

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate supersedes certificate number 16/20013 issued on 02.02.2016 which is hereby cancelled.

This certificate is issued to:

PRODUCER	Vacon Ltd Runsorintie 7 65380 Vaasa Finland
DESCRIPTION	Frequency converter
TYPE	Vacon 100 series Vacon 100X series
APPLICATION	Marine, offshore and industrial use in environmental categories ENV1 and ENV2 as detailed in Lloyd's Register Test Specification No. 1: July 2015.
STANDARD	IEC/EN 61800-5-1: 2007 IEC/EN 61800-3: 2004 Manufacturer's Specification

RATINGS		Vacon 100 series				
Type	Current rating 40°C	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-0003-2	3.7A	MR4, IP21, IP54	208-240V	50-60Hz	3.7A	2.6A
0004-2	4.8A	MR4, IP21, IP54	208-240V	50-60Hz	4.8A	3.7A

Certificate No.	16 / 20013 (E1)
Issue Date	27 August 2019
Expiry Date	01 February 2021
Sheet	1 of 8



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RATINGS (continues)

Type	Current rating 40°C	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-0007-2	6.6A	MR4, IP21, IP54	208-240V	50-60Hz	6.6A	4.8A
0008-2	8A	MR4, IP21, IP54	208-240V	50-60Hz	8A	6.6A
0011-2	11A	MR4, IP21, IP54	208-240V	50-60Hz	11A	8A
0012-2	12.5A	MR4, IP21, IP54	208-240V	50-60Hz	12.5A	9.6A
0018-2	18A	MR5, IP21, IP54	208-240V	50-60Hz	18A	12.5A
0024-2	24A	MR5, IP21, IP54	208-240V	50-60Hz	24A	18A
0031-2	31A	MR5, IP21, IP54	208-240V	50-60Hz	31A	25A
0048-2	48A	MR6, IP21, IP54	208-240V	50-60Hz	48A	31A
0062-2	62A	MR6, IP21, IP54	208-240V	50-60Hz	62A	48A
0075-2	75A	MR7, IP21, IP54	208-240V	50-60Hz	75A	62A
0088-2	88A	MR7, IP21, IP54	208-240V	50-60Hz	88A	75A
0105-2	105A	MR7, IP21, IP54	208-240V	50-60Hz	105A	88A
0140-2	140A	MR8, IP00, IP21, IP54	208-240V	50-60Hz	140A	114A
0170-2	170A	MR8, IP00, IP21, IP54	208-240V	50-60Hz	170A	140A
0205-2	205A	MR8, IP00, IP21, IP54	208-240V	50-60Hz	205A	170A
0261-2	261A	MR9A, IP00, IP21, IP54	208-240V	50-60Hz	261A	211A
0310-2	310A	MR9A, IP00, IP21, IP54	208-240V	50-60Hz	310A	251A
0003-5	3.4A	MR4, IP21, IP54	380-500V	50-60Hz	3.4A	2.6A
0004-5	4.8A	MR4, IP21, IP54	380-500V	50-60Hz	4.8A	3.4A
0005-5	5.6A	MR4, IP21, IP54	380-500V	50-60Hz	5.6A	4.3A
0008-5	8A	MR4, IP21, IP54	380-500V	50-60Hz	8A	5.6A
0009-5	9.6A	MR4, IP21, IP54	380-500V	50-60Hz	9.6A	8A
0012-5	12A	MR4, IP21, IP54	380-500V	50-60Hz	12A	9.6A
0016-5	16A	MR5, IP21, IP54	380-500V	50-60Hz	16A	12A
0023-5	23A	MR5, IP21, IP54	380-500V	50-60Hz	23A	16A

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RATINGS (continues)

Type	Current rating 40°C	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-0031-5	31A	MR5,IP21, IP54	380-500V	50-60Hz	31A	23A
038-5	38A	MR6,IP21, IP54	380-500V	50-60Hz	38A	31A
0046-5	46A	MR6,IP21, IP54	380-500V	50-60Hz	46A	38A
0061-5	61A	MR6, IP21, IP54	380-500V	50-60Hz	61A	46A
0072-5	72A	MR7, IP21, IP54	380-500V	50-60Hz	72A	61A
0087-5	87A	MR7, IP21, IP54	380-500V	50-60Hz	87A	72A
0105-5	105A	MR7, IP21, IP54	380-500V	50-60Hz	105A	87A
0140-5 ⁽¹⁾	140A	MR8, IP00, IP21, IP54	380-500V	50-60Hz	140A	105A
0170-5 ⁽¹⁾	170A	MR8, IP00, IP21, IP54	380-500V	50-60Hz	170A	140A
0205-5 ⁽¹⁾	205A	MR8, IP00, IP21, IP54	380-500V	50-60Hz	205A	170A
0261-5 ⁽¹⁾	261A	MR9A, IP00, IP21, IP54	380-500V	50-60Hz	261A	205A
0310-5 ⁽¹⁾	310A	MR9A, IP00, IP21, IP54	380-500V	50-60Hz	310A	251A
0386-5 ⁽¹⁾	385A	MR9B, IP00, IP21, IP54	380-500V	50-60Hz	385A	310A
0385-5 ⁽¹⁾	385A	MR10, IP00	380-500V	50-60Hz	385A	310A
0460-5 ⁽¹⁾	460A	MR10, IP00	380-500V	50-60Hz	460A	385A
0520-5 ⁽¹⁾	520A	MR10, IP00	380-500V	50-60Hz	520A	460A
0590-5 ⁽¹⁾	590A	MR10, IP00	380-500V	50-60Hz	590A	520A
0651-5 ⁽¹⁾	650A	MR11, IP00	380-500V	50-60Hz	650A	590A
0731-5 ⁽¹⁾	730A	MR11, IP00	380-500V	50-60Hz	730A	650A
0650-5 ⁽¹⁾	650A	MR12, IP00	380-500V	50-60Hz	650A	590A
0730-5 ⁽¹⁾	730A	MR12, IP00	380-500V	50-60Hz	730A	650A
0820-5 ⁽¹⁾	820A	MR12, IP00	380-500V	50-60Hz	820A	730A
0920-5 ⁽¹⁾	920A	MR12, IP00	380-500V	50-60Hz	920A	820A
1040-5 ⁽¹⁾	1040A	MR12, IP00	380-500V	50-60Hz	1040A	920A
1180-5 ⁽¹⁾	1180A	MR12, IP00	380-500V	50-60Hz	1180A	920A

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RATINGS (continues)

Type	Current rating 40°C	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-0004-6	continuous current I _{Lout} 3.9A	MR5, IP21, IP54	525-600V	50-60Hz	3.9A	2.7A
0006-6	6.1A	MR5, IP21, IP54	525-600V	50-60Hz	6.1A	3.9A
0009-6	9A	MR5, IP21, IP54	525-600V	50-60Hz	9A	6.1A
0011-6	11A	MR5, IP21, IP54	525-600V	50-60Hz	11A	9A
0018-6	18A	MR6, IP21, IP54	525-600V	50-60Hz	18A	13.5A
0022-6	22A	MR6, IP21, IP54	525-600V	50-60Hz	22A	18A
0027-6	27A	MR6, IP21, IP54	525-600V	50-60Hz	27A	22A
0034-6	34A	MR6, IP21, IP54	525-600V	50-60Hz	34A	27A
0041-6	41A	MR7, IP21, IP54	525-600V	50-60Hz	41A	34A
0052-6	52A	MR7, IP21, IP54	525-600V	50-60Hz	52A	41A
0062-6	62A	MR7, IP21, IP54	525-600V	50-60Hz	62A	52A
0080-6 ⁽¹⁾	80A	MR8, IP21, IP54	525-600V	50-60Hz	80A	62A
0100-6 ⁽¹⁾	100A	MR8, IP00, IP21, IP54	525-600V	50-60Hz	100A	80A
0125-6 ⁽¹⁾	125A	MR8, IP00, IP21, IP54	525-600V	50-60Hz	125A	100A
0144-6 ⁽¹⁾	144A	MR9A, IP00, IP21, IP54	525-600V	50-60Hz	144A	125A
0208-6 ⁽¹⁾	208A	MR9A, IP00, IP21, IP54	525-600V	50-60Hz	208A	170A
0262-6 ⁽¹⁾	261A	MR9B, IP00	525-600V	50-60Hz	261A	208A
0261-6 ⁽¹⁾	261A	MR10, IP00	525-600V	50-60Hz	261A	208A
0325-6 ⁽¹⁾	325A	MR10, IP00	525-600V	50-60Hz	325A	261A
0385-6 ⁽¹⁾	385A	MR10, IP00	525-600V	50-60Hz	385A	325A
0416-6 ⁽¹⁾	416A	MR10, IP00	525-600V	50-60Hz	416A	385A
0461-6 ⁽¹⁾	460A	MR11, IP00	525-600V	50-60Hz	460A	416A
0521-6 ⁽¹⁾	520A	MR11, IP00	525-600V	50-60Hz	520A	460A
0460-6 ⁽¹⁾	460A	MR12, IP00	525-600V	50-60Hz	460A	416A
0520-6 ⁽¹⁾	520A	MR12, IP00	525-600V	50-60Hz	520A	460A

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RATINGS (continues)

Type	Current rating 40°C continuous current I _{Load}	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-0590-6 ⁽¹⁾	590A	MR12, IP00	525-600V	50-60Hz	590A	520A
0650-6 ⁽¹⁾	650A	MR12, IP00	525-600V	50-60Hz	650A	590A
0750-6 ⁽¹⁾	750A	MR12, IP00	525-600V	50-60Hz	750A	650A
0820-6 ⁽¹⁾	820A	MR12, IP00	525-600V	50-60Hz	820A	650A
0007-7	7.5A	MR6, IP21, IP54	525-690V	50-60Hz	7.5A	5.5A
0010-7	10A	MR6, IP21, IP54	525-690V	50-60Hz	10A	7.5A
0013-7	13.5A	MR6, IP21, IP54	525-690V	50-60Hz	13.5A	10A
0018-7	18A	MR6, IP21, IP54	525-690V	50-60Hz	18A	13.5A
0022-7	22A	MR6, IP21, IP54	525-690V	50-60Hz	22A	18A
0027-7	27A	MR6, IP21, IP54	525-690V	50-60Hz	27A	22A
0034-7	34A	MR6, IP21, IP54	525-690V	50-60Hz	34A	27A
0041-7	41A	MR7, IP21, IP54	525-690V	50-60Hz	41A	34A
0052-7	52A	MR7, IP21, IP54	525-690V	50-60Hz	52A	41A
0062-7	62A	MR7, IP21, IP54	525-690V	50-60Hz	62A	52A
0080-7 ⁽¹⁾	80A	MR8, IP00, IP21, IP54	525-690V	50-60Hz	80A	62A
0100-7 ⁽¹⁾	100A	MR8, IP00, IP21, IP54	525-690V	50-60Hz	100A	80A
0125-7 ⁽¹⁾	125A	MR8, IP00, IP21, IP54	525-690V	50-60Hz	125A	100A
0144-7 ⁽¹⁾	144A	MR9A, IP00, IP21, IP54	525-690V	50-60Hz	144A	125A
0170-7 ⁽¹⁾	170A	MR9A, IP00, IP21, IP54	525-690V	50-60Hz	170A	144A
0208-7 ⁽¹⁾	208A	MR9A, IP00, IP21, IP54	525-690V	50-60Hz	208A	170A
0261-7 ⁽¹⁾	261A	MR10, IP00	525-690V	50-60Hz	261A	208A
0262-7 ⁽¹⁾	261A	MR9B, IP00, IP21, IP54	525-690V	50-60Hz	261A	208A
0325-7 ⁽¹⁾	325A	MR10, IP00	525-690V	50-60Hz	325A	261A
0385-7 ⁽¹⁾	385A	MR10, IP00	525-690V	50-60Hz	385A	325A
0416-7 ⁽¹⁾	416A	MR10, IP00	525-690V	50-60Hz	416A	385A

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RATINGS (continues)

Type	Current rating 40°C	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-0460-7 ⁽¹⁾	460A	MR10, IP00	525-690V	50-60Hz	460A	416A
0461-7 ⁽¹⁾	460A	MR11, IP00	525-690V	50-60Hz	460A	416A
0521-7 ⁽¹⁾	520A	MR11, IP00	525-690V	50-60Hz	520A	460A
0520-7 ⁽¹⁾	520A	MR12, IP00	525-690V	50-60Hz	520A	460A
0590-7 ⁽¹⁾	590A	MR12, IP00	525-690V	50-60Hz	590A	520A
0650-7 ⁽¹⁾	650A	MR12, IP00	525-690V	50-60Hz	650A	590A
0750-7 ⁽¹⁾	750A	MR12, IP00	525-690V	50-60Hz	750A	650A
0820-7 ⁽¹⁾	820A	MR12, IP00	525-690V	50-60Hz	820A	650A

Vacon 100 series (market with) ⁽¹⁾ = -ED (enclosed drives IP21, IP54)

Vacon 100X series

Type	Current rating 40°C	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C ⁽²⁾	Heavy Overload Current at 40°C ⁽³⁾
Vacon 100-3L-0007-2-X	6.6A	MM4, IP66	208-240V	50/60Hz	9.9A	13,2A
0008-2-X	8A	MM4, IP66	208-240V	50/60Hz	12A	16A
0011-2-X	11A	MM4, IP66	208-240V	50/60Hz	16.5A	22A
0012-2-X	12.5A	MM4, IP66	208-240V	50/60Hz	18.8A	25A
0018-2-X	18A	MM5, IP66	208-240V	50/60Hz	27A	36A
0024-2-X	24.2A	MM5, IP66	208-240V	50/60Hz	36.3A	48,4A
0031-2-X	31A	MM5, IP66	208-240V	50/60Hz	46.5A	62A
0048-2-X	48A	MM6, IP66	208-240V	50/60Hz	72A	96A
0062-2-X	62A	MM6, IP66	208-240V	50/60Hz	93A	124A
0003-4-X	3.4A	MM4, IP66	380-480V	50/60Hz	5.1A	6,8A

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RATINGS (continues)		Vacon 100X series			Light Overload Current at 40°C ⁽²⁾	Heavy Overload Current at 40°C ⁽³⁾
Type	Current rating 40°C continuous current I _n ⁽⁴⁾	Frame size/ enclosure protection class	Mains voltage	Frequency		
0004-4-X	4.8A	MM4, IP66	380-480V	50/60Hz	7.2A	9,6A
0005-4-X	5.6A	MM4, IP66	380-480V	50/60Hz	8.4A	11,2A
0008-4-X	8A	MM4, IP66	380-480V	50/60Hz	12A	16A
0009-4-X	9.6A	MM4, IP66	380-480V	50/60Hz	14.4A	19,2A
0012-4-X	12A	MM4, IP66	380-480V	50/60Hz	18A	24A
0016-4-X	16A	MM5, IP66	380-480V	50/60Hz	24A	32A
0023-4-X	23A	MM5, IP66	380-480V	50/60Hz	34.5A	46A
0031-4-X	31A	MM5, IP66	380-480V	50/60Hz	46.5A	62A
0038-4-X	38A	MM6, IP66	380-480V	50/60Hz	57A	76A
0046-4-X	46A	MM6, IP66	380-480V	50/60Hz	69A	92A
0061-4-X	61A	MM6, IP66	380-480V	50/60Hz	91.5A	122A
0072-4-X	72A	MM6, IP66	380-480V	50/60Hz	80A	108A
0003-5-X	3.4A	MM4, IP66	380-500V	50/60Hz	5.1A	6,8A
0004-5-X	4.8A	MM4, IP66	380-500V	50/60Hz	7.2A	9,6A
0005-5-X	5.6A	MM4, IP66	380-500V	50/60Hz	8.4A	11,2A
0008-5-X	8A	MM4, IP66	380-500V	50/60Hz	12A	16A
0009-5-X	9.6A	MM4, IP66	380-500V	50/60Hz	14.4A	19,2A
0012-5-X	12A	MM4, IP66	380-500V	50/60Hz	18A	24A
0016-5-X	16A	MM5, IP66	380-500V	50/60Hz	24A	32A
0023-5-X	23A	MM5, IP66	380-500V	50/60Hz	34.5A	46A
0031-5-X	31A	MM5, IP66	380-500V	50/60Hz	46.5A	62A
0038-5-X	38A	MM6, IP66	380-500V	50/60Hz	57A	76A
0046-5-X	46A	MM6, IP66	380-500V	50/60Hz	69A	92A
0061-5-X	61A	MM6, IP66	380-500V	50/60Hz	91.5A	122A
0072-5-X	72A	MM6, IP66	380-500V	50/60Hz	80A	108A

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LIMITATIONS

Vacon 100X series: (2) = for 1 minute every 10 minutes maximum
(3) = for 2 s every 20 s maximum
(4) = for ambient temperature of 50°C the output current must be derated to 75% of In

PLACE OF PRODUCTION

Vacon Plc
Runsorintie 7
65380 Vaasa
Finland

Vacon S.R.L.
Via Roma 2
39014 Postal
Italy

The Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.

The Design Appraisal Document No. HTS/ETS 38673-19 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Date
27 August 2019

Please quote this reference number on all future communications
HPC1652111/38673-19/HN/TW/EBO

THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2017
ISSUED TO: VACON PLC
FOR: FREQUENCY CONVERTER VACON 100 SERIES, VACON 100X SERIES
TYPE APPROVAL CERTIFICATE NO. 16/20013(E1)

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register's Type Approval System Procedure TA14 and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

Form 2502TA	Application Checklist -Appendix to	18.03.2019
HTS/ETS 33051-16	Marine Design Appraisal Document	02.02.2016
WO4230636	Production Quality Assessment	12.10.2015

TEST REPORTS

294638-1a, -1b	Attachment 1 Photos Vacon, MR9 208-690V -frequency converter	undated
294638-1a, -1b	Attachment 2 The main circuit diagram, MR9A and MR9B	undated
FI-40463	CB Test Certificate Vacon 0100, (Vacon® 100) [Frame size MR9A, MR9B and MR11]; Shown in the Test Report: 294638-1a	16.03.2019
FI-40464	CB Test Certificate Vacon 0100, (Vacon® 100) [Frame size MR9AED, MR9BED and MR11ED]	23.03.2019
294638-1a	Test Report Adjustable speed electrical power drive systems – Part 5-1: Safety requirements – Electrical, thermal and energy	13.03.2019
294638-1b	Test Report Adjustable speed electrical power drive systems – Part 5-1: Safety requirements – Electrical, thermal and energy	13.03.2019
293589-1	Test Report Electromagnetic Compatibility EMC	03.10.2019
293589-2	Test Report Electromagnetic Compatibility EMC	03.10.2019

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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TEST REPORTS (continues)

VTT-S-00567-18
VTT-S-01711-18

Test Report Vibration Test- MR9B
Test Report Vibration Test- MR9B ED

06.02.2018
10.04.2018



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Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Part 2

Electronic Frequency Converter (Part 2)

Producer/Licence No.	Type	Technical Details				Category/ Additional Tests	Remarks	Cert. No.	
Vacon Plc Runsonitie 7 65380 Vaasa Finland	Frequency converter Vacon 100 series	Type Vacon 100-3L-	Nominal Current Rating at 45°C	Light Overload Current at 40°C	Heavy Overload Current at 50°C	Mains Supply Voltage Rating Frequency 50-60Hz	Frame size/ enclosure protection class	Expires: 01 February 2021 Installation of this equipment for marine applications on LR Classed ships is to be in accordance with the applicable Lloyd's Register Rules and Regulations. (The options codes are listed in hardware manual) IEC/EN 61800-5-1: 2007, IEC/EN 61800-3: 2004 and Manufacturer's Specification	16/20013(E1)
		0003-2	3.7A	3.7A	2.6A	208-240V	MR4, IP21, IP54	Vacon 100 series (market with) ^(*) = -ED (enclosed drives IP21, IP54)	
		0004-2	4.8A	4.8A	3.7A	208-240V	MR4, IP21, IP54		
		0007-2	6.6A	6.6A	4.8A	208-240V	MR4, IP21, IP54		
		0008-2	8A	8A	6.6A	208-240V	MR4, IP21, IP54		
		0011-2	11A	11A	8A	208-240V	MR4, IP21, IP54		
		0012-2	12.5A	12.5A	9.6A	208-240V	MR4, IP21, IP54		
		0018-2	18A	18A	12.5A	208-240V	MR5, IP21, IP54		
		0024-2	24A	24A	18A	208-240V	MR5, IP21, IP54		
		0031-2	31A	31A	25A	208-240V	MR5, IP21, IP54		
		0048-2	48A	48A	31A	208-240V	MR6, IP21, IP54		
		0062-2	62A	62A	48A	208-240V	MR6, IP21, IP54		
		0075-2	75A	75A	62A	208-240V	MR7, IP21, IP54		
		0088-2	88A	88A	75A	208-240V	MR7, IP21, IP54		
		0105-2	105A	105A	88A	208-240V	MR7, IP21, IP54		
0140-2	140A	140A	114A	208-240V	MR8, IP00, IP21, IP54				
0170-2	170A	170A	140A	208-240V	MR8, IP00, IP21, IP54				
0205-2	205A	205A	170A	208-240V	MR8, IP00, IP21, IP54				
0261-2	261A	261A	211A	208-240V	MR9A, IP00, IP21, IP54				
0310-2	310A	310A	251A	208-240V	MR9A, IP00, IP21, IP54				
0003-5	3.4A	3.4A	2.6A	380-500V	MR4, IP21, IP54				
0004-5	4.8A	4.8A	3.4A	380-500V	MR4, IP21, IP54				
0005-5	5.6A	5.6A	4.3A	380-500V	MR4, IP21, IP54				
0008-5	8A	8A	5.6A	380-500V	MR4, IP21, IP54				

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Electronic Frequency Converter (Part 2)

Producer/Licence No.	Type	Technical Details			Category/ Additional Tests	Remarks	Cert. No.
0009-5	9.6A	9.6A	8A	380-500V	M/R4, IP21, IP34		
0012-5	12A	12A	9.6A	380-500V	M/R4, IP21, IP54		
0016-5	16A	16A	12A	380-500V	M/R5, IP21, IP54		
0023-5	23A	23A	16A	380-500V	M/R5, IP21, IP54		
0031-5	31A	31A	23A	380-500V	M/R5, IP21, IP54		
038-5	38A	38A	31A	380-500V	M/R6, IP21, IP54		
0046-5	46A	46A	38A	380-500V	M/R6, IP21, IP54		
0061-5	61A	61A	46A	380-500V	M/R6, IP21, IP54		
0072-5	72A	72A	61A	380-500V	M/R7, IP21, IP54		
0087-5	87A	87A	72A	380-500V	M/R7, IP21, IP54		
0105-5	105A	105A	87A	380-500V	M/R7, IP21, IP54		
0140-5 ⁽¹⁾	140A	140A	105A	380-500V	M/R8, IP00, IP21, IP54		
0170-5 ⁽¹⁾	170A	170A	140A	380-500V	M/R8, IP00, IP21, IP54		
0205-5 ⁽¹⁾	205A	205A	170A	380-500V	M/R8, IP00, IP21, IP54		
0261-5 ⁽¹⁾	261A	261A	205A	380-500V	M/R9A, IP00, IP21, IP54		
0310-5 ⁽¹⁾	310A	310A	251A	380-500V	M/R9A, IP00, IP21, IP54		
0386-5 ⁽¹⁾	385A	385A	310A	380-500V	M/R9B, IP00, IP21, IP54		
0385-5 ⁽¹⁾	385A	385A	310A	380-500V	M/R10, IP00		
0460-5 ⁽¹⁾	460A	460A	385A	380-500V	M/R10, IP00		
0520-5 ⁽¹⁾	520A	520A	460A	380-500V	M/R10, IP00		
0590-5 ⁽¹⁾	590A	590A	520A	380-500V	M/R10, IP00		
0651-5 ⁽¹⁾	650A	650A	590A	380-500V	M/R11, IP00		
0731-5 ⁽¹⁾	730A	730A	650A	380-500V	M/R11, IP00		
0650-5 ⁽¹⁾	650A	650A	590A	380-500V	M/R12, IP00		
0730-5 ⁽¹⁾	730A	730A	650A	380-500V	M/R12, IP00		
0820-5 ⁽¹⁾	820A	820A	730A	380-500V	M/R12, IP00		
0920-5 ⁽¹⁾	920A	920A	820A	380-500V	M/R12, IP00		
1040-5 ⁽¹⁾	1040A	1040A	920A	380-500V	M/R12, IP00		
1180-5 ⁽¹⁾	1180A	1180A	920A	380-500V	M/R12, IP00		
0004-6	3.9A	3.9A	2.7A	525-600V	M/R5, IP21, IP54		
0006-6	6.1A	6.1A	3.9A	525-600V	M/R5, IP21, IP54		
0009-6	9A	9A	6.1A	525-600V	M/R5, IP21, IP54		
0011-6	11A	11A	9A	525-600V	M/R5, IP21, IP54		
0018-6	18A	18A	13.5A	525-600V	M/R6, IP21, IP54		
0022-6	22A	22A	18A	525-600V	M/R6, IP21, IP54		
0027-6	27A	27A	22A	525-600V	M/R6, IP21, IP54		
0034-6	34A	34A	27A	525-600V	M/R6, IP21, IP54		
0041-6	41A	41A	34A	525-600V	M/R7, IP21, IP54		
0052-6	52A	52A	41A	525-600V	M/R7, IP21, IP54		
0062-6	62A	62A	52A	525-600V	M/R7, IP21, IP54		
0080-6 ⁽¹⁾	80A	80A	62A	525-600V	M/R8, IP21, IP54		
0100-6 ⁽¹⁾	100A	100A	80A	525-600V	M/R8, IP00, IP21, IP54		
0125-6 ⁽¹⁾	125A	125A	100A	525-600V	M/R8, IP00, IP21, IP54		
0144-6 ⁽¹⁾	144A	144A	125A	525-600V	M/R9A, IP00, IP21, IP54		

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Electronic Frequency Converter (Part 2)

Producer/Licence No.	Type	Technical Details			Category/ Additional Tests	Remarks	Cert. No.
	0208-6 ⁽¹⁾	208 A	208 A	170 A	525-600V		
	0262-6 ⁽¹⁾	261 A	261 A	208 A	525-600V	MR9 A, IP00, IP21, IP54	
	0261-6 ⁽¹⁾	261 A	261 A	208 A	525-600V	MR9 B, IP00, IP21, IP54	
	0325-6 ⁽¹⁾	325 A	325 A	261 A	525-600V	MR10, IP00	
	0385-6 ⁽¹⁾	385 A	385 A	325 A	525-600V	MR10, IP00	
	0416-6 ⁽¹⁾	416 A	416 A	385 A	525-600V	MR10, IP00	
	0461-6 ⁽¹⁾	460 A	460 A	416 A	525-600V	MR11, IP00	
	0521-6 ⁽¹⁾	520 A	520 A	460 A	525-600V	MR12, IP00	
	0460-6 ⁽¹⁾	460 A	460 A	416 A	525-600V	MR12, IP00	
	0520-6 ⁽¹⁾	520 A	520 A	460 A	525-600V	MR12, IP00	
	0590-6 ⁽¹⁾	590 A	590 A	520 A	525-600V	MR12, IP00	
	0650-6 ⁽¹⁾	650 A	650 A	590 A	525-600V	MR12, IP00	
	0750-6 ⁽¹⁾	750 A	750 A	650 A	525-600V	MR12, IP00	
	0820-6 ⁽¹⁾	820 A	820 A	650 A	525-600V	MR12, IP00	
	0007-7	7.5 A	7.5 A	5.5 A	525-690V	MR6, IP21, IP54	
	0010-7	10 A	10 A	7.5 A	525-690V	MR6, IP21, IP54	
	0013-7	13.5 A	13.5 A	10 A	525-690V	MR6, IP21, IP54	
	0018-7	18 A	18 A	13.5 A	525-690V	MR6, IP21, IP54	
	0022-7	22 A	22 A	18 A	525-690V	MR6, IP21, IP54	
	0027-7	27 A	27 A	22 A	525-690V	MR6, IP21, IP54	
	0034-7	34 A	34 A	27 A	525-690V	MR6, IP21, IP54	
	0041-7	41 A	41 A	34 A	525-690V	MR7, IP21, IP54	
	0052-7	52 A	52 A	41 A	525-690V	MR7, IP21, IP54	
	0062-7	62 A	62 A	52 A	525-690V	MR7, IP21, IP54	
	0080-7 ⁽¹⁾	80 A	80 A	62 A	525-690V	MR8, IP00, IP21, IP54	
	0100-7 ⁽¹⁾	100 A	100 A	80 A	525-690V	MR8, IP00, IP21, IP54	
	0125-7 ⁽¹⁾	125 A	125 A	100 A	525-690V	MR8, IP00, IP21, IP54	
	0144-7 ⁽¹⁾	144 A	144 A	125 A	525-690V	MR8, IP00, IP21, IP54	
	0170-7 ⁽¹⁾	170 A	170 A	144 A	525-690V	MR9 A, IP00, IP21, IP54	
	0208-7 ⁽¹⁾	208 A	208 A	170 A	525-690V	MR9 A, IP00, IP21, IP54	
	0261-7 ⁽¹⁾	261 A	261 A	208 A	525-690V	MR10, IP00	
	0262-7 ⁽¹⁾	261 A	261 A	208 A	525-690V	MR9 B, IP00, IP21, IP54	
	0325-7 ⁽¹⁾	325 A	325 A	261 A	525-690V	MR10, IP00	
	0385-7 ⁽¹⁾	385 A	385 A	325 A	525-690V	MR10, IP00	
	0416-7 ⁽¹⁾	416 A	416 A	385 A	525-690V	MR10, IP00	
	0460-7 ⁽¹⁾	460 A	460 A	416 A	525-690V	MR10, IP00	
	0461-7 ⁽¹⁾	460 A	460 A	416 A	525-690V	MR10, IP00	
	0521-7 ⁽¹⁾	520 A	520 A	460 A	525-690V	MR11, IP00	
	0520-7 ⁽¹⁾	520 A	520 A	460 A	525-690V	MR11, IP00	
	0590-7 ⁽¹⁾	590 A	590 A	520 A	525-690V	MR12, IP00	
	0650-7 ⁽¹⁾	650 A	650 A	590 A	525-690V	MR12, IP00	
	0750-7 ⁽¹⁾	750 A	750 A	650 A	525-690V	MR12, IP00	
	0820-7 ⁽¹⁾	820 A	820 A	650 A	525-690V	MR12, IP00	

Part 2

Electronic Frequency Converter (Part 2)

Producer/Licence No.	Type	Technical Details				Category/ Additional Tests	Remarks	Cert. No.
		Vacon 100-3L	Current rating 40°C continuous current I _n (4)	Light Overload Current at 40°C (2)	Heavy Overload Current at 40°C (3)			
	Vacon 100X series							
	0007-2-X	6,6A	9,9A	13,2A	208-240V	MN/4, IP66	Vacon 100X series: (2) = for 1 minute every 10 minutes maximum (3) = for 2 s every 20 s maximum (4) = for ambient temperature of 50°C the output current must be derated to 75% of I _n	
	0008-2-X	8A	12A	16A	208-240V	MN/4, IP66		
	0011-2-X	11A	16,5A	22A	208-240V	MN/4, IP66		
	0012-2-X	12,5A	18,8A	25A	208-240V	MN/4, IP66		
	0018-2-X	18A	27A	36A	208-240V	MN/5, IP66		
	0024-2-X	24,2A	36,3A	48,4A	208-240V	MN/5, IP66		
	0031-2-X	31A	46,5A	62A	208-240V	MN/5, IP66		
	0048-2-X	48A	72A	96A	208-240V	MN/6, IP66		
	0062-2-X	62A	93A	124A	208-240V	MN/6, IP66		
	0003-4-X	3,4A	5,1A	6,8A	380-480V	MN/4, IP66		
	0004-4-X	4,8A	7,2A	9,6A	380-480V	MN/4, IP66		
	0005-4-X	5,6A	8,4A	11,2A	380-480V	MN/4, IP66		
	0008-4-X	8A	12A	16A	380-480V	MN/4, IP66		
	0009-4-X	9,6A	14,4A	19,2A	380-480V	MN/4, IP66		
	0012-4-X	12A	18A	24A	380-480V	MN/4, IP66		
	0016-4-X	16A	24A	32A	380-480V	MN/5, IP66		
	0023-4-X	23A	34,5A	46A	380-480V	MN/5, IP66		
	0031-4-X	31A	46,5A	62A	380-480V	MN/5, IP66		
	0038-4-X	38A	57A	76A	380-480V	MN/6, IP66		
	0046-4-X	46A	69A	92A	380-480V	MN/6, IP66		
	0061-4-X	61A	91,5A	122A	380-480V	MN/6, IP66		
	0072-4-X	72A	80A	108A	380-500V	MN/6, IP66		
	0003-5-X	3,4A	5,1A	6,8A	380-500V	MN/4, IP66		
	0004-5-X	4,8A	7,2A	9,6A	380-500V	MN/4, IP66		
	0005-5-X	5,6A	8,4A	11,2A	380-500V	MN/4, IP66		
	0008-5-X	8A	12A	16A	380-500V	MN/4, IP66		
	0009-5-X	9,6A	14,4A	19,2A	380-500V	MN/4, IP66		
	0012-5-X	12A	18A	24A	380-500V	MN/4, IP66		
	0016-5-X	16A	24A	32A	380-500V	MN/5, IP66		
	0023-5-X	23A	34,5A	46A	380-500V	MN/5, IP66		
	0031-5-X	31A	46,5A	62A	380-500V	MN/5, IP66		
	0038-5-X	38A	57A	76A	380-500V	MN/6, IP66		
	0046-5-X	46A	69A	92A	380-500V	MN/6, IP66		
	0061-5-X	61A	91,5A	122A	380-500V	MN/6, IP66		
	0072-5-X	72A	80A	108A	380-500V	MN/6, IP66		

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