

EU RO Mutual Recognition Technical Requirements

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| LV SOFT STARTERS | Version | 0.3 |
| | Adoption Date: | 1 January 2023 |
| | Application Date: | 1 July 2023 |
| | Tier | 5 |
| This document is subject to controlled issue and can be found here: http://www.euromr.org/technical-requirements *** Uncontrolled if downloaded or printed *** | | |

| | |
|--|---|
| 1. PRODUCT DESCRIPTION | 1 |
| 2. DESIGN EVALUATION | 2 |
| 3. PRODUCTION REQUIREMENTS | 4 |
| 4. MARKING REQUIREMENTS | 5 |
| 5. TYPE APPROVAL CERTIFICATE CONTENT | 5 |
| 6. APPROVAL DATE AND REVISION NUMBER | 5 |
| 7. BACKGROUND INFORMATION / REFERENCES | 6 |
| 8. MAINTENANCE & CLARIFICATION OF TECHNICAL REQUIREMENTS | 6 |
| 9. LEGAL PROVISIONS / COPYRIGHT | 6 |

1. PRODUCT DESCRIPTION

1.a General description of the product

Soft starter is a special form of a.c. motor controller with suitable overload protection, rated as a unit and in which the starting function is limited to a voltage and/or current ramp that may include controlled acceleration, and where the additional control functions is limited to providing 'FULL-ON'.

1.b Application limitations

- The rated voltage of LV soft starters does not exceed 1000V a.c. according IEC 60947-4-2 and rated power of controlled motor ≤ 20 kW, and not for essential systems;
- Onboard ships with exceptions as per SOLAS Ch. I, Reg. 3;
- Installation on board ships within locations with climatic, biological, chemically active, mechanically active, and mechanical environmental conditions not exceeding those for which performance has been proved according to IEC 60721-3-6 (1987) + A2(1996) or IEC 60947-1 Annex Q;
- 'Ex' certification is not within the scope of this Technical Requirement.

1.c Intended use

- Power supply system characteristics as per IEC 60092-101; 2.8;
- Environment category 6K4, 6B2, 6C2, 6S2 and 6M3 according to IEC 60721-3-6 (1987) + A2 (1996) or IEC 60947-1 Annex Q.

1.d System context

See 1.c

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2. DESIGN EVALUATION

2.a Engineering evaluation requirements

2.a.i. Technical Requirements

- a) In general, IEC 60947 series shall be observed.

2.a.ii. Technical documents to be submitted

IMPORTANT: The English Language shall be used for all submitted documents.

Prior to tests:

- a) Proposed test program and test schedule;
- b) Description of the test specimens and explanation of the selected test sample(s) providing evidence that the selected sample meets the most rigorous and demanding requirements;
- c) Product descriptions, manuals, data sheets, assembly drawings, dimension drawings etc. clearly identifying the product;
- d) Complete accreditation certificate of the Test laboratory if the tests are conducted by an Accredited Test Laboratory as per 2.b.a. (prior the first test only; changes in the scope of accreditation shall also be advised);
- e) Details of production sites;
- f) Product specification;
- g) Application, working area;
- h) Instructions on fitting, assembly and operation;
- i) QM-certificate according to ISO 9001.
- j) For products where the function of the product is based on software the quality management system of the manufacturer has to maintain procedures for the life cycle activities and the version control.

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After completion of tests:

- k) The test report with an identification number must contain all relevant data and test results including place and date of the tests, the names of the responsible personnel carrying out the test;
- l) Type references and serial numbers of the products tested;
- m) Test reports and test records must be signed by the personnel members in charge of the test and are to be confirmed by the EU RO by signing and marking the test report;
- n) Certificate of conformity to IEC Standards issued by one of the Certification Body under the ILAC or LOVAG or IECEE mutual recognition agreement.

2.b Type testing requirements

- a) Tests shall be carried out in the presence of the EU RO Surveyor. In cases where the tests are conducted at Nationally Accredited Laboratories, the presence of the EU RO surveyor may be omitted†;
- b) The test laboratory shall be accredited according to ISO 17025 for relevant IEC standards (incl. IEC 60947-4-2 sub - clause 9.1.2) by either a National Accreditation Body under the MLA regime of ILAC or one of the certification bodies under the LOVAG or IECEE Mutual Recognition Agreement. This applies to the Type Tests (including EMC) in compliance with the product standards;
- c) Special tests in accordance with URE10 or IEC 60947-4-2 sub-clause 9.1.5.2 and IEC 60947-1 Annex Q, 'Special tests' (Category D or higher);
- d) All tests to be performed on the agreed test samples taken from the production line or from stock†;
- e) Electromagnetic compatibility (EMC) to be tested in accordance with UR E10 (test item according to IEC 60533, and test parameters and performance criteria according to UR E10); or in accordance with IEC 60947-4-2 product standard subclause 8.3 (test parameters and performance criteria according to UR E10), plus additional test required by UR E10 (test item according to IEC 60533);
- f) The version of each type of installed software at the time of testing is to be identified.

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† For further clarification of witnessing of tests and sampling the test specimen(s), refer to paragraphs 6, 7 and 8 of the EU RO "Design Evaluation Scheme" procedure (Appendix V of EU RO Framework Document for the Mutual Recognition of Type Approval found on <http://www.euromr.org/Guidance%20for%20Mutual%20Recognition>).

2.c Type testing requirement for certificate renewal

- a) The manufacturer is to notify the RO of any modification or changes to the manufacturing specifications that may affect the MR TA to be renewed.
- b) If the specified standard(s) is(are) amended or revised, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.
- c) The Software history to be provided for review.

3. PRODUCTION REQUIREMENTS

3.a. General Requirements

Refer to EU RO "Product Quality Assurance (PQA)" procedure (Appendix VI of EU RO Framework Document for the Mutual Recognition of Type Approval).

3.b Special Requirements

- a) Routine tests according to IEC 60947-4-2 sub - clause 9.1.3;
- b) Production certification according to ISO 9001 by accredited certification bodies;
- c) QM/QS audit (annual) shall be submitted to the EU RO for review;
- d) Production of the equipment is limited to those facilities listed on EU RO's certificate;
- e) Changes to the product, or its embedded software (firmware), if software changes of relevance will void the EU RO's Mutual Recognition certification.
The EU RO shall be kept informed of all new version numbers including a description and impacts of change;
- f) The EU RO shall be granted access to all manufacturing and testing facilities, and to be provided with all the information necessary to perform its duties;
- g) General terms and conditions of EU RO shall be observed.

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4. MARKING REQUIREMENTS

- a) Marking as required by IEC 60947-4-2 (sub-clause 6.2).

5. TYPE APPROVAL CERTIFICATE CONTENT

The EU RO MR Type Approval Certificate shall contain the minimum information as defined in the “EU RO Framework Document for the Mutual Recognition of Type Approval”-see Appendix I of EU RO MR Type Approval Certificate Information.

The following information is specifically applicable to products relevant to this technical requirement and shall be included on the EU RO MR Type Approval Certificate:

- a) Approval conditions including limitations;
- b) Hardware, software, firmware name and version;
- c) Technical data according to IEC marking;
- d) Application and limitations.
- e) Firmware/ Operational System Software Version: [major version. minor version].

6. APPROVAL DATE AND REVISION NUMBER

| Date | Revision | Comment |
|------------|----------|--|
| 2016-07-01 | 0.0 | Approved by EU RO MR Advisory Board |
| 2021-03-01 | 0.1 | Harmonised EMC testing requirements (18042h) |
| 2021-12-28 | 0.2 | Software update (ref 18042g) and para 2c |
| 2022-12-06 | 0.3 | Adding para. 9 Copyright (ref. 21030_) |

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7. BACKGROUND INFORMATION / REFERENCES

- a) EU RO Framework Document for the Mutual Recognition of Type Approval;
- b) IEC 60947;
- c) SOLAS Ch. I, Reg. 3;
- d) IEC 60721-3-6 (1987) + A2 (1996);
- e) IEC 60092;
- f) ISO 9001;
- g) IMO Resolution A.813(19):1995;
- h) IEC 60533;
- i) IEC 60945;
- j) IACS UR E10;
- k) ISO 17025.

8. MAINTENANCE & CLARIFICATION OF TECHNICAL REQUIREMENTS

Anyone wishing to propose changes to this document or request clarification of technical issues should contact the EU RO MR Group Secretariat in the first instance:

Secretariat@euomr.org.

Review and approval of change requests shall follow the EU RO MR Maintenance Process detailed in the EU RO Framework Document for the Mutual Recognition of Type Approval: <http://www.euomr.org/Guidance%20for%20Mutual%20Recognition>.

9. LEGAL PROVISIONS / COPYRIGHT

- a) Underlying legal provisions in accordance with EU RO Framework Document for the Mutual Recognition of Type Approval;
- b) Copyright © 2022. All EU RO MR Group rights reserved. For a list of EU RO MR Group members please see <https://www.euomr.org/about-us>.
(The year is either the year of the inclusion of the copyright notice, 2022 for existing TRS, or the year of the adoption of any new TR.)

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