Certificate no.:
TAE000057W

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Frequency Converter

with type designation(s)
MD880 series

issued to
Suzhou Inovance Technology Co., Ltd.
Suzhou City, Jiangsu Province, **China**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2026-03-10**
This Certificate is valid until **2031-03-09**.
DNV local unit: **Shanghai**

Approval Engineer: **Andreas Andrecht**

for **DNV**

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This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

The product series MD880 and MD880LC are AC drive module designed as single drive system with integrated rectifier and inverter.

1.) Model MD880-01S air cooled
Software Version: H-CU50S-3C1-H-CU50S

Specification	Power	Input	Output
MD880-01S-0024-4-B-SG	11kW	3PH AC 380-480V 32.9A 50/60Hz	3PH AC 0-480V 24.0A 0-300Hz
MD880-01S-0038-4-B-SG	18.5kW	3PH AC 380-480V 44.0A 50/60Hz	3PH AC 0-480V 38.0A 0-300Hz
MD880-01S-0060-4-B-SG	30kW	3PH AC 380-480V 59A 50/60Hz	3PH AC 0-480V 60A 0-300Hz
MD880-01S-0094-4-B-SG	45kW	3PH AC 380-480V 69A 50/60Hz	3PH AC 0-480V 94A 0-300Hz
MD880-01S-0116-4-B-SG	55kW	3PH AC 380-480V 89A 50/60Hz	3PH AC 0-480V 116A 0-300Hz
MD880-01S-0149-4-B-SG	75kW	3PH AC 380-480V 106A 50/60Hz	3PH AC 0-480V 149A 0-300Hz
MD880-01S-0183-4-B-SG	90kW	3PH AC 380-480V 139A 50/60Hz	3PH AC 0-480V 183A 0-300Hz
MD880-01S-0217-4-SG	110kW	3PH AC 380-480V 164A 50/60Hz	3PH AC 0-480V 217A 0-300Hz
MD880-01S-0262-4-SG	132kW	3PH AC 380-480V 196A 50/60Hz	3PH AC 0-480V 262A 0-300Hz
MD880-01S-0314-4-SG	160kW	3PH AC 380-480V 240A 50/60Hz	3PH AC 0-480V 314A 0-300Hz
MD880-01S-0383-4-SG	200kW	3PH AC 380-480V 287A 50/60Hz	3PH AC 0-480V 383A 0-300Hz
MD880-01S-0441-4-SG	220kW	3PH AC 380-480V 365A 50/60Hz	3PH AC 0-480V 441A 0-300Hz
MD880-01S-0481-4-SG	250kW	3PH AC 380-480V 410A 50/60Hz	3PH AC 0-480V 481A 0-300Hz
MD880-01S-0538-4-SG	280kW	3PH AC 380-480V 441A 50/60Hz	3PH AC 0-480V 538A 0-300Hz
MD880-01S-0605-4-SG	315kW	3PH AC 380-480V 495A 50/60Hz	3PH AC 0-480V 605A 0-300Hz
MD880-01S-0673-4-SG	355kW	3PH AC 380-480V 565A 50/60Hz	3PH AC 0-480V 673A 0-300Hz
MD880-01S-0751-4-SG	400kW	3PH AC 380-480V 617A 50/60Hz	3PH AC 0-480V 751A 0-300Hz
MD880-01S-0849-4-SG	450kW	3PH AC 380-480V 687A 50/60Hz	3PH AC 0-480V 849A 0-300Hz
MD880-01S-0340-7	315kW	3PH AC 525-690V 340A 50/60Hz	3PH AC 0-690V 340A 0-300Hz
MD880-01S-0410-7	400kW	3PH AC 525-690V 410A 50/60Hz	3PH AC 0-690V 410A 0-300Hz
MD880-01S-0530-7	500kW	3PH AC 525-690V 530A 50/60Hz	3PH AC 0-690V 530A 0-300Hz
MD880-01S-0600-7	560kW	3PH AC 525-690V 600A 50/60Hz	3PH AC 0-690V 600A 0-300Hz
MD880-01S-0650-7	630kW	3PH AC 525-690V 650A 50/60Hz	3PH AC 0-690V 650A 0-300Hz
MD880-01S-0721-7	710kW	3PH AC 525-690V 721A 50/60Hz	3PH AC 0-690V 721A 0-300Hz

2.) Model MD880-01S, water cooled
Software Version: H-CU50S-3C1-H-CU50S

Specification	Power	Input	Output
MD880LC-01S-0530-7	500kW	3PH AC 525-690V 530A 50/60Hz	3PH AC 0-690V 530A 0-300Hz

3.) Model MD880-20M, air cooled
Software Version: H-CU20S-2A1-H-CU20S

Specification	Power	Input	Output
MD880-20M-0718-5	590kW	3PH AC 380-500V 718A 50/60Hz	DC 540-710V 879A
MD880-20M-0982-5	810kW	3PH AC 380-500V 982A 50/60Hz	DC 540-710V 1202A
MD880-20M-0815-7	929kW	3PH AC 525-690V 815A 50/60Hz	DC 740-975V 998A
MD880-20M-0570-7	650kW	3PH AC 525-690V 570A 50/60Hz	DC 740-975V 698A

4.) Model MD880-20M, water cooled
Software Version: H-CU20S-2A1-H-CU20S

Specification	Power	Input	Output
MD880LC-20M-2000-7	2273 kW	3PH AC 525-690V 2000A 50/60Hz	DC 740-975V 2441A

5.) Model MD880-40 air cooling
Software Version: H-CU40S-2A1-H-CU40S

Specification	Power	Input	Output
MD880-40D-0094-4+JC	64kW	3PH AC 380-440V 94A 50/60Hz	DC 570-720V 107A
MD880-40D-0149-4+JC	102kW	3PH AC 380-440V 149A 50/60Hz	DC 570-720V 170A
MD880-40D-0183-4+JC	126kW	3PH AC 380-440V 183A 50/60Hz	DC 570-720V 209A
MD880-40D-0299-4+JC	205kW	3PH AC 380-440V 299A 50/60Hz	DC 540-720V 342A
MD880-40D-0395-4+JC	270kW	3PH AC 380-415V 395A 50/60Hz	DC 570-720V 450A
MD880-40D-0089-7	98KW	3PH AC 525-690V 89A 50/60Hz	DC 740-975V 102A
MD880-40D-0173-7	190KW	3PH AC 525-690V 173A 50/60Hz	DC 740-975V 198A
MD880-40D-0243-7	267KW	3PH AC 525-690V 243A 50/60Hz	DC 740-975V 278A
MD880-40K-0575-4	394kW	3PH AC 380-415V 575A 50/60Hz	DC 540-720V 657A
MD880-40K-0810-4	556kW	3PH AC 380-415V 810A 50/60Hz	DC 540-720V 926A
MD880-40K-1092-4	749kW	3PH AC 380-415V 1092A 50/60Hz	DC 540-720V 1248A
MD880-40K-1539-4	1056kW	3PH AC 380-415V 1539A 50/60Hz	DC 540-720V 1759A
MD880-40K-0540-5-CS	463kW	3PH AC 380-500V 540A 50/60Hz	DC 570-750V 617A
MD880-40K-0810-5-CS	694kW	3PH AC 380-500V 810A 50/60Hz	DC 570-750V 926A
MD880-40K-1026-5-CS	880kW	3PH AC 380-500V 1026A 50/60Hz	DC 570-750V 1172A
MD880-40K-1539-5-CS	1319KW	3PH AC 380-500V 1539A 50/60Hz	DC 570-750V 1759A
MD880-40K-0369-7	437kW	3PH AC 525-690V 369A 50/60Hz	DC 740-975V 422A
MD880-40K-0540-7	639kW	3PH AC 525-690V 540A 50/60Hz	DC 740-975V 617A
MD880-40K-0701-7	829kW	3PH AC 525-690V 701A 50/60Hz	DC 740-975V 801A
MD880-40K-1026-7	1214kW	3PH AC 525-690V 1026A 50/60Hz	DC 740-975V 1173A

6.) Model MD880-40 water cooled
Software Version: H-CU40S-2A1-H-CU40S

Specification	Power	Input	Output
MD880LC-40M-0395-5	271KW	3PH AC 380-500V 395A 50/60Hz	DC 540-750V 452A
MD880LC-40M-0299-5	205KW	3PH AC 380-500V 299A 50/60Hz	DC 540-750V 342A
MD880LC-40M-0530-5	364KW	3PH AC 380-500V 530A 50/60Hz	DC 600-850V 486A
MD880LC-40M-0650-5	446kW	3PH AC 380-500V 650A 50/60Hz	DC 600-850V 743A
MD880LC-40M-0820-5	562KW	3PH AC 380-500V 820A 50/60Hz	DC 600-850V 750A
MD880LC-40M-0530-7	627kW	3PH AC 525-690V 530A 50/60Hz	DC 740-975V 606A
MD880LC-40M-0650-7	769kW	3PH AC 525-690V 650A 50/60Hz	DC 740-975V 743A
MD880LC-40M-0820-7	970kW	3PH AC 525-690V 820A 50/60Hz	DC 740-975V 937A
MD880LC-40F-0650-7		3PH AC 525-690V 650A 50/60Hz	3PH AC 525-690V 650A 50/60Hz
MD880LC-40F-0820-7		3PH AC 525-690V 820A 50/60Hz	3PH AC 525-690V 820A 50/60Hz
MD880LC-40F-1558-7		3PH AC 525-690V 1558A 50/60Hz	3PH AC 525-690V 1558A 50/60Hz

7.) MD880-50M series air cooled
Software Version: H-CU50S-3C1-H-CU50S

Specification	Power	Input	Output
MD880-50M-0060-4-CS	30kW	DC 537-679V 72A	3PH AC 0-415V 60A 0-300Hz
MD880-50M-0078-4-CS	37kW	DC 537-679V 96A	3PH AC 0-415V 78A 0-300Hz
MD880-50M-0094-4-CS	45kW	DC 537-679V 120A	3PH AC 0-415V 94A 0-300Hz
MD880-50M-0116-4-CS	55kW	DC 537-679V 146A	3PH AC 0-415V 116A 0-300Hz
MD880-50M-0149-4-CS	75kW	DC 537-679V 179A	3PH AC 0-415V 149A 0-300Hz
MD880-50M-0183-4-CS	90kW	DC 537-679V 240A	3PH AC 0-415V 183A 0-300Hz
MD880-50M-0245-4-CS	110kW	DC 540-720V 294A	3PH AC 0-415V 245A 0-300Hz
MD880-50M-0299-4-CS	132kW	DC 540-720V 358A	3PH AC 0-415V 299A 0-300Hz
MD880-50M-0349-4-CS	160kW	DC 540-720V 420A	3PH AC 0-415V 349A 0-300Hz
MD880-50M-0395-4-CS	200KW	DC 540-720V 474A	3PH AC 0-415V 395A 0-300Hz
MD880-50M-0516-4-CS	250kW	DC 540-720V 619A	3PH AC 0-415V 516A 0-300Hz
MD880-50M-0639-4-CS	355kW	DC 540-720V 788A	3PH AC 0-415V 639A 0-300Hz
MD880-50M-0757-4-CS	400kW	DC 540-720V 908A	3PH AC 0-415V 757A 0-300Hz
MD880-50M-0900-4-CS	500kW	DC 540-720V 1080A	3PH AC 0-415V 900A 0-300Hz
MD880-50M-0349-5-CS	250kW	DC 540-750V 420A	3PH AC 0-500V 349A 0-300Hz
MD880-50M-0590-5-CS	400kW	DC 540-750V 708A	3PH AC 0-500V 590A 0-300Hz
MD880-50M-0810-5-CS	560kW	DC 540-750V 972A	3PH AC 0-500V 810A 0-300Hz
MD880-50M-0062-7-CS	55kW	DC 740-975V 75A	3PH AC 0-690V 62A 0-300Hz
MD880-50M-0082-7-CS	75kW	DC 740-975V 99A	3PH AC 0-690V 82A 0-300Hz
MD880-50M-0099-7-CS	90kW	DC 740-975V 118A	3PH AC 0-690V 99A 0-300Hz
MD880-50M-0125-7-CS	110kW	DC 740-975V 150A	3PH AC 0-690V 125A 0-300Hz
MD880-50M-0144-7-CS	132kW	DC 740-975V 173A	3PH AC 0-690V 144A 0-300Hz
MD880-50M-0192-7-CS	160kW	DC 740-975V 230A	3PH AC 0-690V 192A 0-300Hz
MD880-50M-0217-7-CS	200kW	DC 740-975V 259A	3PH AC 0-690V 217A 0-300Hz
MD880-50M-0270-7-CS	250kW	DC 740-975V 323A	3PH AC 0-690V 270A 0-300Hz
MD880-50M-0340-7-CS	315kW	DC 740-975V 408A	3PH AC 0-690V 340A 0-300Hz
MD880-50M-0410-7-CS	400kW	DC 740-975V 492A	3PH AC 0-690V 410A 0-300Hz
MD880-50M-0530-7-CS	500kW	DC 740-975V 636A	3PH AC 0-690V 530A 0-300Hz
MD880-50M-0600-7-CS	560kW	DC 740-975V 720A	3PH AC 0-690V 600A 0-300Hz
MD880-50M-0650-7-CS	630kW	DC 740-975V 780A	3PH AC 0-690V 650A 0-300Hz
MD880-50M-0721-7-CS	710kW	DC 740-975V 864A	3PH AC 0-690V 721A 0-300Hz

8.) MD880-50M series water cooled
Software Version: H-CU50S-3C1-H-CU50S

Specification	Power	Input	Output
MD880LC-50M-0149-5	75kW	DC 540-750V 158A	3PH AC 0-500V 149A 0-300Hz
MD880LC-50M-0183-5	90kW	DC 540-750V 190A	3PH AC 0-500V 183A 0-300Hz
MD880LC-50M-0245-5	110kW	DC 540-750V 232A	3PH AC 0-500V 245A 0-300Hz
MD880LC-50M-0299-5	132kW	DC 540-750V 279A	3PH AC 0-500V 299A 0-300Hz
MD880LC-50M-0349-5	160kW	DC 540-750V 338A	3PH AC 0-500V 349A 0-300Hz
MD880LC-50M-0395-5	200kW	DC 540-750V 422A	3PH AC 0-500V 395A 0-300Hz
MD880LC-50M-0530-5	250kW	DC 600-850V 520A	3PH AC 0-500V 530A 0-300Hz
MD880LC-50M-0650-5	355kW	DC 600-850V 638A	3PH AC 0-500V 650A 0-300Hz
MD880LC-50M-0900-5	500kW	DC 600-850V 883A	3PH AC 0-500V 900A 0-300Hz
MD880LC-50M-0530-7	500kW	DC 740-975V 636A	3PH AC 0-690V 530A 0-300Hz
MD880LC-50M-0650-7	630kW	DC 740-975V 780A	3PH AC 0-690V 650A 0-300Hz
MD880LC-50M-0900-7	900kW	DC 740-975V 1080A	3PH AC 0-690V 900A 0-300Hz

9.) MD880-6xM series air cooled
Software Version: H-CU60S

Specification	Power	Input	Output
MD880-60M-0500-4	500kW	DC 540-720V 766A	3PH 0-310A
MD880-60M-0750-4	750kW	DC 540-720V 1149A	3PH 0-465A
MD880-60M-0870-7-SG-N	870kW	DC 740-975V 773A	3PH 0-310A
MD880-60M-1300-7-SG-N	1300kW	DC 740-975V 1155A	3PH 0-465A
MD880-61M-0400-7	400KW	DC 800-1200V	0-361A
MD880-61M-0290-5	290KW	DC 500-900V	0-361A

10.) MD880-6xM series waster cooled
Software Version: H-CU60S

Specification	Power	Input	Output
MD880LC-60M-1300-7	1300kW	DC 740-975V 1155A	3PH 0-465A
MD880LC-60M-0940-5	940kW	DC 600-850V 1155A	3PH 0-465A

11.) MD880-80D series air cooled
Software Version: H-CU80S-2A1-H-CU80S

Specification	Power	Input	Output
MD880-80D-0100-4	50kW	DC 540-720V 94A	DC 24-670V 100A
MD880-80D-0200-4	100kW	DC 540-720V 187A	DC 24-670V 200A
MD880-80D-0300-4	150kW	DC 540-720V 281A	DC 24-670V 300A
MD880-80D-0400-4	200kW	DC 540-720V 375A	DC 24-670V 400A
MD880-80D-0500-4	250kW	DC 540-720V 469A	DC 24-670V 500A
MD880-80D-0600-4	45kW	DC 540-720V 562A	DC 24-670V 600A
MD880-80D-0800-4	400kW	DC 540-720V 750A	DC 24-670V 800A
MD880-80D-1000-4	500kW	DC 540-720V 937A	DC 24-670V 1000A
MD880-80D-0600-5	300kW	DC 540-850V 353A	DC 24-800V 600A
MD880-80D-0100-7	100kW	DC 740-1050V 98A	DC 24-1000V 100A
MD880-80D-0200-7	200kW	DC 740-1050V 196A	DC 24-1000V 200A
MD880-80D-0300-7	300kW	DC 740-1050V 295A	DC 24-1000V 300A
MD880-80D-0400-7	400kW	DC 740-1050V 393A	DC 24-1000V 400A
MD880-80D-0500-7	500kW	DC 740-1050V 491A	DC 24-1000V 500A
MD880-80D-0600-7	600kW	DC 740-1050V 589A	DC 24-1000V 600A

12.) MD880-80D series water cooled
Software Version: H-CU80S-2A1-H-CU80S

Specification	Power	Input	Output
MD880LC-80D-0300-5	150KW	DC 540-850V 281A	DC 24-800V 300A
MD880LC-80D-0550-5	275KW	DC 540-850V 515A	DC 24-800V 550A
MD880LC-80D-0750-5	375KW	DC 540-850V 701A	DC 24-800V 750A
MD880LC-80D-0600-7	600kW	DC 740-1050V 589A	DC 24-1000V 600A

Location Classes

Temperature Class	A
Humidity Class	B
Vibration Class	A
EMC Class	A
Enclosure Class	IP00

Application/Limitation

This certificate does not replace the routine tests required for a product certificate in accordance with DNV RU SHIP Pt.4 Ch.8 Sec.7.

Type Approval documentation

Tests carried out

Type tests according to applicable DNV rules and standards as listed below have been carried out.
DNV-RU-SHIP Pt.4 Ch.8 Sec.7 (Edition 2025-07), DNV-CG-0339 (Edition: 2021-08).

Marking of product

Manufacture – Type designation – Output – Input

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

Manufactured by

Jinan Inovance Technology Co., Ltd.
No. 6111, Chunhui Road, Suncun Subdistrict, High-tech Zone, Jinan City, Shandong Province