



# **MARINE Alternators**

## **15 to 2400 kVA**

## CAPABILITY












LEROIY-SOMER is a world leader with the most comprehensive range of alternators on the market : from 1 to 25000 kVA for speeds of 300 to 3600 mn<sup>-1</sup>.

For marine use, LEROY-SOMER has a compact, sturdy range which operates either as a main power supply or as an auxiliary generator, in continuous duty or on standby.

## STANDARDS & CERTIFICATION

LEROIY-SOMER alternators conform to IEC recommendations 34-1 and other international standards : NFC 51-111, UTE 5100, VDE 0530, BS 5000, IEC 2.3, NEMA, IEEE, CSA, etc.

Alternators for marine use are supplied with certificates issued by the following international organisations. LSAM range is approved by organisations marked with (\*).

	Temp. rise Ambient temperature Class H	Temp. rise Ambient temperature Class F	Short-circuit current	transient voltage drop	Overload	Temperature detector	Space heaters	Regulation	Shaft conformity certificate	Factory setting	Spare parts
 <b>LRS</b> Lloyd's Register of Shipping	110°/45°	95°/45°	300% 2 sec	NS	50% P.F. = 0.8 15 sec	NS	R	±2.5%	P ≥ 100 kW	P ≥ 100 kW	----
 <b>ABS</b> American Bureau of Shipping	115°/50°	95°/50°	300% 2 sec	NS	50% 2 mn	P ≥ 500 kVA	≥ 455 kg	±4%	NS except propulsion	P ≥ 100 kW	BRGS
 <b>NKK</b>	120°/45°	95°/45°	300% 2 sec	NS	50% 2 mn	P ≥ 500 kVA	----	----	P ≥ 375 kW	P ≥ 100 kW	----
 <b>BV *</b> Bureau Veritas	120°/45°	100°/45°	300% 2 sec P ≥ 50 kW	15% 0.6 Pn P.F. = 0.4	50% 15 sec	Required in AUT + propulsion	Required in AUT + propulsion	±2.5%	P ≥ 500 kW	S	NS
 <b>DNV *</b> Det Norske Veritas	110°/45°	95°/45°	300% 1 sec	15% 0.6 Pn P.F. = 0.4	50% 2 mn	NS	R	±2.5%	P ≥ 100 kW	P ≥ 100 kW	D
 <b>GL</b> Germanischer Lloyd's	120°/45°	100°/45°	300% 1 sec P ≥ 50 kVA	15% 0.6 Pn P.F. = 0.4	50% 2 mn	NS	P ≥ 500 kVA	±2.5%	NS apart from propulsion	NS	BRGS D
 <b>PRS</b> Polish register of Shipping	120°/45°	95°/45°	NS	15% 0.6 Pn P.F. = 0.4	50% 2 mn Un -10% P.F. = 0.6	NS	R	±2.5%	NS	----	BRGS AVR D
 <b>KRS</b>	115°/50°	90°/50°	300% 2 sec	NS	50% P.F. = 0.8 15 sec	NS	R	±2.5%	P ≥ 100 kW	P ≥ 100 kW	----
 <b>CGSS</b> Coast Guard Steam Ship TP 127	115°/50°	95°/50°	300% 2 sec	15% 0.6 Pn P.F. = 0.4	NS	P ≥ 500 kVA	≥ 455 kg	±2.5%	P ≥ 375 kW	NS	----
 <b>RINA</b> Registro Italiano Navale	120°/45°	100°/45°	300% 2 sec P ≥ 50 kVA	15% 0.6 Pn P ≥ 50 kVA P.F. = 0.4	50% P.F. = 0.6 15 sec	Required in AUT	Required in AUT	±2.5%	Approval of shaft on plans if P ≥ 250 kW	S	----
 <b>RUSSIAN *</b> Maritime Register of Shipping	120°/45°	95°/45°	NS	15% 0.6 Pn P.F. = 0.4	50% 2 mn Un -10% P.F. = 0.6	NS	R	±2.5%	NS	S	----

Note : This list is not exhaustive and may be revised to include other organisations.

NS : not specified - R : recommended - S : specified - BRGS : set of bearings - AVR : regulator - D : set of diodes - AUT : automatic  
Whatever Class H or F, all the other specifications remain the same.

## INSULATION AND IMPREGNATION

LSAM alternators are class H insulated. Marine products are wound and impregnated, using state-of-the-art equipments, according to optimized manufacturing processes.

the standard winding protection is suitable for indoors marine applications. Additional coatings must be applied for other marine environments.

## EXCITATION

The marine range has an excitation system requiring neither ring nor brush. The AREP system, enables short-circuit current to be maintained at 300 % for a period controlled by the regulator and limited to 10 seconds. PMG excitation is also available as an option.

## CONSTRUCTION

- Rigid steel casing.
- Rotors are dynamically balanced with 1/2 key (ISO 8821), conform to class G 2.5 (ISO 1940).
- Squirrel damper winding in the rotor for parallel operation.

## BEARINGS

- Sealed for life bearings for models up to the LSA M 47.1 L10<sub>H</sub> life of 20,000 hours (ISO 281)
- Regreasable bearings for LSA M 49.1 to LSA M 51.2 L10<sub>H</sub> life of 40,000 hours (available as an option on LSA M 44.2, 46.2 and 47.1).

## PROTECTION

- IP 23 enclosure as standard (IP 44 or IP 55 on request)
- Thermal protection can be installed in the windings or end shields.



## TERMINAL BOX

- The rigid terminal box mounted on the top provides left or right cable outlets, according to customer requirement.
- An opening is provided for mounting extension modules.

**QUALITY ASSURANCE**  
LEROIY-SOMER alternator division  
is approved to standard  
**ISO 9000 - 2000 Version**  
leading the world in quality

---

## MARINE CERTIFICATION

The more popular products of the LSAM range have been approved by BV, DNV and RMRS.

This approval enables to simplify and shorten the product certification.

It also insures our customers that LEROY-SOMER has the ability to manufacture products in accordance with the marine rules and with constant quality.

---

## MECHANICAL SUITABILITY

LEROY-SOMER has tested the design and compatibility of its alternators for drive systems with shaft generators or auxiliary diesel engines.

The endshields are designed to withstand the pitching and rolling effects equivalent to 5G acceleration.

---

## RELIABILITY

The temperature rise of the machine can be limited thus increasing the life of the winding.

The reliability of the alternator is improved by the elimination of internal vibration by the choice of the balancing class and the insulation of sensitive components using anti-vibration mounts.

---

## SIMPLE TO INSTALL

The large terminal box provides easy access to the connections. All adjustments can be made via the inspection door.

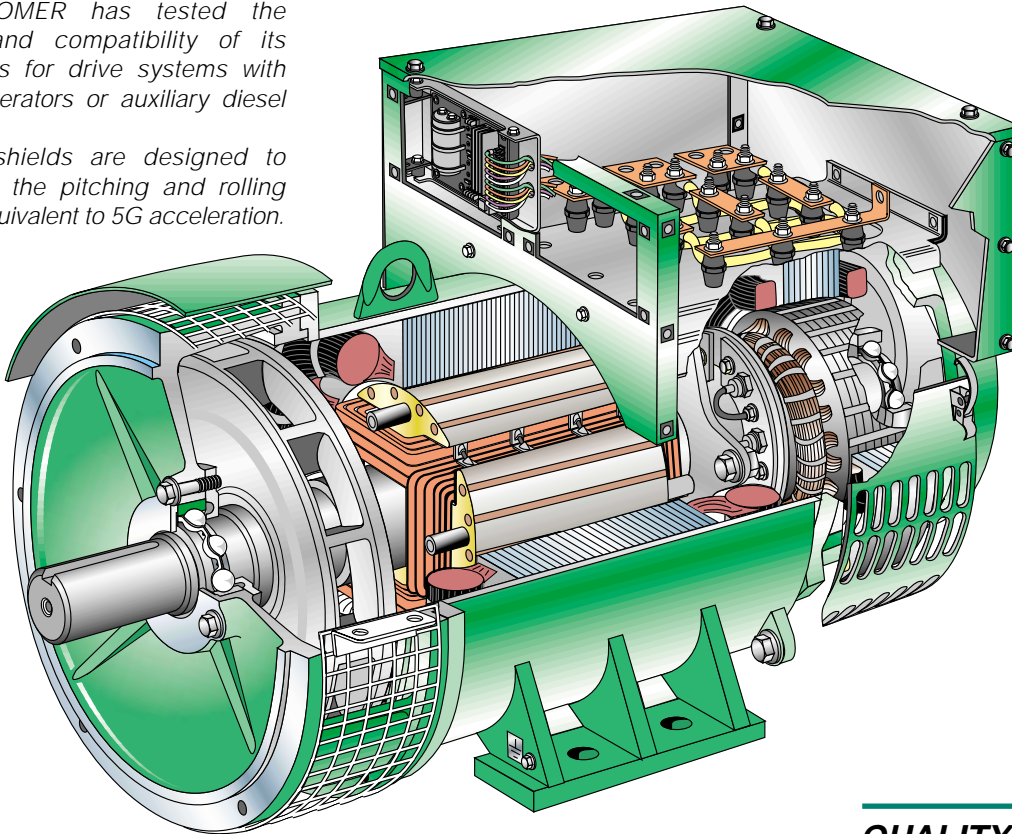
Improved accessibility and simplified adjustment contribute to a high level of efficiency.

---

## ACCESSORIES

A large number of accessories are available, including

- space heaters
- temperature detectors
- parallel operation modules
- etc.



---

## COMPACT DIMENSIONS

The MARINE range is extremely compact and as such can easily be installed in confined spaces.

A shorter assembly leads to improved strength and accessibility.

---

## MINIMUM MAINTENANCE

The design of the MARINE range with a low number of components and special attention paid to concentricity and assembly methods (means) that the bearing life is increased.

Increased bearing life gives the user peace of mind and leads to reduced operating costs.

---

## QUALITY ASSURANCE

The production sites have been approved as conforming to the following recommendations : ISO 9000, BS 5750 and RAQ.

The quality, which has been measured and certified, is a pledge of confidence and plays an important role in the brand image of LEROY-SOMER and its customers.