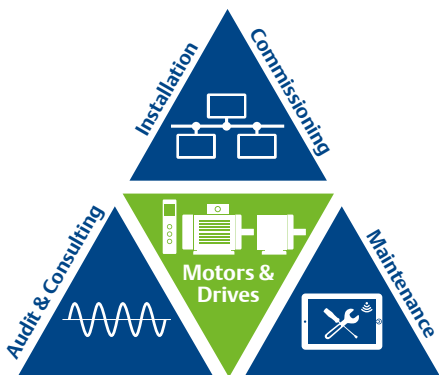




Services for drive systems

Expertise - Speed - Proximity



LEROY-SOMER™

Nidec
All for dreams

Expertise Diagnostics

An analysis of the cause of breakdowns of electrical machinery shows that the majority are due to a combination of several electrical, mechanical, thermal and environmental factors.

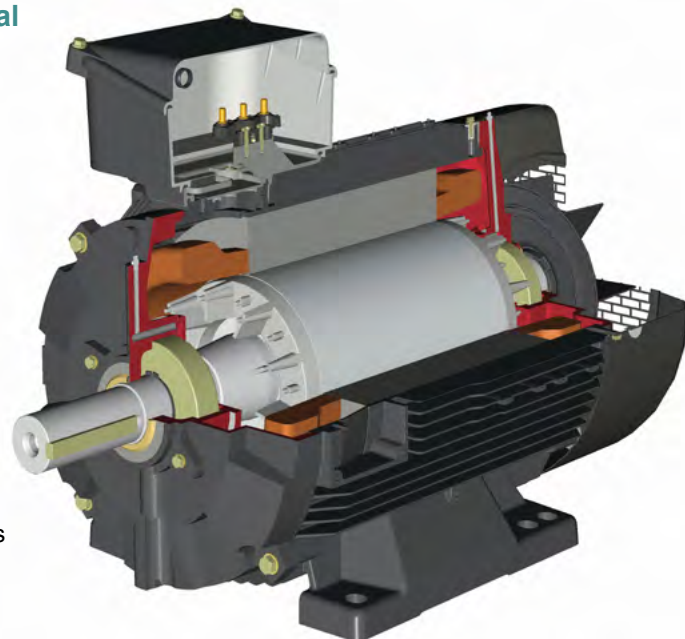
The



- Conduct non-destructive testing
- Conduct diagnostics
- Draw up a complete audit
- Make recommendations

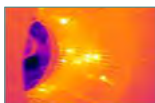
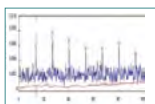
With our expertise in the simulation, analysis and design of electric motors, we have established programmes, protocols and measures that define the state of motors and produce a complete audit of the state of your machinery, in particular:

- Ageing of components
- Electrical constraints
- Mechanical constraints



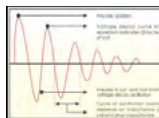
Risk factors

- Dielectric state of the insulation system
- Permeability of insulators
- Mechanical coding
- Coil movement
- Abrasion of conductors
- State of connections
- Pollution linked to the environment
- Electrical instability
- Mechanical constraints due to vibration
- Air flow and cooling



Appropriate measures

- Insulation resistance
- Ohmic resistance
- Dielectric rigidity
- Polarisation index
- Dielectric absorption ratio
- Induction measurement (RLC)
- Shock waves
- Partial discharges
- Heating temperature
- Vibratory analysis
- Metrology



Workshop electromechanical maintenance

Our 15 workshops are able to take in charge your drive systems and low and medium voltage electromechanical ensembles up to 2 MW.



- Quality Assurance System ensures monitoring and traceability of all operations
- Preserving of original performance via the maintenance process
- Certification, Saqr-ATEX, MASE, nuclear HN1 HN2, HN3, CSQ

Equipment handled:

- Electric motors AC - LV and HV
- Permanent magnet and DC motors
- Worm or wheel geared motors
- Servomotors
- Special motors: ATEX, nuclear
- LV and HV alternators
- Industrial pumps
- Ventilating units

Interventions:

- Reworking of insulation, re-varnishing of windings
- Metrological inspection, metallisation, balancing of rotors, turbines...
- Replacement of worn parts (bearings, encoders, pinions, sprockets...)
- Lapping of mechanical seals, reworking of impellers
- Reworking of watertight seals, load testing
- Dynamic tests on test bench

Maintenance



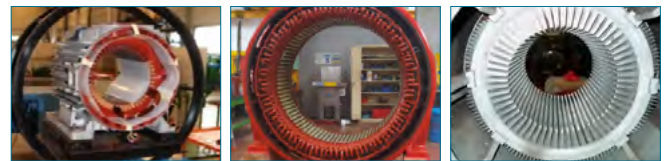
Compressor wheel

Bearing seats

Running-in

Infra-red surface inspection

Repair or reconstruction



- Round wire rewinding
- Bar windings
- Medium voltage windings
- Calculations and electrical diagrams
- Replacement of sheet metal (low loss)

Modern high capacity technical means



Handling capacity 10 T

Impregnation, vacuum and pressure

Electric pyrolysis oven



Balancer 2 T L 4000 x 1500

Test benches 1000 kW AC - DC - LV - MV

On-site interventions

Our proximity teams provide interventions across all your drive systems, whether electromechanical or electronic.

The



- Fleet of dedicated vehicles
- Stocks in proximity (motors, drives, components or spare parts)
- Electrical and mechanical accreditation, prevention plans
- Qualification of technicians through evaluation and training programmes

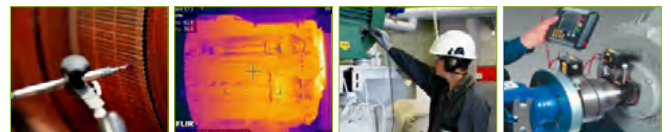
Equipment handled:

- AC, LV and HV electric motors, permanent magnets or DC
- Special motors: ATEX, Nuclear
- Worm and wheel geared motors
- LV and HV alternators
- Ventilation units and industrial pumps
- AC, DC variable speed drives
- Voltage regulators for alternators
- Progressive electronic starters

Interventions:

- Installation and commissioning
- Thermographic, vibratory and electrical measurement campaigns
- Lubrication and greasing, analysis of lubricants
- Transmission inspections, laser alignment (direct, belt pulley)
- Harmonics and network analysis
- Inspection of electronic commutation of power supplies
- Inspection of control loops
- Preventative maintenance of variable speed drives (decontamination, connections...)

Planned and enhanced maintenance



Profile checks

Thermographics

Vibration

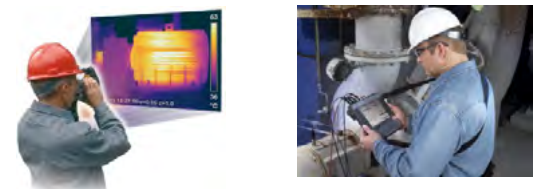
Laser alignment

Emergency service



Diagnostics, inspections, replacement of power elements, substitution by new complete products

Expert technicians, latest means, high technical capacity and a fleet of dedicated vehicles

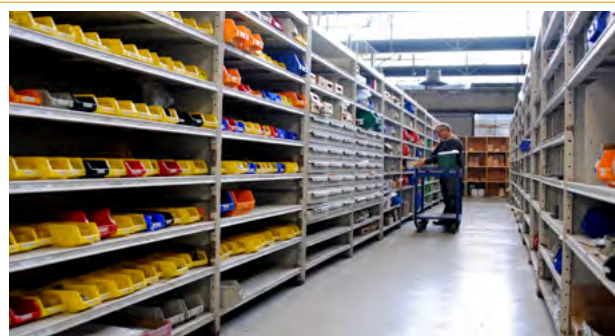


Express Availability

Express Availability undertaking for drives, motors, geared motors and servomotors when required.



- Fast and simple access 24 hours a day
- Proximity service with the support of a technician
- Reduction of your stocks and fixed financial assets
- Consulting services from a regional contact

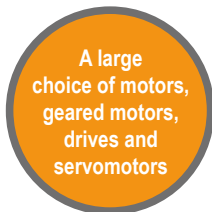


Spare parts in proximity held in stock in our regional workshops

Our Express Availability service helps our clients to ensure continuity in their production and accompanies their expansion, while minimising the need to hold stock. A wide range of motors, servomotors, geared motors, drives, options, accessories and spares can all be delivered in extremely short time.

An Express Availability Charter defines the rules of service. It details the list of products eligible and their procurement times.

Whatever your machinery environment or application, **our regional service teams** are organised to deliver or provide, at very short notice, the drive system you need as a replacement or for modernisation.



A large choice of motors, geared motors, drives and servomotors

- Servomotors
- Induction motors IE2 & IE3
- Synchronous motors with permanent magnets
- Geared motors and gearbox
- Induction motors with integrated variable speed
 - Variable speed motors
 - High power DC motors



A choice of options and accessories

- Terminal boxes
 - Encoders
 - Safety
 - Keyboards
 - Kits
- Insulated bearings
- Brake resistances
 - Filters
- Thermal protection



Multiple combinations answer your needs



Energy optimisation Process modernisation

Energy consumption represents 95% of the total operating costs of an electric motor over 10 years*.

Which is why energy optimisation occupies a fundamental place in our development.

New technology high efficiency motors and variable speed drives can economise 10% - 45% of electrical energy depending on the application.

*source: Ademe

The



- Teams of expert technicians
- A single spokesperson
- A performance guarantee
- A reduction in TCO** through the optimum selection of equipment, monitoring of performance and appropriate maintenance

**TCO: Total Cost of Ownership



Our approach is two-fold:

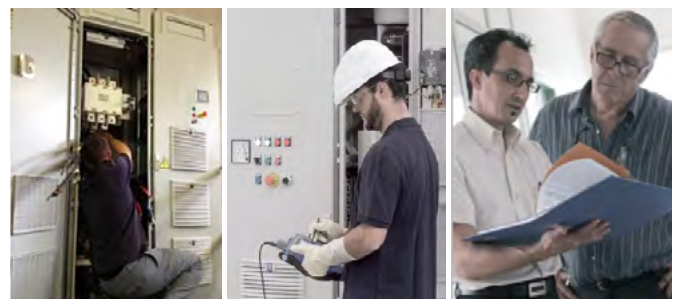
Audit & Consulting

Your products		Existing	Effineo	Dyneco
Variator	Type	None	Powerdrive F300	Powerdrive F300
	Cost		1825	1825
Motor	Type	4P Generic < IE1 225S 30kW	4P FLSES IE2 200LU 30kW	1500 LSRPM 160MP 15.6kW
	Efficiency class	< IE1	IE2	> IE4
	Rating	30.00	30.00	15.80
	Cost		0	3740
Transmission	Type	None	None	None
	Cost		0	0
Costs				
Other initial costs (fixed)			0	0
Subsidies (fixed)			878	1251
Total investment (EUR)			947	4314
Maintenance cost (annual)		0	0	0
Energy consumption (kWh/year)		41907	13009	9509

- ESA pre-diagnostics
- Energy audit and analysis
- Advice and recommendations



Installation & Commissioning



- Turnkey installations
- Commissioning and training
- Performance monitoring contract

Customized contracts

Our maintenance offers are specifically designed and adapted:

- to the equipment to maintain (motors, gearboxes, drives...)
- to their criticality and reliability
- to the stakes that they represent
- to reduce your TCO

The



- Modular contracts economically suited to each case
- Undertakings depending on the cost of the machinery downtime
- Both technician and stocks in close proximity
- A reduction in TCO through a reduction of maintenance costs and operational losses

Machine down time costs depend on:

- whether motors and drives are within the production flow
- the production organisation (3 x 8, Just-In-Time...)
- the type of industry (raw materials, transformation)

Our modular contracts are designed to meet all your needs. They range from an annual inspection of parameters up to the complete management of the equipment pool, with our MaPS® solution and 24/7 monitoring.



Measurement ranges	Kiétis	Diamis	Level I	Level II
GCVS-01 visual inspection	●	●	●	●
GCVS-05 visual inspection	●	●	●	●
GMMS static mechanical measurement	●	●	●	●
GMPS-05 variator preventative maintenance	●	●	●	●
GMES-01 motor static electrical measurement	●	●	●	●
GMES-02 motor static electrical measurement	●	●	●	●
Statement on Datalogger (SD card)	●	●	●	●
GMED-11 motor dynamic electrical measurement	●	●	●	●
GMED-12 motor dynamic electrical measurement	●	●	●	●
GMMD-11 dynamic mechanical measurement	●	●	●	●
GMMD-12 dynamic mechanical measurement	●	●	●	●
Hotline	●	●	●	●
Penalty	●	●	●	●
Hour bank number of days	●	●	●	●
Frequency of visits/year	●	●	●	●
Upgrade	●	●	●	●
Service kit(1)	●	●	●	●
Urgent parts kit stock (2)	●	●	●	●

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Nidec
All for dreams

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