



# TÜRK LOYDU

## TYPE APPROVAL CERTIFICATE

This Certificate consists of 2 pages.

This is to certify that the

### LOW VOLTAGE ALTERNATORS

With type designations

LSA M  
42.3, 44.3, 46.3, 47.2, 49.3, 50.2

Manufactured by

NIDEC LEROY-SOMER

Is found to comply with

TURK LOYDU RULES PART B, CH. 5, ELECTRICAL INSTALLATIONS [JAN 2019]  
IEC 60034-1:2017 ROTATING ELECTRICAL MACHINES PART 1

**Application** : Products approved by this certificate can be used for commercial and navy vessels under TL class.

**Design** : Nidec Leroy-Somer

**Sizes** : -

**Address of Manufacturer** : Boulevard Marcellin Leroy, CS 10015, 16915 Angouleme Cedex 9 FRANCE

**Place and date** : İSTANBUL - 17.05.2019

Subject to the conditions referred to in the following pages, this certificate is valid until 16.05.2024

**Emrah SÖĞÜTÇÜ**  
New Building Division Manager



**Product description** : Low voltage AC synchronous alternators for marine generators.

**Voltage:** 220V to 690V

**Frequency Range:** 50Hz, 60Hz,

**Speed:** 1500 rpm, 1800 rpm

**Power Factor:** 0,8

**Insulation Class:** H

**Thermal Class:** F or H

**Duty:** S1

**Ambient Temp:** 45°C

**Enclosure:** IP23, IP44

**Power Range:** 50Hz 25-1540kVA, 60Hz 30-1840kVA,

**Type Designation** : Below types are covered with this certificate for every product range with following letter notations - VS: Very Small, S: Small, M: Medium, L: Large, VL: Very Large

**LSA M 42.3:** VS1, VS2, VS3, S4, S5, M7, M8, L9

**LSA M 44.3:** S2, S3, S4, S5, M6, M8, L10, VL13, VL14

**LSA M 46.3:** S2, S3, S4, S5, M7, M8, L10, L11

**LSA M 47.2:** VS2, S4, S5, M7, L9

**LSA M 49.3:** S4, M6, M8, L9, L10

**LSA M 50.2:** M6, L7, L8, VL10

**Materials used** :-

**Application/ Limitation (Approval conditions):**

- This certificate covers the technical specification of the products. Manufacturer also must have Quality Assurance Certificate from TL.
- Alternators can't be used with type approval certificate only. All alternators are subjected to test certification by TL.
- Shaft inspection must be complete before, for the certification of electric propulsion motors, main generator sets supplying electrical propulsion motors or shaft alternators.

**Documentation** : Drawings under TL approval letter no : PAE-EPAS/003984/19-0544/GTC, Manufacturer's manuals and instruction booklets. BV Attestation of Conformity No : 124095-649339 A, 124095-649339 B, 137884-677840 A CR 2016/09/12, 137884-677840 B CR 2016/09/12, 112478-623455 A, 112478-623455 B

**Test carried out (and results)** : According to IEC 60034-1 and TL Rules for Electrical Installation following tests have been carried out and found successful.

1. Control of technical documents
2. Insulation resistance measurement
3. Winding resistance measurement
4. Control of AVR operation
5. No-load operation test
6. Load test and heat run test
7. Overload, over-speed test
8. Steady short-circuit measurement
9. High voltage test
10. Control of IP degree
11. Control of the bearings

**Place of test carried out** : NIDEC LEROY-SOMER SILLAC FACTORY, ANGOULEME/FRANCE

**Marking of product:** Manufacturer's own nameplates.



**Yağız YILDIRIM**  
Surveyor

This certificate is subject to terms and conditions described below:

- Any significant change in design or construction may render this Certificate invalid. Type Approval Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. This certificate is not valid for products without marking above mentioned. The manufacturer should notify TÜRK LOYDU of any modifications or changes to the equipment in order to obtain valid certificate. This certificate shows that tested specimens as representative of the product complies of the TÜRK LOYDU rules, and relevant international instruments that apply to it.