, with a kindly smile. A beaming Father Christmas who fills our children - even our own inner child - with wonder.

Spending a family Christmas holiday in Lapland is a non-stop delight. Winter sports, sleighs drawn by dogs or reindeer, the visit to "Santa Park", trees sparkling with fairy lights, delicious festive food, presents wrapped in ribbon, all these will provide a memorable souvenir, forever etched in the memories of the children and their parents.

But contemplation and religious services are also an integral part of Lapland's Christmas traditions. And there is ample provision for all those in need of peace and quiet. After all, isn't that the best present parents can give one another?

It's a once-in-a-lifetime experience, and in Lapland, it makes people happy to see the happiness of others.



[www.laplandfinland.com](http://www.laplandfinland.com)

[www.mek.fi/christmas](http://www.mek.fi/christmas)

[www.rovaniemi.fi](http://www.rovaniemi.fi)

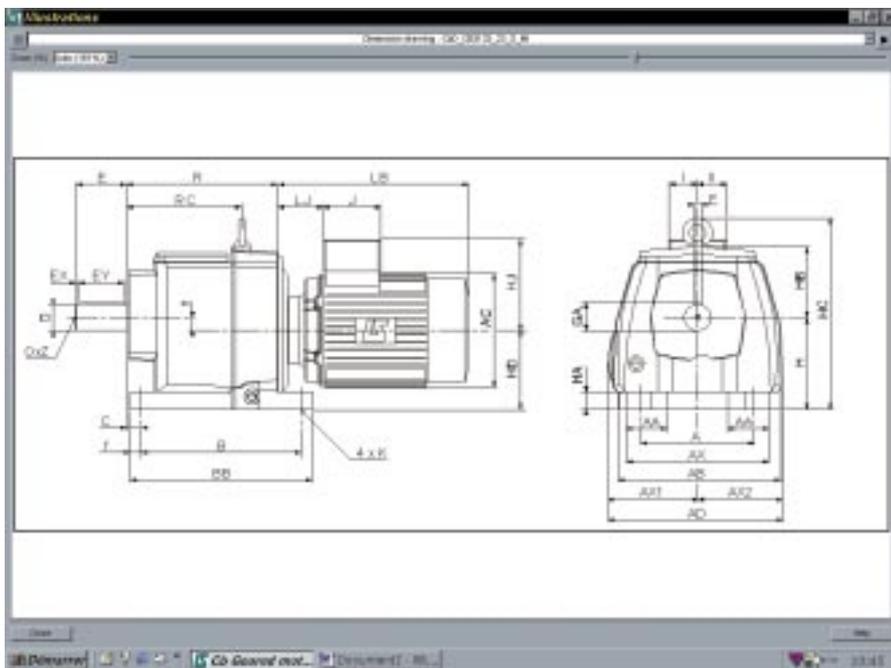
[www.finland-tourism.com](http://www.finland-tourism.com)

[www.erasetti.fi](http://www.erasetti.fi)

[www.arcticsafaris.fi](http://www.arcticsafaris.fi)

[www.laplansafaris.com](http://www.laplansafaris.com)



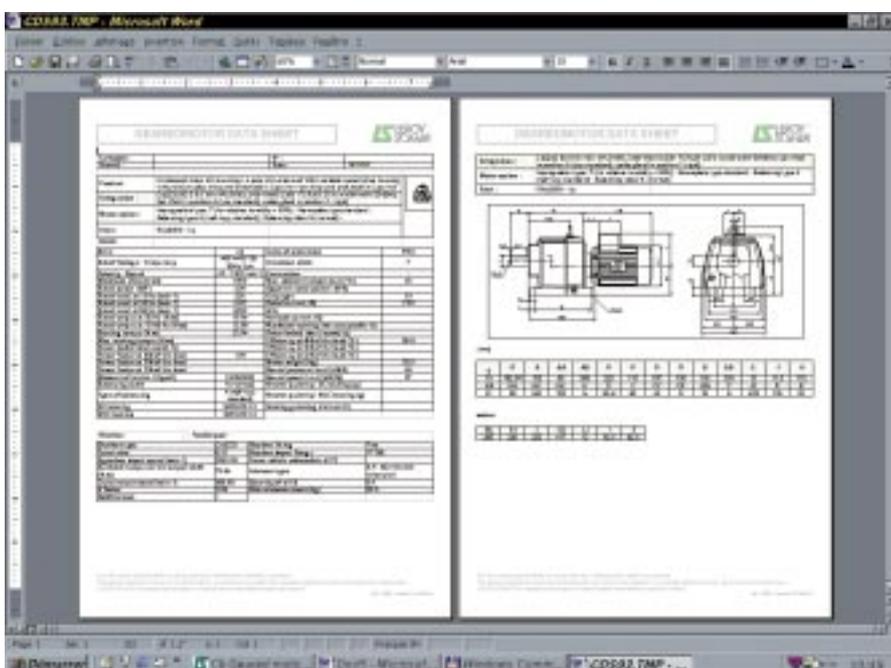
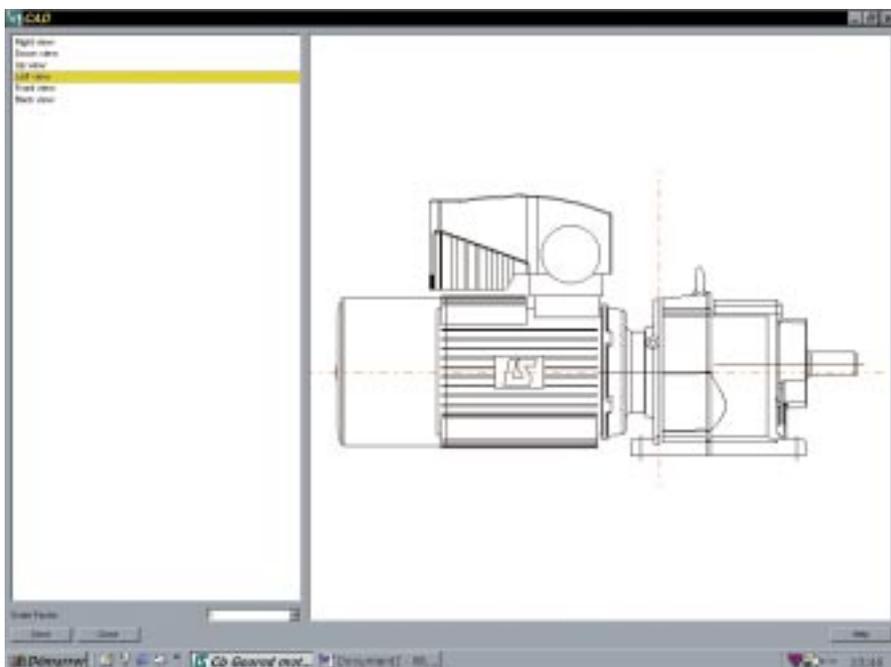


all the standard possibilities will it move onto Leroy-Somer's adapted products.

It only takes a few minutes to draw up a complete technical specification in a customisable Word document in your chosen language, complete with characteristics and diagram. Moreover, the user can view this exchange file for the chosen product directly in .dxf format (6 different views) and import it into his own CAD drawing. If necessary, it is possible to go back into the chosen configuration, modify an option and obtain a new technical specification and new CAD drawings.

The configurator is such a powerful tool that this is only the beginning. The first version, currently available on CD-ROM, already exists in six languages. So, to select a product in one language, change it at any time and produce the specification in another language, takes no more than a click of the mouse!

The future is undoubtedly bright for the configurator. Customers will be offered new products and new functions on a regular basis. This powerful tool will soon become indispensable.



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# Concentrated expertise



The new Compabloc 3000 has benefited from the most recent developments in CAD modelling. For a given size, this new range is capable of transmitting up to 40% more torque! Several new features provide a level of protection which is unique on the market. In addition, the Compabloc 3000 housing can easily withstand the stress of the most demanding applications.

A technical catalogue describing the new Compabloc 3000 range is available on request. Or simply ask for our new CD-ROM configurator which describes the entire Compabloc 3000 range.



**LEROY  
SOMER**