

## IMfinity® ATEX induction motors

Gas zones 1 & 2 - Dust zones 21 & 22

**Fixed speed and variable speed**  
**IE2 High efficiency, IE3 Premium**  
**Frame size 80 to 355**  
**Power 0.75 to 400 kW**

**LEROY-SOMER™**

***Nidec***  
All for dreams

# IMfinity<sup>®</sup> ATEX

## A complete high-performance range

### Recognised high-performance design

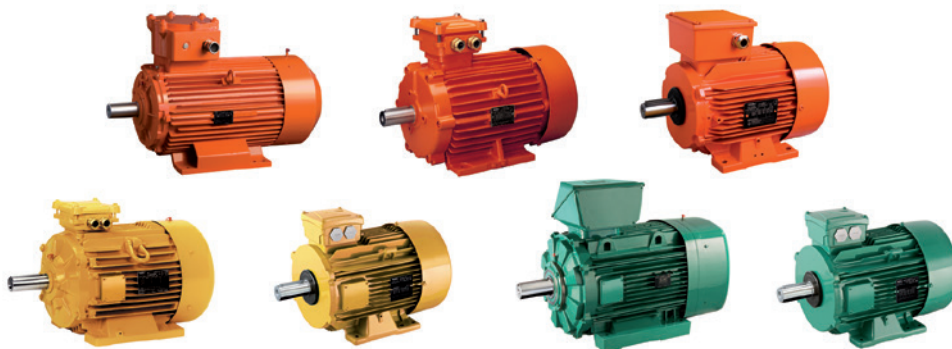
Boosted by the success of its IMfinity<sup>®</sup> range of induction motors which are recognised for their robustness and reliability, Leroy-Somer is presenting its ATEX version based on the same platform.

### IMfinity<sup>®</sup> ATEX: a wide and flexible range

This new complete and multi-purpose range dedicated to explosive, gas and dust atmospheres provides a safe and energy-saving response for zones 1 and 2 as well as zones 21 and 22.

These fixed and variable speed-compatible motors enable us to cover all demanding ATEX markets, where quality, performance, risk management and compliance with standards are essential, meeting both manufacturing and process expectations.

The safety and advice provided by our technical expertise are reinforced by our powerful logistics and services organisation, which stands by your side from the start of your project and throughout the lifetime of your product.



# Reliability and adaptability

## Reliability

Thanks to the detailed construction of the IMfinity® motors, this new series of ATEX motors benefits from the quality, reliability and robustness required to meet industrial challenges, including in the most extreme conditions.

The new series of IMfinity® ATEX motors comes with multiple characteristics and options, suitable for the many requirements and wide range of customer applications, while continuing to cover its main target: safety.

An independent and qualified laboratory has approved the Leroy-Somer sealing system which satisfies the IP55, IP65 and IP66 requirements applicable in the different business segments.

IMfinity® ATEX motors are designed to be used on the mains and with speed variation. Two nameplates indicating the electrical characteristics for mains and variable-speed operation are therefore available as standard.

## Easy to use

Many of the electrical and mechanical components (stators, rotor cages, housing, flanges, bearings, etc.) are taken from the IMfinity® platform, which ensures a high level of maintainability for ATEX motors.

The guaranteed maximum noise level (LpA) is equal to 77 dB(A) + a tolerance interval of 3 dB(A) according to IEC 60034-9.

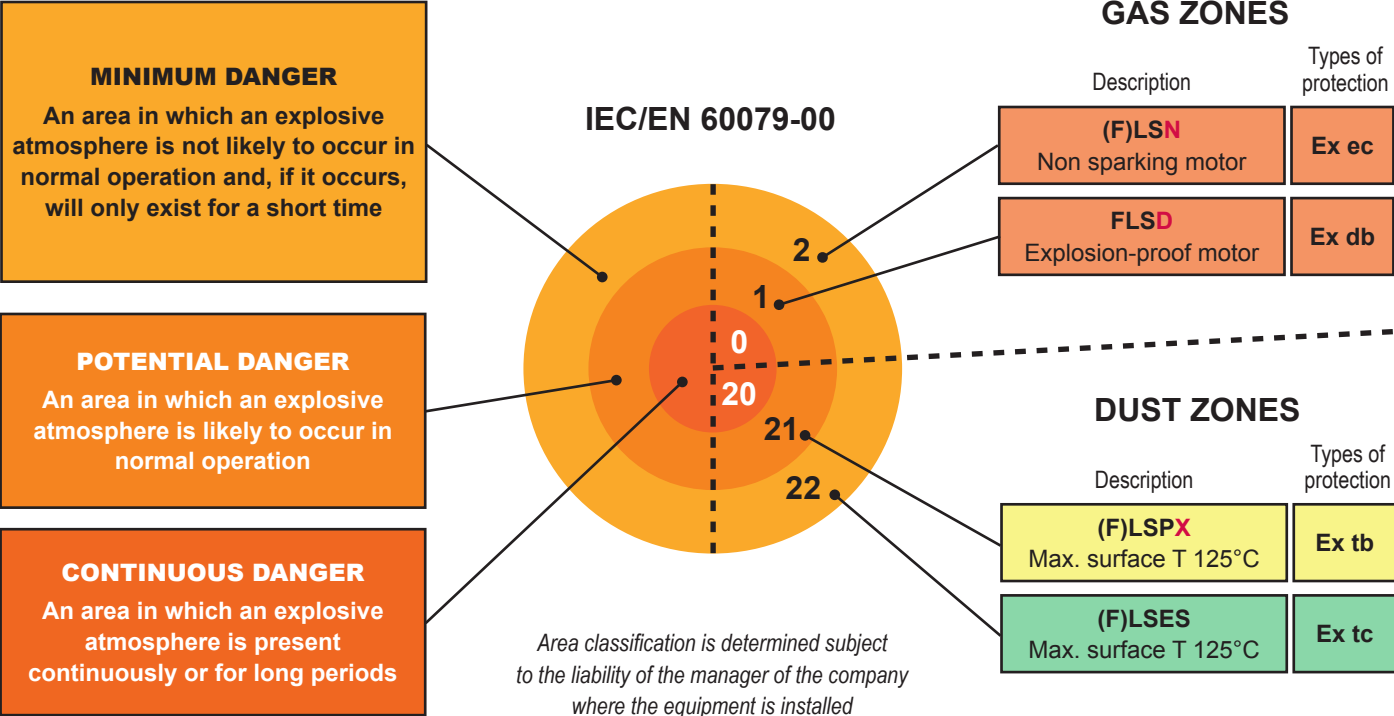
These components can be proposed for horizontal or vertical operation, with feet, flanges or feet and flanges.

Thanks to its extensive multi-voltage and multi-frequency compatibility, **the same motor can be used** in most countries:

- Easier to **select**
- Easier to **source** and better **availability**
- Easier to **use**
- Stock **reduction** for OEM

# Certified safety

## A solution for each gas or dust ATEX zone



## Certifications and markings

Our IMfinity® ATEX motors meet the requirements of the 1, 2, 21 and 22 danger zones and provide the highest guarantees in terms of safety and reliability.


They are certified compliant with ATEX standards, IECEx system regulations and the ATEX directive 2014/34/EU.







The EC, ATEX and IECEx markings appear on the nameplates as standard.

Ratios between rated power, speed, and frame size for the IMfinity® ATEX motors comply with the applicable sections of standards IEC 60034 and 60072.

Environment	Gas			Dust			
	Zone 1	Zone 2		Zone 21		Zone 22	
Designation	FLSD	FLSN	LSN	FLSPX	LSPX	FLSES	LSES
Protection level	Exdb or Exdb eb IIB/IIC	Ex ec	Ex ec	Ex tb	Ex tb	Ex tc	Ex tc
Power range	0.75 to 200 kW	0.75 to 400 kW	0.75 to 200 kW	0.75 to 400 kW	0.75 to 200 kW	0.75 to 400 kW	0.75 to 200 kW
EC certification	✓	✓	✓	✓	✓	✓	✓
IECEx system	✓	✓	✓	✓	-	✓	-
ATEX directive 2014/34/EU	✓	✓	✓	✓	✓	✓	✓

Two types of markings must appear on electrical equipment operating in explosive gas and/or dust atmospheres:

- Markings as per the ATEX directive 2014/34/EU with the logo , indication of the equipment group and category and the symbol G, D or GD.
- IEC markings (standard 60079-0) with indication of the type of protection, equipment group, temperature class and EPL (Equipment Protection Level).

Motor type				ATEX marking				Protection marking				
FLSD	(F)LSN	(F)LSPX	(F)LSES		II	2	G	Ex	db	IIB	T4	Gb
					II	2	D	Ex	Td	IIC	T125°C	Db
				ATEX marking								
II	II	II	II	Equipment group								
2; 3	3	2; 3	3	Equipment category								
G, GD	G, GD	D	D	Gas or (gas and dust)								
Ex	Ex	Ex	Ex	Explosion protection								
db, db eb	ec	tb	tc	Type of protection								
II A, B, C	II A, B, C	III A, B, C	III A, B	Equipment group								
T4, T5, T6	T3	T125°C	T125°C	Temperature class								
Gb	Gc	Db	Dc	Equipment Protection Level								

# Energy savings

The IMfinity® ATEX range was designed to reach the efficiency levels defined in standard IEC 60034-30-1.

Leroy-Somer ATEX motors satisfy the IE3 Premium and IE2 high efficiency levels as standard in 2, 4 or 6 poles and frequencies of 50 or 60 Hz.

IMfinity® ATEX motors will help to reduce your energy consumption and CO2 emissions as part of an active sustainable development policy, with particularly short-term return on investment.

ENVIRONMENT	GAS			DUST			
Zone	Zone 1	Zone 2		Zone 21		Zone 22	
Designation	FLSD	FLSN	LSN	FLSPX	LSPX	FLSES	LSES
Efficiency level	IE3	IE2 & IE3	IE2 & IE3	IE2 & IE3	IE2 & IE3	IE2 & IE3	IE2 & IE3

## All the benefits of an optimised range

	Reliability	Availability	Efficiency	Selection	Installation
<b>Construction and design</b>					
Optimised magnetic circuit	✓		✓		
Air gap optimisation	✓		✓		
Low-loss steel lamination			✓		
Enhanced slot filling			✓		
Streamlined component use		✓		✓	✓
Robust mechanical parts	✓				✓
High quality components	✓				
<b>Characteristics</b>					
Reduced starting current	✓		✓		✓
IE2 and IE3 efficiency levels			✓		
<b>Variable-speed use</b>					
Fully characterised	✓	✓	✓	✓	

### Motor and drive technology

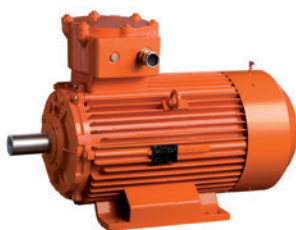
Our advanced drives and motors technology and automation solutions are designed by focusing on maximizing energy savings across a wide range of industries, enhancing performance and optimizing productivity.

New regulations define the minimum efficiency level of the motor but more and more variable speed systems made from motor and drive solutions are considered as the most effective combination to generate the highest energy savings.

Our "Type Examination Certificates" issue by the notified body include provisions which are compatible with variable-speed use.

### Variable-speed options

- PTC thermal protection sensors fitted in the winding as standard
- Other types of thermal protection devices and sensors in windings or endshields
- ATEX forced ventilation for some applications
- ATEX-certified incremental or absolute encoder
- Insulated bearings
- Reinforced insulation of winding
- 2<sup>nd</sup> nameplate showing electrical data for variable-speed operation



# Equipment suitable for each application

IMfinity® ATEX motors were developed to reduce operating costs without compromising industrial requirements.

IMfinity® ATEX motors can therefore be adapted to several configuration variants and finishes in order to meet a wide range of requirements depending on the applications, for manufacturing or automation, with variable load factor limitations, extreme operating cycles, the need to increase productivity, etc.

Leroy-Somer ATEX motors are particularly suitable for Pump, Ventilation, Agitator and Mixer applications in sectors such as refineries, pipelines, petrochemical and food industries.








## Main adaptations for the chemical industries market

Our ATEX motors, Exdb eb IIC T4 Gb and Ex ec IIC T3 Gc, can be produced in compliance with the VIK recommendations issued by the German heavy industry, which apply to equipment used in explosive atmospheres.

They also satisfy the main characteristics issued by the VIK:

- VIK execution for IIC motors as an option
- Finish for corrosive atmosphere (paint, screws, etc.)
- 2 stainless steel nameplates, including 1 inside the terminal box
- IE3 efficiency level or higher
- Jacking screws as standard from a frame size of 250 mm
- Drip cover for motors operating in a vertical position with the shaft downwards
- Marking with the VIK logo 
- Stainless steel captive screws as standard to fix the terminal box covers
- Corrosion-resistant earth terminal secured housing with a calliper
- Winding PTC sensors
- Flat grease nipples (M10 x 1) according to DIN 3404
- Brass ATEX cable gland for shielded cable or non-shielded cable as an option
- Augmented eb emergency terminal box as an option



## Main adaptations for the Oil & Gas market

- Definition for  $I_d/I_n \leq 7.5$
- Paint systems, C3H, C4M, C4H, C5-IL or C5IM
- Brass ATEX cable gland for shielded cable or non-shielded cable as an option
- Auxiliary terminal boxes
- Class H insulation
- Preparation for NPT cable gland
- Space heaters
- Complete tropicalisation (stator and rotor)
- Execution for temperature class T5 or T6
- IP56 protection rating when motor is stopped, IP65 or IP66
- Corrosion protection (Corroblock finish)
- Marine certification – "Type approval BV"

## Other possible options available on request

- Drive-end roller bearings
- 2<sup>nd</sup> shaft
- Conical shaft
- Flying 1 m leads
- Special voltages (e.g. 500V, 690V)
- Stainless steel cover
- Class B balancing
- EAC certification
- Special operating temperature ranges



# A complete service package

To provide our customers with an enhanced service that's perfectly in tune with their expanding productivity, performance and process safety needs – this is our goal.

Intelligence, simplicity, proximity and responsiveness are the key values of our service strategy at Leroy-Somer, a subsidiary of the global industrial group, Nidec.

**Our ambition:** to become a key market player. With our manufacturing vision, our expertise and the logistical and human resources we have available, we can support from the upstream assessment to the predictive and remedial maintenance of your equipment.

**Our aim:** to manage the entire life cycle of your products. To provide you with user safety and complete peace of mind, our solution has been created to support your equipment and infrastructure, from the initial project to the recycling stages.

**Our mission:** to innovate to make a lasting impression. Ambassadors of environmental protection, our R&D division works daily to design new solutions that are ever more efficient, consume less energy and that reduce CO2 emissions.

**Our approach:** closer and closer to you. As well as spanning the entire French territory, our service network is active worldwide to guarantee us exceptional intervention speed. This 'close to customer' set up also means we can provide an on-demand service depending on your specific needs and the specific characteristics of your installed system.

## Audit & advice



- Facilities audit
- Energy optimisation
- Modernisation
- Management of installed resources

## Installation & commissioning



- Installation
- Commissioning
- Extended warranty
- Training



ADVICE

REACTIVITY

SIMPLICITY

PROXIMITY

# Worldwide organisation to meet service and advice needs



- Audit and advice
- Installed facilities audit by an industry leader
- Optimisation of energy savings and return on investment
- Systems adaptation and upgrade
- Installation and commissioning
- Comprehensive training
- Maintenance
- Installations and resources the world over

## Extensive worldwide presence for the benefit of all our customers

Through our integrated organisation and our 7300 employees, our global presence is assured. Our technical assistance services and local services comprise:



### 27 industrial sites

Producing complete ranges of high quality products, optimised for the requirements of specific industries.



### 470 centres of expertise and service

Offering an excellent customer assistance service for any product, any automation solution or any request for service.



### 8 engineering and design platforms

Developing market-leading products and sets of functionalities using the latest cutting-edge techniques.



### 3 regional dispatch centres

Guaranteeing the rapid delivery of our products.

Our vast sales and service networks in Europe, the Asia-Pacific region, North America and South America are reinforced by hundreds of distributors and carefully selected service partners the world over.



Note that many countries have more than one of the installations represented by the icons.

The services are optimised independently for each country. Please contact your local representative for further details concerning our offer in your country.

# Make it your own

Multiple tools have been developed or adapted to help you to select the best motor or motor & drive solution.

## Motor technical catalogue

This one-volume catalogue includes exhaustive information on efficiency and mechanical/electrical data for ATEX motors:

FLSD (Ex db) , FLSN et LSN (Ex ec), FLSPX and LSPX (Ex tb zone 21), FLSES and LSES (Ex tc zone 22).

The efficiency levels indicated apply to both mains supply and variable speed use.



A dedicated guide is available for more information about new versions of the IEC standards and new projects currently in preparation, European directives and their updates as well as future regulations currently in preparation.

## Configurator

- An online tool to assist you in the selection of motors, break motors or geared motors combined with variable speed drives.
- All standard products are 100%-characterised, with the technical specifications available in 15 languages.
- Product dimensions supplied in 3D
- Real-time information on the eligibility of the product for the *Express* availability offering

**Motors & Gears configurator** V8.191

Game	Flameproof cast iron
Environment	ATEX standard - Gas
Ambiance	Corrosive
Finish	-
Zone	Explosion Proof - Gas
Method of cooling	Fan cooled motor
Application	General applications
Number of speed	Single-speed
Protection type	Ex II2G Ex d IIB T4 Gb
Brake	-

**Availability Informations**

Express Availability	Display of availability information under development
Manufacturing Lead time commitment	On Request

Environment selection

**Motor type** V8.191

Preselection	General applications - Explosion Proof - Gas - 400V 50Hz
Generation code	-
Efficiency class	-
Motor serie	FLSD
Polarity - Speed	2P 3000tr/min
Rated power (kW)	0.75
Frame size (mm)	80
Motor winding (V)	230VDI/400VY

**Availability Informations**

Express Availability	Display of availability information under development
Manufacturing Lead time commitment	On Request

Motor selection

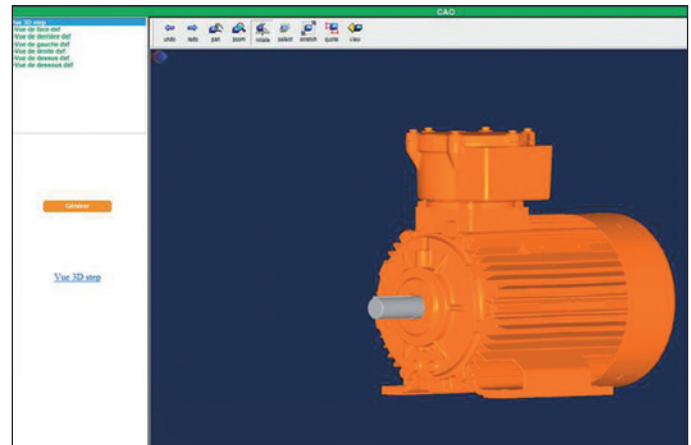
**Motor mechanical interface V** 8.191

Motor type	2P FLSD 80L 0.75kW Ex II2G Ex d IIB T4 Gb 230VDI4
Fixing form	Foot
Fixing flange	-
Operation position	IM1001(IMB3)
Shaft end type	IEC STANDARD shaft end - 19x40
Shaft material type	Steel shaft
Second shaft extension	-
DE bearing type	DE ball bearing
DE bearing mounting	Locked
NDE bearing type	NDE ball bearing
Greasing type	Greased for life

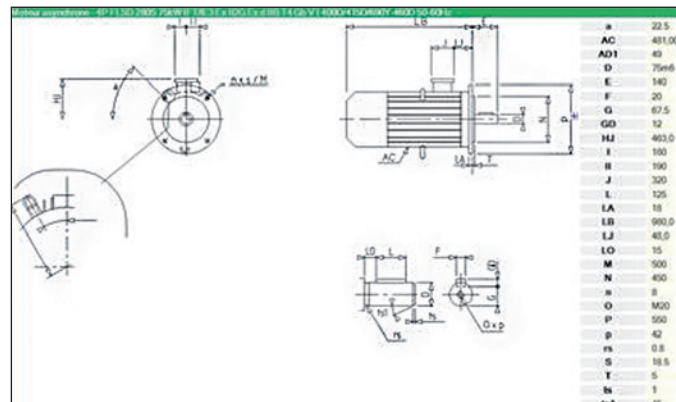
**Availability Informations**

Express Availability	Display of availability information under development
Availability time	-
Maximum quantity	-
Manufacturing Lead time commitment	On Request
Availability time (Working days)	-
Maximum quantity	-

Motor & drive characteristics



CAD files for motors (2D, 3D)





## **Industrial Motors and Gears Limited**

Tel. 01642 467999 | Mob. 07815 889460

Fax. 01642 467988

Email. [sales@imag-uk.com](mailto:sales@imag-uk.com)

Web. [www.imag-uk.com](http://www.imag-uk.com)

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