


**Nidec Hydro Power
Synchronous
Generators**



LEROY-SOMER Nidec Hydro Power Synchronous Generators Owner's Manual

[Home](#) » [LEROY-SOMER](#) » LEROY-SOMER Nidec Hydro Power Synchronous Generators Owner's Manual 

Contents

- [1 LEROY-SOMER Nidec Hydro Power Synchronous Generators](#)
- [2 Specifications](#)
- [3 Product Usage Instructions](#)
- [4 Product range overview](#)
- [5 Custom solutions](#)
- [6 Digital Static Excitation System](#)
- [7 Support, Maintenance and Training](#)
- [8 FAQ](#)
- [9 Documents / Resources](#)
 - [9.1 References](#)



LEROY-SOMER Nidec Hydro Power Synchronous Generators

© 2024 Moteurs Leroy-Somer SAS. The information contained in this brochure is for guidance only and does not form part of any contract. The accuracy cannot be guaranteed as Moteurs Leroy-Somer SAS have an ongoing process of development and reserve the right to change the specification of their products without notice.
Moteurs Leroy-Somer SAS. Headquarters: Bd Marcellin Leroy, CS 10015, 16915 Angoulême Cedex 9, France.
Share Capital: 32,239,235 €, RCS Angoulême 338 567 258.



Specifications

- **Power Range:** 0.3 to 20 MW
- **Voltage:** 400 to 15,000 V
- **Rotation Speed:** 300 to 1500 rpm (50 Hz), 360 to 1800 rpm (60 Hz)
- **Mounting:** Vertical or Horizontal
- **Cooling:** IC01, **IC21**, IC31, IC81W (IEC 60034-6)
- **Insulation Class:** H (medium and high voltage included)
- **Temperature Rise Class:** F or B
- **Excitation:** Self-excited – Brushless rotating excitation
- **Regulation:** Analog or digital Leroy-Somer™ AVR

Product Usage Instructions

• Design and Manufacturing

Our engineering teams focus on optimization and continuous improvement using tools like Finite Element Analysis (FEA) and 3D CAD design. Close collaboration with turbine manufacturers ensures system compatibility.

• Vertical Mounting

Custom solutions for ease of integration include features like a high-pressure jacking oil system, speed detection, rotor earth fault detection, brake, oil level detection, vibration monitoring equipment, and more. IM 3011 mounting arrangement allows for easy access to the bottom bearing for maintenance.

• On-site Handling

Various lifting and handling solutions are available for hard-to-reach sites. Combined rotor shaft locking & tilting equipment facilitates safe transport and handling, enabling easy transfer between horizontal and vertical positions.

• Water Leakage Detection and Anchoring Equipment

Fast-opening louvers for powerhouse heating and adapted bearing and shaft end options are provided. The

main terminal box is optimized for integrating current & voltage transformers, surge arresters, and PD couplers. Inertia flywheel and additional brake options are also available.

Trusted Hydro Experts

- **5 GW+**
installed capacity
- **50+**
years of experience
- **ISO 9001 & ISO 14001**
Certified
- **Up to 20 MW**
Power range
- **750+ projects**
completed worldwide

INNOVATION – RELIABLE – FLEXIBLE

- **A trusted partner**
 - As a historical and recognized player in the field of hydroelectric power generation, Nidec Power develops an approach of commitment and transparency, for your full confidence and satisfaction.
 - Throughout the project life, including design and manufacturing phases, our teams will help you meet technical and environmental specifications ensuring the perfect configuration and implementation.
- **Our key word: quality**
 - Quality of products, supported by more than 100 years of know-how and continuous technical and innovative developments.
 - Quality in offering, with comprehensive and detailed proposals supported by a strong evaluation phase.
 - Quality in project management, with top-level technical and logistical support up to commercial operation and for long term service.
- **Production**
 - Our production site (Orléans, France), is equipped with state-of-the-art machinery.
 - We achieve product excellence and reach expected performances through controlled high quality components and processes at every step.
 - CNC plasma and laser cutting tools, precision form-wound winding, vacuum-pressure impregnation are some of the equipment operated by qualified and dedicated workers.
- **Design**
 - Our highly skilled engineering teams focus on optimization and continuous improvement resulting in the highest performances available on the market (efficiencies, life span and mechanical behaviour).
 - For this purpose, we use the best computation tools relying on Finite element analysis (FEA) and 3D CAD design.
 - Close coordination work with turbine manufacturers can be performed in order to refine design and ensure a sound behaviour of the turbine-generator system on site.

The right solution

- Our products can be coupled to all turbine types, with particular attention to critical speed issues.
- Overhung runner assembly on extended shaft end, with turbine load withstanding.
- Rigid mechanical assembly coupled to dynamical balancing grade G1 (ISO 1940-1), aiming at low vibration levels in all operating conditions.
- Compact design aiming at reducing foundation costs.

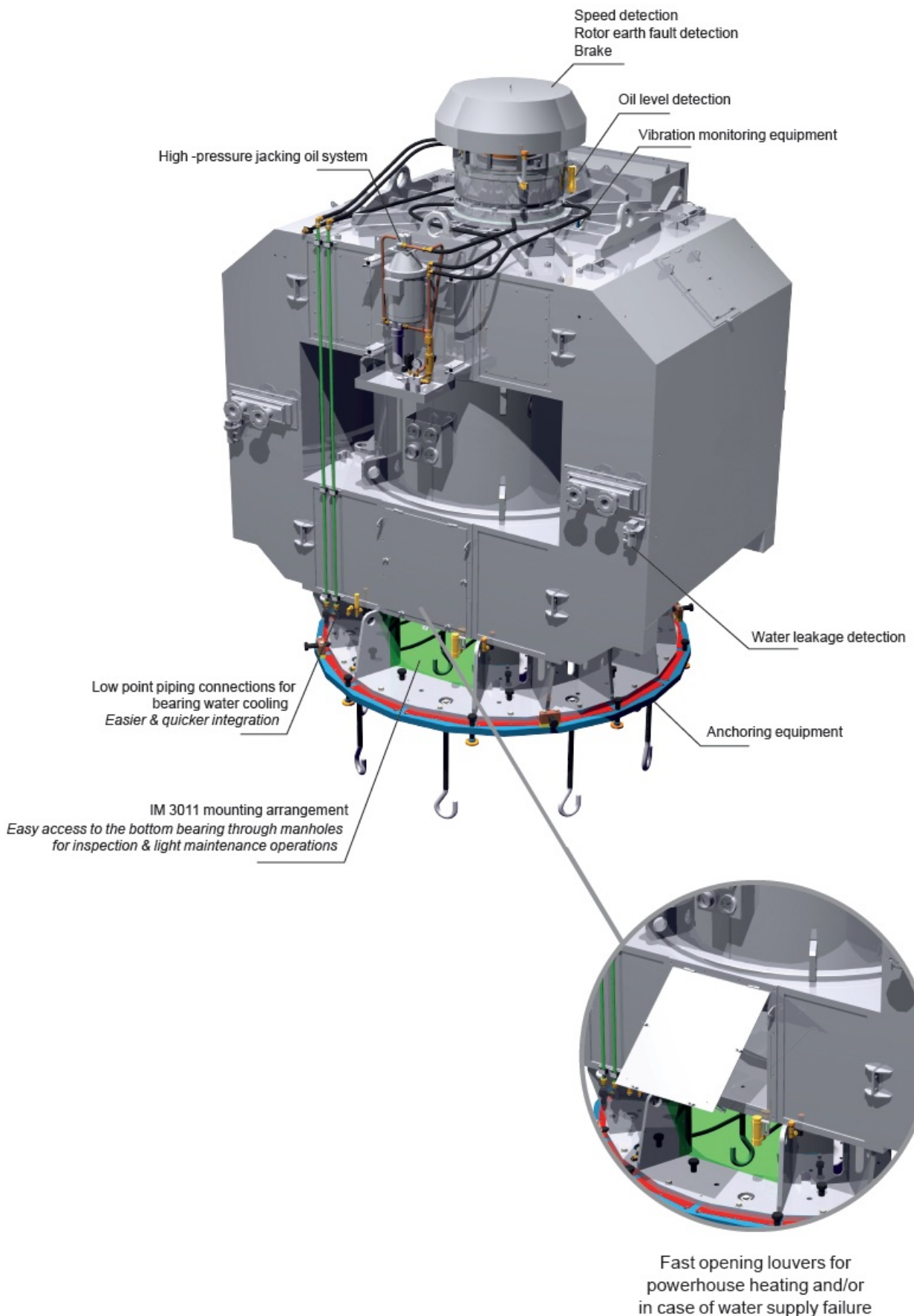
Product range overview

A premium industrial and design expertise for your hydro projects.

- Power 0.3 to 20 MW
- Voltage 400 to 15,000 V
- Rotation speed 300 to 1500 rpm / 50 Hz 360 to 1800 rpm / 60 Hz
- Mounting Vertical or horizontal
- Cooling IC01, IC21, IC31, IC81W (IEC 60034-6)
- Insulation class H (medium and high voltage included)
- Temperature rise class F or B
- Excitation Self-excited – Brushless rotating excitation
- Regulation Analog or digital Leroy-Somer™ AVR

Custom solutions

Ease of integration Comprehensive option range
VERTICAL MOUNTING

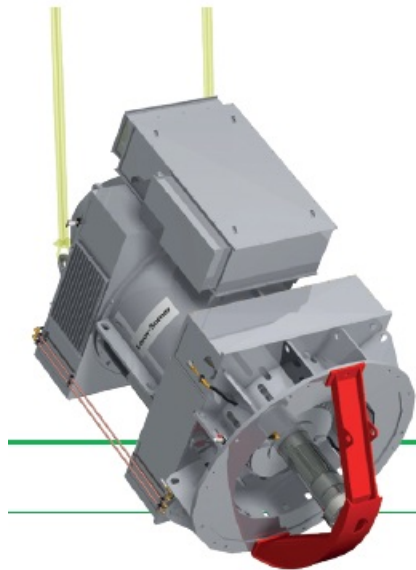


On-site handling

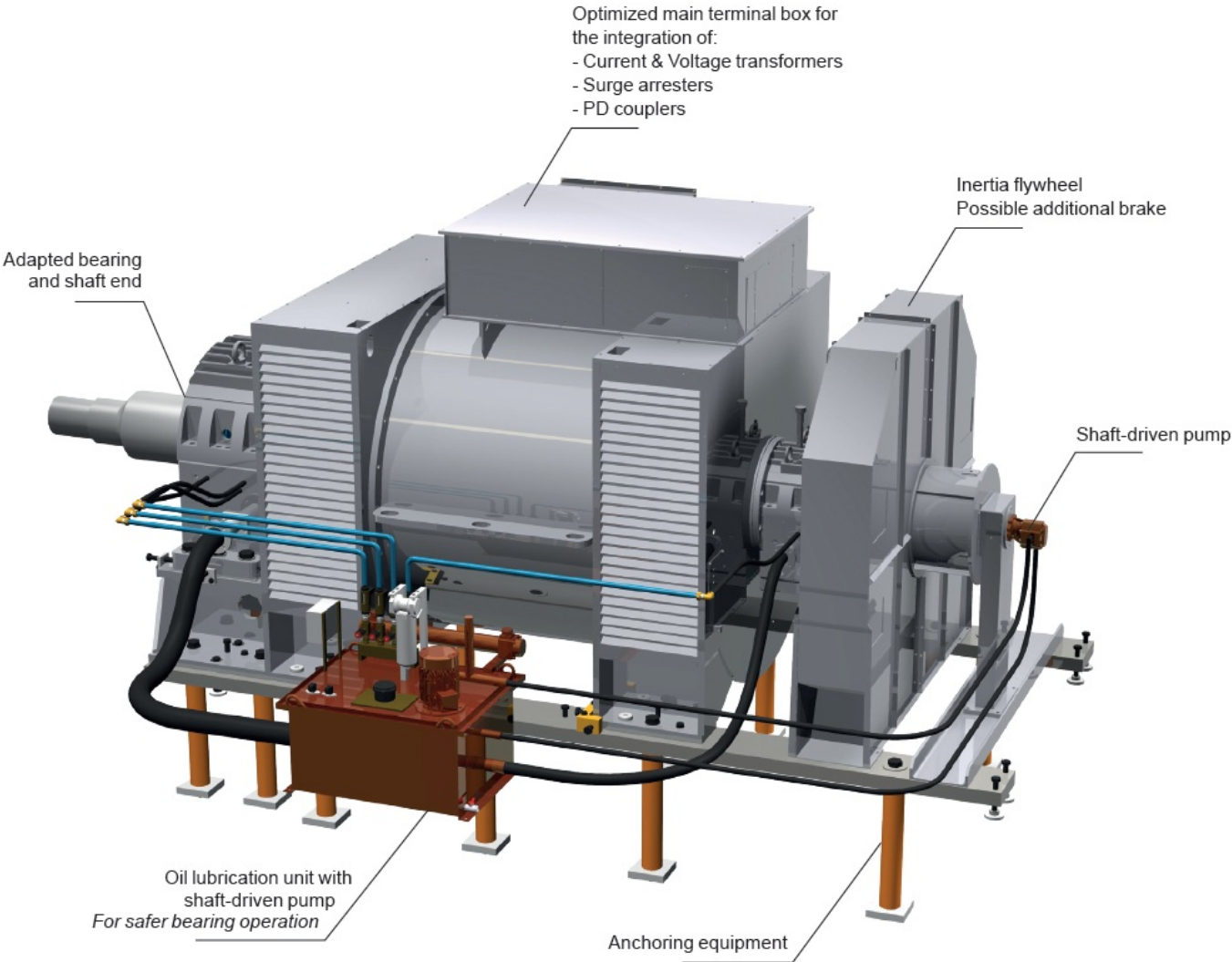
Combined rotor shaft locking & tilting equipment

- For hard to reach sites and cramped machine rooms, we offer a wide range of solutions & devices that facilitate the alternator lifting & handling.
- This tool, first introduced by us, allows safe transport/handling and enables transfer from horizontal to vertical

position (and vice versa) on site with only one lifting device.



HORIZONTAL MOUNTING



Case study
Fredet-Bergès Hydro Plant, France
Reducing the acoustic footprint when inhabitants are just across the street: problem solved

Project ID

- 3.5 MW
- 750 rpm

To watch the video, scan the code or visit: www.lrsm.co/fredetbergeshydro

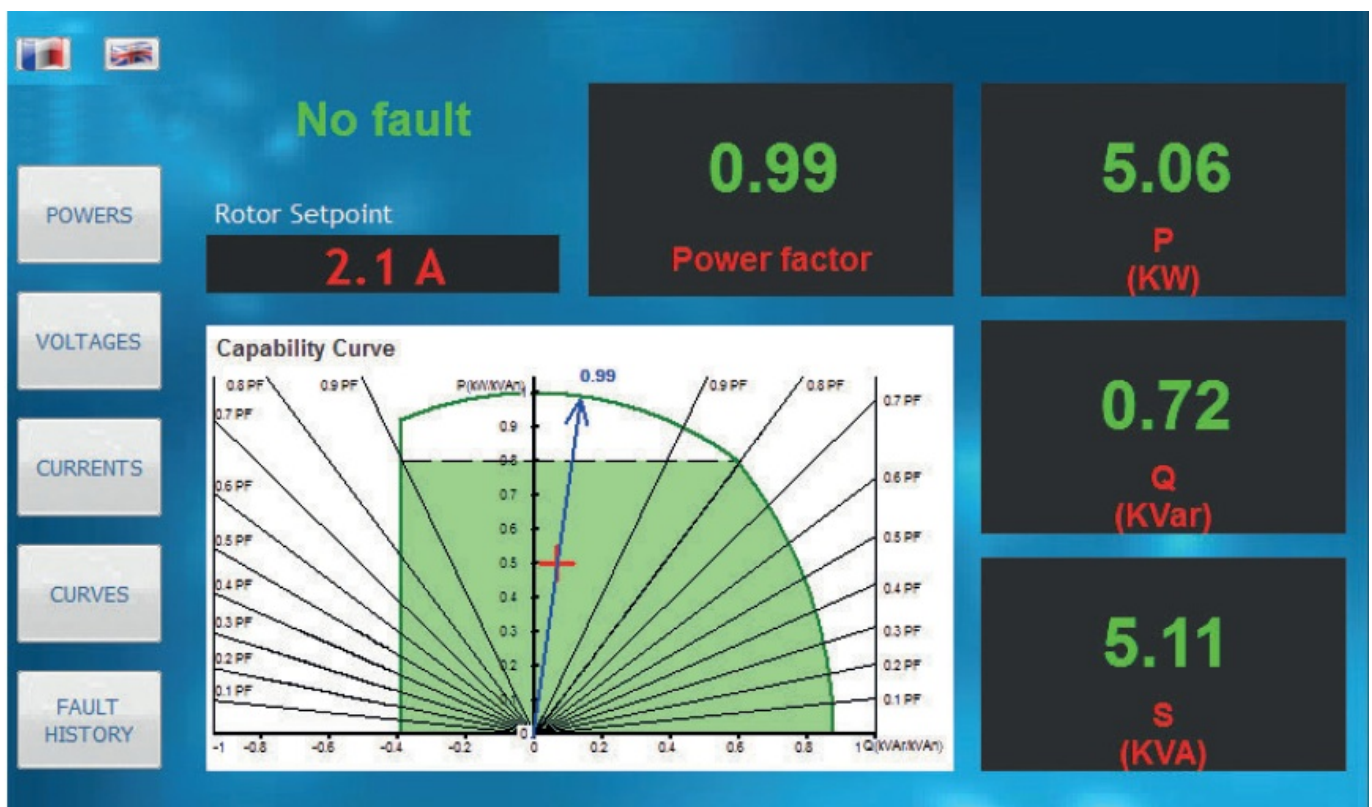


Digital Static Excitation System

Transition your old generator static excitation to digital. The Leroy-SomerTM Digital Static Excitation System can be installed on older generators. It combines the proven technologies of a Leroy-SomerTM designed digital AVR like the D550 or D700 and a Leroy-SomerTM Mentor DC drive.

The drive provides a continuous direct excitation current up to 900A, controlled by the digital AVR with the following features:

- Automatic or manual voltage regulation
- Voltage equalization for grid connection
- Cos ϕ , Power Factor or kVAR regulation modes
- Advanced fault detection and data logging
- User-friendly touchscreen interface



For more information, scan the code or visit www.lrsm.co/hydro



Support, Maintenance and Training

Services

We provide a complete range of services to support you from installation to commissioning and maintenance:

- On-site assembly when requested by site constraints
- Site erection, installation and commissioning
- On-site or in-house operations including repair, maintenance and diagnostic
- Long term service agreements with possible remote monitoring
- Advanced electrical and mechanical diagnostics, analysis and reports
- Parts center ensuring up-time requirements

Training

Our services and engineering teams have designed courses to address the specific challenges of hydro projects:

- **Engineering companies:** increase or refresh your knowledge, for specification write-up, better evaluation of proposals and comparison processes
- **Operating companies:** identify key topics to optimize daily and strategic operation activities, including scheduled controls, monitoring and maintenance, and get the most of Leroy-SomerTM generators

www.nidecpower.com

© 2024 Moteurs Leroy-Somer SAS. The information contained in this brochure is for guidance only and does not form part of any contract. The accuracy cannot be guaranteed as Moteurs Leroy-Somer SAS have an ongoing process of development and reserve the right to change the specification of their products without notice.

Moteurs Leroy-Somer SAS. Headquarters: Bd Marcellin Leroy, CS 10015, 16915 Angoulême Cedex 9, France.
Share Capital: 32,239,235 €, RCS Angoulême 338 567 258.

FAQ

Q: What is the power range of the Hydro Power Synchronous Generators?

A: The power range is from 0.3 to 20 MW.

Q: What is the voltage range supported by the generators?

A: The generators support voltages from 400 to 15,000 V.

Q: What excitation methods are available for the generators?

A: The generators offer self-excited operation with brushless rotating excitation.

Documents / Resources



[LEROY-SOMER Nidec Hydro Power Synchronous Generators](#) [pdf] Owner's Manual
Nidec Hydro Power Synchronous Generators, Nidec, Hydro Power Synchronous Generators, Synchronous Generators, Generators

References

- [YouTube](#)
- [User Manual](#)

[Manuals+.](#) [Privacy Policy](#)

This website is an independent publication and is neither affiliated with nor endorsed by any of the trademark owners. The "Bluetooth®" word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. The "Wi-Fi®" word mark and logos are registered trademarks owned by the Wi-Fi Alliance. Any use of these marks on this website does not imply any affiliation with or endorsement.