Confirmation of Product Type Approval

Company Name: LEROY-SOMER MOTOR TECHNOLOGY (FUZHOU) CO., LTD. SHENZHEN GUANGMING BRANCH

Address: 1ST FLOOR MACHINERY BUILDING, EVOC SCIENCE & TECHNOLOGY PARK, NO. 11 WEST GAOXIN ROAD,GUANGMING DISTRICT, SHENZHEN 518000 China

Product: Frequency Converter

Model(s): Unidrive M600, M700, M701, M702, M708 and M709, Commander C200 and C300 and Pump drives F600

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	24-0068701-PDA-DUP	09-AUG-2024	08-AUG-2029
Manufacturing Assessment (MA)	24-6599151	13-SEP-2024	12-SEP-2029
Product Quality Assurance (PQA)	NA	NA	NA

Tier
5 - Unit Certification Required

Intended Service
For use on ABS classed vessels and offshore facilities in accordance with the listed ABS Rules and International Standards.

Description
Motor Control. Modular construction of variable speed drives – To be housed in suitable enclosures.

Ratings
Ambient temperature -20 °C to 40 °C (-4 °F to 104 °F) as standard. Up to 55 °C (131 °F) with derating

Degree of protection: IP20

AC supply voltage:

200 V drive: 200 V to 240 V ±10 %

400 V drive: 380 V to 480 V ±10 %

575 V drive: 500 V to 575 V ±10 %

690 V drive: 500 V to 690 V ±10 %

Frequency 45 - 66 Hz

Service Restrictions

1) Unit Certification is required for drive units used to control motor drives having a rated power of 100 kW (135 hp) and over intended for essential services or for services indicated in 4-8-3/Table 7 of the Marine Vessels Rules.

2) Routine Tests and any Optional tests specifically required by the Owner are to be carried out at the manufacturers production facility in the presence of and witnessed by an ABS Surveyor as detailed in 4-8-3/8.7 of the Marine Vessels Rules.

3) If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

4) The equipment allows to installed in the general power distribution zone only, not allows on bridge or deck zone for EMC requirement.

Comments

1) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

2) Unless specially directed by Administration, this approval is not to be constructed as a substitute for flag Administration's approval.

3) The units are to have the appropriate enclosure IP rating as per 4-8-3/Table 2 based on their installed location.

Notes, Drawings and Documentation

1) 1-000-059-181, Revision 3, Summary of test reports - ABS Type Approval Unidrive-M and Commander variable speed drives

2) 0478-0336, Revision 5, Commander C200 & C300 Frame 1 to 4 Power Installation Guide

3) 0478-0255, Revision 8, Commander C200 & C300 Frame 5 and 6 Power Installation Guide

4) 0478-0622, Revision 7, Pump-Drive-F600-User-Guide

5) 0478-0337, Revision 2, Unidrive M600 Control User Guide

6) 0478-0353, Revision 2, Unidrive M700-M701 and M702 Control UG

7) 0478-0234, Revision 13, Unidrive M Frame 7 to 10 Power Installation Guide issue 13

8) 1-000-004-692, Revision 1, GT8 Frame03 -20 DegC Startup Test Report issued by EMERSON/CONTROL TECHNIQUES dated 12 Jun 2011

9) 1-000-050-885, Revision 0, EMC Test Report - Unidrive-M frame size 3 issued by Nidec Control Techniques Ltd dated 3 Apr 2020

10) 1-000-051-710, Revision 1, EMC Test Report - Unidrive-M frame sizes 9 and 10 issued by Nidec Control Techniques Ltd dated 26 May 2020

11) 1-000-051-301, Revision 1, EMC Test Report – Commander C200, C300 Frame size 4 issued by Nidec Control Techniques Ltd dated 22 May 2020

12) 1-000-006-097, Revision 1, Product identification & ratings label, Warning marking(s)

13) 1-000-004-523, Revision 19, C200-C300 Unidrive-M400 Frame Size 2 Safety Technical File

14) 1-000-041-931, Revision 104, M600 M700 M701 M702 F600 Frame Size 12 Safety Technical File

15) 1-000-004-283, Revision 2, Olympian B-D Electrical Spacings Calculation

16) 1-000-006-963, Revision 14, C200-C300 Unidrive-M400 Frame Size 5-9 Safety Technical File

17) 1-000-003-202-1, Revision 1, GT07_FunctionalBarriersSpacings

18) 1-000-003-202-2, Revision 1, GT07_BasicBarriersSpacings

19) 1-000-003-202-3, Revision 1, GT07_ReinforcedBarriers

20) 1-000-041-742, Revision 5, Unidrive-M Frame 12 Insulation Specification

21) 1-000-047-851-2, Revision 0, f12 3.4kV flash issued by EMERSON/CONTROL TECHNIQUES dated 14 Mar 2019

22) 1-000-005-761, Revision 0, OL200V surge tests issued by Nidec Control Techniques Ltd dated 20 Jul 2012

23) 1-000-005-762, Revision 0, OL200V surge tests issued by Nidec Control Techniques Ltd dated 20 Jul 2012

24) 1-000-050-435, Revision 0, GT8_F12_MOV_Surge_Suppression_test issued by Nidec Control Techniques Ltd dated 11 Nov 2019

25) 1-000-006-202, Revision 0, Alpha Fan Circuit Verification (Jammed Blower) issued by Nidec Control Techniques Ltd dated 11 Dec 2012

26) 1-000-006-213, Revision 0, Blocked Fan Guard (clogged filter) issued by EMERSON/CONTROL TECHNIQUES dated 5 Dec 2012

27) 1-000-049-859 – 1, Revision 0, Jammed Fan issued by Nidec Control Techniques Ltd dated 30 Aug 2019

28) 1-000-049-859 – 2, Revision 0, Blocked Fan issued by Nidec Control Techniques Ltd dated 30 Aug 2019

29) 1-000-005-413, Revision 0 (P1), 480V DC bus capacitor issued by EMERSON/CONTROL TECHNIQUES dated 31 May 2012

30) 1-000-005-566, Revision 2, Dielectric test large frame 230V issued by EMERSON/CONTROL TECHNIQUES dated 24 July 2012

31) 1-000-005-813, Revision 0 (P2), Rectifier issued by EMERSON/CONTROL TECHNIQUES dated 5 Oct 2012

32) 1-000-006-484-1, Revision 2, OLB4_C1 ShortCct 110V_1k1W_3R3_iss2 issued by EMERSON/CONTROL TECHNIQUES dated 23 Apr 2013

33) 1-000-006-484-2, Revision 0, Inrush relay (while running) issued by EMERSON/CONTROL TECHNIQUES dated 23 Apr 2013

34) 1-000-005-651, Revision 0 (P2), Brake IGBT (Brake resistor)1-000-005-600 (P1), Brake IGBT (HV SMPS MOSFET) issued by EMERSON/CONTROL TECHNIQUES dated 22 Aug 2012

35) 1-000-006-234, Revision 101, Brake IGBT (LV SMPS MOSFET) issued by EMERSON/CONTROL TECHNIQUES dated 18 Dec 2012

36) 1-000-005-608, Revision 0, 230 V Short on any SMPS output issued by EMERSON/CONTROL TECHNIQUES dated 10 Aug 2012

37) 1-000-005-621, Revision 0, 480V Short on any SMPS output issued by EMERSON/CONTROL TECHNIQUES dated 16 Aug 2012

38) 1-000-044-742, Revision 0, GT25_P1_cap_short_circuit_Testing issued by EMERSON/CONTROL TECHNIQUES dated 13 Dec 2018

39) 1-000-050-944, Revision 0, GT8_Frame_12_Pre_UL_tests issued by Nidec Control Techniques Ltd dated 14-20 Jan 2020

40) 1-000-044-752, Revision 112, 20181022 GT8 F25 DT Soak Specification rev0 issued by Nidec Control Techniques Ltd dated 23 May 2022

41) 1-000-009-895 – 1, Revision 0, UL Heatrun Temp LimitsOlympian Frame 02 Power Terminal thermal Verification issued by EMERSON/CONTROL TECHNIQUES dated 17 Dec 2013

42) 1-000-009-895 – 2, Revision 0, UL Heatrun Temp Limits

43) 1-000-009-895 -3, Revision 0, Olympian Frame 02 External Surfaces Temperature Verification issued by EMERSON/CONTROL TECHNIQUES dated 29 Nov 2013

44) 1-000-048-367, Revision 2, F12-Heatrun-Final-Results

45) 1-000-005-622, Revision 0, Olympian Capacitor Discharge test issued by EMERSON/CONTROL TECHNIQUES dated 24 Jun 2012

46) 1-000-005-624, Revision 0, P2_Dielectric_withstand_test_report issued by EMERSON/CONTROL TECHNIQUES dated 20 Aug 2012

47) 1-000-050-418, Revision 0, 12-Cap-Discharge-Test issued by Nidec Control Techniques Ltd dated 8 Nov 2019

48) 1-000-049-427, Revision 1, GT8_F12_Damp_heat_test (IEC 61800-5-1, clause 5.2.1, 70 Deg C / 50% RH for 16 Hrs) issued by Nidec Control Techniques Ltd dated 26 Jun 2019

49) 1-000-006-061, Revision 1, Shock and vibration type test reports Summary

50) 1-000-008-654, Revision 0, (IEC publication 60068 22, Tests Bb and Be. 55 Deg C / 50% RH) issued by Nidec Control Techniques Ltd dated 12 Oct 2020

51) 1-000-004-844, Revision 1, Unidrive-M Frame size3 Production flash test specification issued by Nidec Control Techniques Ltd dated 13 Mar 2024

52) 1-000-042-618, Revision 0, Unidrive-M Frame size 5 Production flash test specification issued by Nidec Control Techniques Ltd dated 7 June 2018

53) 1-000-043-978, Revision 203, GT8-Fr12. Production Flash & Earth Bond Specification issued by Nidec Control Techniques Ltd dated 8 January 2024

54) TRA007820CC06B, Revision 1, Unidrive-M Frame size 3 salt spray test issued by TRaC Global dated 27 February 2012

55) 1-000-005-682, Revision 0, Radiated Immunity Test Report and Cert Commander M700 Frame 05 issued by Nidec Control Techniques Ltd dated 3 May 2018

56) 1-000-009-913, Revision 0, Radiated Immunity Test Report and Cert Commander C200-C300 Frame 05 issued by TRaC Global dated 3 April 2024

57) 1-000-059-793, Revision 0, Power Supply Variations Unidrive M Frame 5 400V and Commander Frame 5 400V issued by Nidec Control Techniques Ltd dated 10 May 2018

58) 1-000-060-010, Revision 0, IEC60533-2015 RE & CE Test Report External Test House TRA-064639-36-00C issued by Element Materials Technology dated 14 June 2024

59) 1-000-060-185, Revision 0, 7022-0247 Unidrive & Commander Topology

60) 1-000-060-186, Revision 0, REPORT ON THE EMC TESTING FOR NIDEC CONTROL TECHNIQUES LTD ON A COMMANDER 200 FRAME 5 issued by Element Materials Technology dated 24 July 2024

Term of Validity
This Product Design Assessment (PDA) Certificate remains valid until 08/Aug/2029 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules
2024 Marine Vessels Rules 1A-1-4/7.7, 1A-1-A3, 1A-1-A4, 4-8-3/8, 4-9-3, 4-9-9/13, 4-9-9/Table 1 and 2;

2024 Mobile Offshore Units Rules 1B-1-4/9.7, 1B-1-A2, 1B-1-A3, 4-3-4/5,

2024 High Speed Craft Rules 1C-1-4/11.9, 1C-1-A2, 1C-1-A3, 4-6-4/10, 4-7-8, 4-7-9/15, 4-7-9/Table 9 and 10;

International Standards
NA

EU-MED Standards
NA

National Standards
NA

Government Standards
NA

Other Standards
IACS UR E10 (Rev. 8 Feb. 2021, Corr. 1, Jan. 2022)

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 01-Jul-2025 4:21

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the “Intended Service” details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the

product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.