

# IMfinity<sup>®</sup>

## High reliability induction motor range

Variable speed and fixed speed

IE3 Premium efficiency and IE4 Super Premium efficiency motors

Non IE for special use

Frame size 80 to 500

0.75 to 1500 kW

**LEROY-SOMER**<sup>™</sup>

**Nidec**  
All for dreams

# IMfinity®

## A range of reliable and multi-purpose motors

### IMfinity® platform, the highest standards to meet your expectations

Nidec Leroy-Somer operates worldwide and proposes a wide range of motors, brakes, gearboxes and drives. With its vast experience and in-house engineering and development resources, Nidec Leroy-Somer is capable of designing drive systems that are increasingly high-performance and efficient, and which meet the requirements of so many applications.

Thanks to its know-how, expertise and end-to-end control of its motor production line, Nidec Leroy-Somer can guarantee that you get the highest quality levels.

IMfinity® is the 0.09 kW - 1500 kW induction motor range developed by Nidec Leroy-Somer to meet the different applicable requirements and the expectations of our customers both nationally and internationally:

#### High reliability

- Robust housing, with cast iron flange for DE and NDE bearing providing better operation (frame size > 90 mm)
- Advanced mechanical and electrical designs (high quality components, high-precision machining, optimized magnetic circuit, controlled impregnation and winding process)

#### Express availability

- Very short delivery time with a dedicated organization for supplying motors, brake-motors and geared-motors with or without options.
- Worldwide usage of standard motors: multi-voltage/multi-frequency, international compliance
- Last-minute adaptations are feasible for a wide range of options

#### Energy savings

- Fixed speed: Premium IE3 and super premium IE4 efficiency motors
- Variable speed: Easy to use, high performance motor and drive package for better energy savings



# IMfinity®

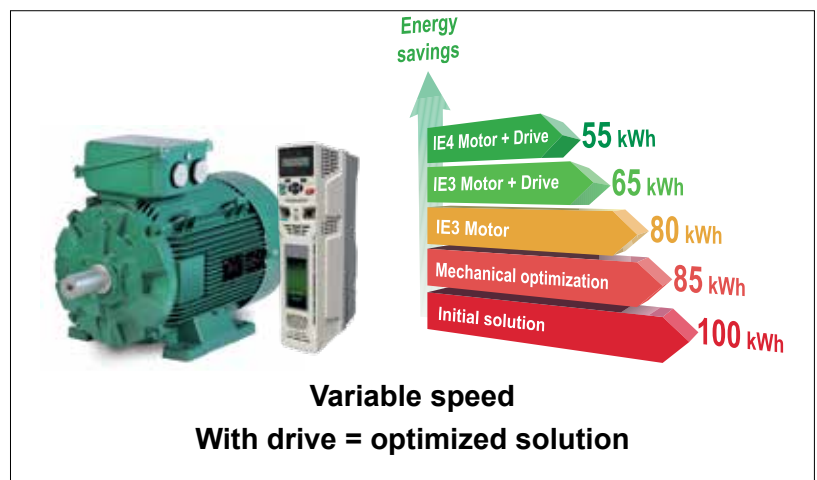
## Optimized tried-and-tested technology

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 variable speed systems made from motor and drive solutions continue to be considered as the most effective combination to generate the highest energy savings.

The range of IMfinity® motors offers the advantages of reliability and enhanced efficiency, while providing customers with a selection of solutions which are easy to select and install.

This range of motors is available in both fixed-speed and variable-speed versions, optimizing energy efficiency.





## Benefit from state of the art reliability and efficiency

	Performance	Reliability	Availability	Selection	Installation
<b>Construction &amp; Design</b>					
Magnetic circuit optimization	+	+			
Air gap optimization	+	+			
Low losses steel lamination	+	+			
Enhanced slot filling	+	+			
Component rationalization			+	+	+
Robust mechanical parts	+	+			+
High quality components	+	+			
<b>Characteristics</b>					
Reduced starting current	+	+			+
Multi-voltages & frequencies			+	+	+
IE3, IE4 and non IE efficiency levels	+				
<b>Variable speed usage</b>					
Fully characterized	+	+	+	+	+

# IMfinity®

## World-class compatibility

### Widespread international use thanks to one single motor covering 80% of needs globally:

- Easier to select
- Easier to source & better availability
- Easier to use
- Stock reduction for our customers

New international regulations are constantly appearing and new editions or new texts are continually being published. Nidec Leroy-Somer makes every attempt to offer its customers approved turnkey solutions. Its approach incorporates energy and safety aspects, harmonized constructions and the specific regulations in each country. To give one example, after Brexit, from 1 January 2022, all electrical motors entering the British market (England, Scotland and Wales) must have the UKCA (UK Conformity Assessed) marking.

In addition, a number of different voltages and frequencies are used by the various power grids depending on the area.

The IMfinity® motor range is one of the exceptions on the market which can guarantee efficiency levels for the main voltages and frequencies covering at least 80% of power supplies throughout the world, while complying with existing or future energy regulations.

...One single motor type from this generation of IMfinity® induction motors is sufficient, where 4 or 5 were needed previously. On this basis, thanks to the multi-purpose design used for this range and our selection tools, we can easily meet the many different needs of our customers.

IMfinity® IE3 nameplate

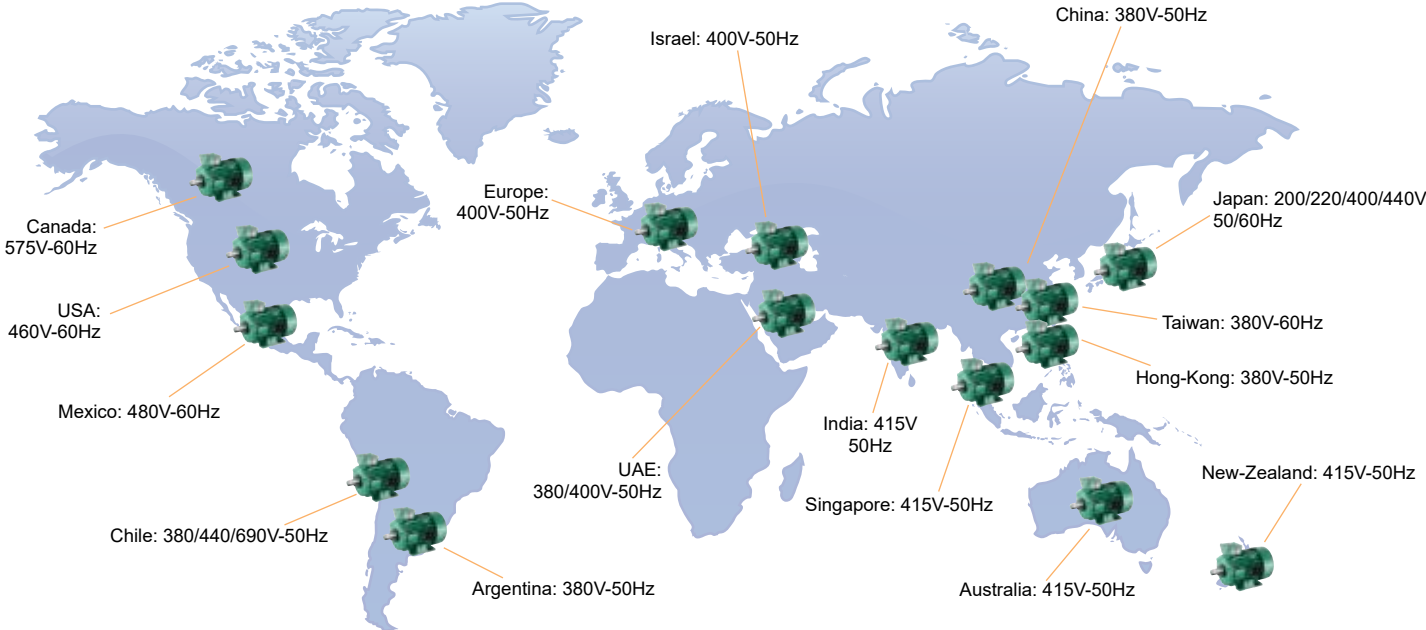
V	Hz	min-1	kW	cosφ	A
Δ 380	50	1455	30	0.85	57.8
Δ 400	50	1460	30	0.83	56.5
Δ 415	50	1460	30	0.83	56.5
Δ 415	50	1465	30	0.81	56.3
Δ 440	60	1770	30	0.82	49.6

Multi voltages & frequencies characteristics

Complies with the regulations of the USA and Canada



**IMfinity® expand your perspectives**

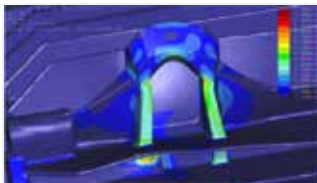


# IMfinity®

## Designed to last

### Mechanically robust

- Robust design based on simulation and test
- Robust cast iron end shields (even for aluminum motors)
- Machining of complete stator on mandrel to ensure perfect concentricity from magnetic axis of the motor
- Rigorous balancing provides a reduced level of vibration

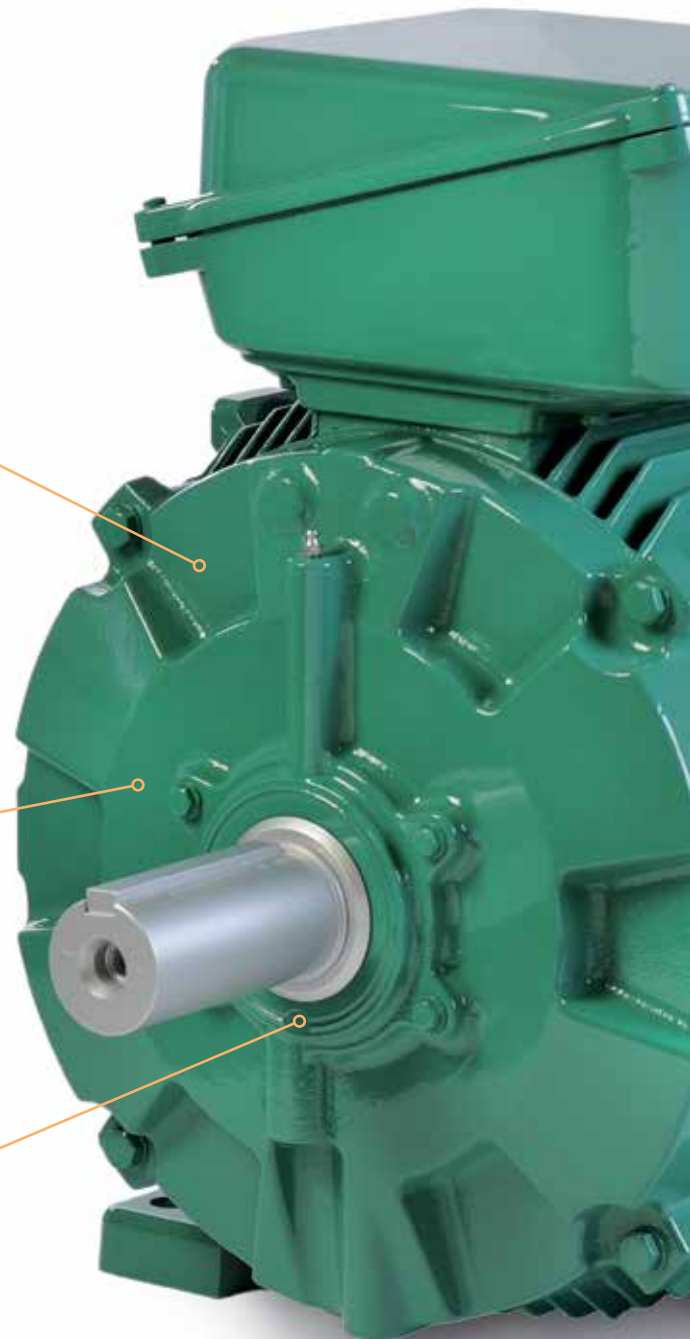


### Approved sealing

- IP55 Sealing system approved by an independent and qualified laboratory
- Low energy losses shaft sealing

### Extended bearing life time

- Properly sized bearing to accept high shaft load
- High quality grease for a long service life and spaced greasing intervals





## Electrical safety

- Large terminal box for an easier and safer access to connection
- Easy terminal box orientation

## Optimized characteristics

- Magnetic circuit optimized to match IE3, IE4 and non IE classes
- Id/In suitable for the different market application
- Designed and characterized for use with drive or direct-on-line

## Thermal protection

- PTC sensors in the windings, included for frames  $\geq 160$  mm
- Optional types of windings or bearings available with short lead time

## Electrically robust

- Dedicated options for variable speed use:
  - reinforced insulated winding system
  - insulated bearings
- Impregnation varnish without solvent
- Designed with 25K thermal reserve

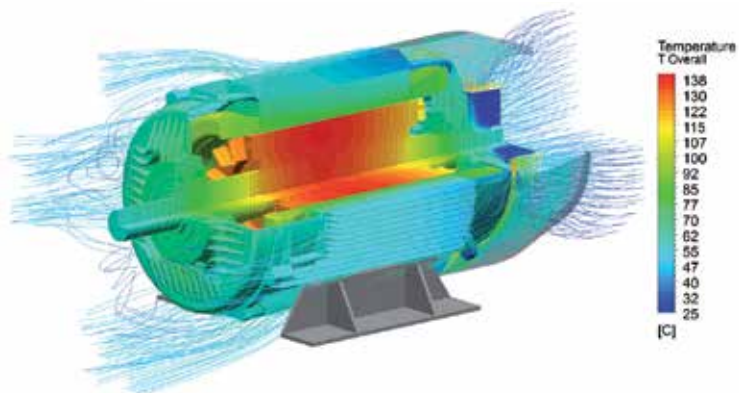
## Enhanced cooling

Full optimization of motor cooling:

- to reduce losses
- to prevent hot spots inside winding and bearings
- to keep low noise level

## Grounding screws

- Ensuring electrical bonding



# IMfinity®

## Powerful versatility

IMfinity® motors are available in several different construction variants and finishes to meet the varied requirements of applications on the market. Whether for manufacturing with constraints on the load factor, cycle profile, productivity, etc, or for processes with harsh operating conditions and environments, there is an IMfinity® motor that fits the bill.

### Typical industries:

Food & Beverage

Packaging

Printing

Plastics & Rubber

Port Logistics

Test Rigs

Textile



Glass

Industrial Refrigeration

Marine

Metals

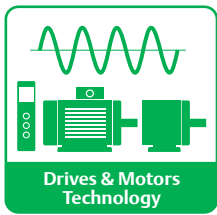
Mines, Quarries, Cement

Nuclear power

Water

Oil & Gas





# Drive & Motor Technology



**The widest range of motors and combinations adapted to the various needs of industries and applications**

The IMfinity® motor ranges (aluminium, cast iron, IP23 drip-proof and liquid cooled frames) are designed to allow a large combination of adaptations, such as gearboxes, brakes, speed feedback (encoders), forced ventilation units, etc. All of these motors, with or without special adaptation, are designed to work with variable speed drives, such as the Unidrive M & Powerdrive ranges.

## Global guarantee from a single manufacturer

The combination of a motor-drive package made by a single manufacturer ensures excellent performance of components designed for optimum operation, backed up by a comprehensive warranty from a single source.

### IMfinity® platform

				
<b>LS</b> Non IE Aluminium IP55 Frame size 56 up to 225 mm 2, 4 & 6 poles 0.09 up to 45 kW	<b>LSES</b> IE3 Aluminium IP55 Frame size 80 up to 315 mm 2, 4 & 6 poles 0.75 up to 200 kW	<b>FLSES</b> IE3 - IE4 Cast iron IP55 Frame size 80 up to 450 mm 2, 4 & 6 poles 0.75 up to 900 kW	<b>PLSES</b> IE3 ODP / IP23 Frame size 225 up to 450 mm 2, 4 & 6 poles 55 up to 900 kW	<b>LC</b> IE3 Liquid cooled / IP55 Frame size 315 up to 500 mm 2, 4 & 6 poles 150 up to 1500 kW

### Geared motors



**Compabloc**  
up to 14,500 Nm



**Orthobloc**  
up to 23,000 Nm



**Manubloc**  
up to 14,500 Nm

### Brake motors



FFB from 0.12 to 22 kW



FCPL from 37 to 400 kW

### Drives



**Unidrive M**  
0.25 to 2.8 MW



**Powerdrive F300**  
1.1 to 200 kW

**Powerdrive MD Smart**  
45 kW to 2.8 MW



**ID300**  
Built-in variable speed drive  
0.25 to 7.5 kW

# IE3 IMfinity<sup>®</sup> + Drive

## Cost-effective, guaranteed performance

Choosing to convert to variable speed can generate immediate operating profits thanks to:

- Energy savings of up to 50% depending on the application and operating conditions
- Reduced cost of maintenance on the mechanical control components
- Better productivity as a result of improving the process and reducing machine downtime

### IE3 IMfinity<sup>®</sup> + drive: tested, guaranteed performance

Using a drive on an induction motor improves its performance compared to operation on the mains.

The whole IMfinity<sup>®</sup> range of motor-drive units have been tested over the entire speed range, so as to determine precisely the torque and efficiency characteristics available.

These characteristics are made available to manufacturers, integrators and users, in order to optimise the size of the motor-drive unit whilst still ensuring excellent results:

- Torque/speed curves and characteristics available in the technical catalogue
- The configurator, a tool to assist selection of the motor-drive unit, suggests the most suitable combination for the desired operation
- Drive parameter settings and performance indicated on the variable speed nameplate and added to the mains rating plate.





## Specific configurations and features suitable for variable-speed systems

As an answer to the majority of cases, the IMfinity® offer has been designed integrating specific features as standard:

- Winding protection as standard (PTC sensors) from frame > 160 mm
- Thermal reserve for maintaining the rated torque over an extended speed range
- Adaptation of the metal support plate to reduce electromagnetic noise

Thanks to its expertise, Leroy-Somer can offer options to meet specific needs and requirements (see our Guide to best practices available under Ref. 5626):

- Rotation and winding protection system (mains voltage  $\geq 480V$ , long cable lengths, frequent braking phases, etc.)
- Forced ventilation unit for availability of the rated torque at very low speeds

V		Hz		min <sup>-1</sup>		kW		A		cos φ	
4 400		50		1486		200		357		0.85	
Hz		10		17		25		50		60	
T/Tn%		85		93		100		100		82,3	

min. Fw (Hz)		Nmax (min <sup>-1</sup> )	
3		2500	

Polyrex EM 103

## An adapted drive offer

**Unidrive M / Commander C:** range of drives and solutions designed for industrial applications which require dynamic performance without compromising safety.

**Powerdrive:** range of drives and solutions adapted to process applications, prioritising integration in existing installations and energy savings.

# Drives & Motors services

## Customized local services and round-the-clock support

- Audit and consultation
- Industry leading install base audits
- Optimizing energy savings and payback
- Retrofit and system upgrades
- Installation and commissioning
- Comprehensive training
- Maintenance
- Global facilities and resources





## A strong union that benefits all our customers

Through our integrated organization, we have an enhanced global presence with 7,300 employees. Our technical support & local services provide:



### 27 industrial sites

Producing a comprehensive range of high quality products, optimized for industry-specific customer requirements.



### 250 centres of expertise and service

Providing excellent customer support for any product, automation solutions or service requirements.



### 8 engineering and design facilities

Develops market leading products and feature-sets using the latest design technology.



### 3 regional despatch hubs

Guaranteeing the rapid delivery of our products.

Our extensive sales and service networks in Europe, Asia Pacific and the Americas are backed-up by hundreds of carefully selected distributors and service partners, often in remote locations, all over the world.



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

Services are optimized on a country-by-country basis, so please contact your local sales contact for full details of our local offering.

# *Express availability*

## Boost and secure productivity

IMfinity® motors are a full part of our global logistic organization, offering very short lead times on many combinations. *Express availability* offers very quick reactivity to customer requirements, while boosting and securing their productivity:

- to benefit quickly from energy savings
- to help ensure continuity of production
- By ensuring minimum customer replacement motor stock at the operating site

Listed options and products can be shipped on the same day for any orders placed before 11.30 am, as guaranteed by Leroy-Somer. A wide variety of motors with options are available in 2 or 10 working days, such as:

- Mechanical adaptations: foot and flange mounting, roller bearings, drip cover, stainless steel nameplate,
- Electrical adaptations: 400 V winding (star connection) for motors rated  $\geq 7.5$  kW, non-PTC sensors fitted,
- Adaptations for variable speed particular conditions (Main power voltage  $> 480V$ , long cable, ...): insulated bearings, reinforced insulation, forced ventilation unit,
- Geared motors with various different combinations (helical in-line, right angle, parallel shaft or worm) and options.

The wide variety of products, options and combinations available from *Express availability* (motors, geared-motors and drives) covers the majority of application and industry needs.





Catalogue extract:

Express availability - Induction motor

**LSES - IMfinity®**  
**High-efficiency three-phase motors in an aluminium housing**  
**Class IE3**

**Lead times from French factory, in working days**

Order received at the plant on day D before 11:30 CET subject to the maximum quantity indicated in the table. If the order is received after 11:30, this lead time is increased by 1 working day. If basic products are ordered with options, dispatch times correspond to the longest indicated. Please contact your local sales agency if you need more than the max. quantity.

D	D+2	D+10	Request quote
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Type	Nominal power 50/60 Hz P <sub>N</sub> kW	IM 1001 (IM B3)		IM 3001 <sup>(1)</sup> (IM B5)		IM 2001 <sup>(1)</sup> (IM B35)		IM 3601 <sup>(1)</sup> (IM B14)		IM 2101 <sup>(1)</sup> (IM B34)	
		Code	Max. qty	max.	Max. qty	Code	Max. qty	Code	Max. qty	Code	Max. qty
LSES 132 MU	7.5	4910776	5	4910777	5	4910778	1	4910780	1	4910781	1
LSES 160 MR	9	4910789	2	4910790	2	4910791	1	4910793	1	4910794	1
LSES 160 M	11	4910800	2	4910801	2	4910802	1				
LSES 160 LUR	15	4910811	2	4910812	2	4910813	2				
LSES 180 M	18.5	4910818	2	4910819	2	4910820	2				
LSES 180 LUR	22	4910825	2	4910826	2	4910827	2				
LSES 200 LU	30	4910832	2	4910833	1	4910834	2				
LSES 225 SR	37	4918552	2	4918553	1	4918554	2				
LSES 225 MG	45	4910839	2	4910840	1	4910841	1				
LSES 250 ME	55	4910846	1			4910848	1				
LSES 280 SD	75	4910852	1			4910854	1				
LSES 280 MD	90	4910858	1			4910860	1				
LSES 315 SP	110	4910864	1			4910866	1				
LSES 315 MP	132	4910870	1			4910872	1				
LSES 315 MP	160	4910876	1			4910878	1				
LSES 315 MR	200	4910882	1			4910884	1				

4 poles  
1500 min<sup>-1</sup>

380 V Δ / 400 V Δ / 415 V Δ / 690 V Y 50 Hz - 460 V Δ 60 Hz

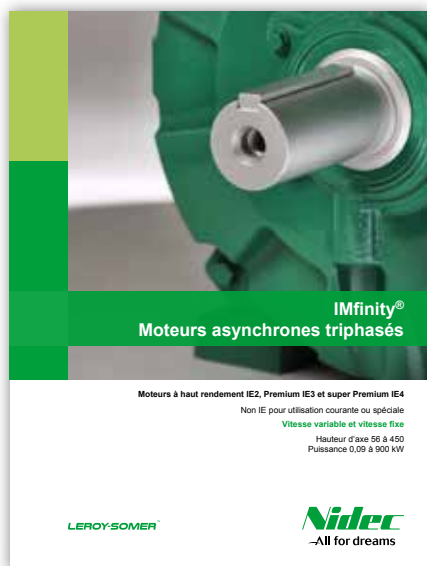
# IMfinity®

## Make it your own

IMfinity® motors and geared motors fully comply with new regulations on efficiency and are tailored for variable speed and fixed speed operation. Powerful tools have been developed or adapted to help choose the right combination of motor and drive package or motor direct-on-line.

### Motor technical catalogue

This catalogue contains in one single document all the aluminum, cast iron IP55 and drip-proof IP23 motor ranges, with efficiency classes IE3, IE4 and NIE. This documentation integrates mains and drive operating performances, dimensions, construction details, mechanical strength data and optional equipment.

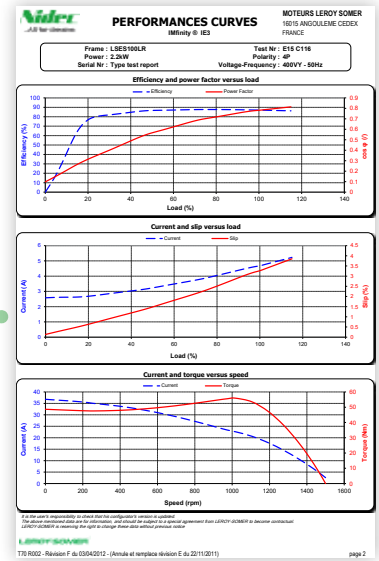


*Dedicated guide is available for more information about new versions of the IEC standards and new projects currently in preparation, European directives and their updates as well as future regulations currently in preparation.*

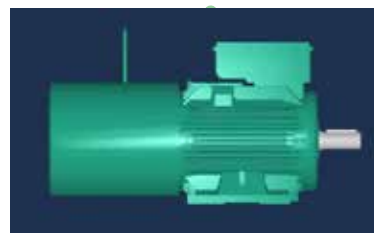
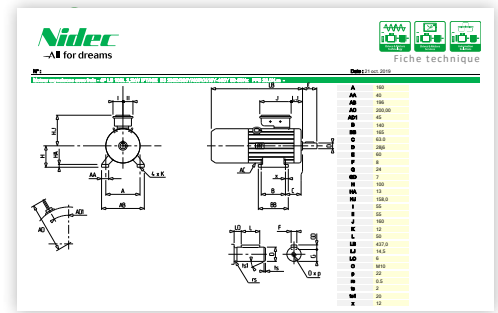
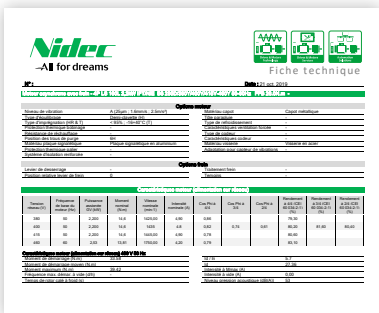
*The IMfinity® technical catalog  
(reference 5147)*

# Configurator

- Configurator is a powerful tool to assist in the selection of motors or geared motors combined with variable speed drives. Thanks to software upgrades, it is quick and easy to select available products and options.
- All standard products are 100%-characterized, with the technical specifications available in 11 languages.
- Product dimensions in 3D
- Real-time information on the eligibility of the product for the *Express* availability offering



Online configurator



**LEROY-SOMER™**

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**Nidec**  
All for dreams

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