



Lloyd's  
Register

## 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 is issued to:

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

<b>Certificate No.</b>	16 / 20013
<b>Issue Date</b>	02 February 2016
<b>Expiry Date</b>	01 February 2021
<b>Sheet</b>	1 of 11



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**RATINGS**

Vacon 100 series

Type	Current rating 40°C continuous current I <sub>Lout</sub>	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
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

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**RATINGS (continues)**

Type	Current rating 40°C continuous current I <sub>Lout</sub>	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-						
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	MR9, IP00, IP21, IP54	208- 240V	50-60Hz	261A	211A
0310-2	310A	MR9, 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
0031-5	31A	MR5, IP21, IP54	380- 500V	50-60Hz	31A	23A
0038-5	38A	MR6, IP21, IP54	380- 500V	50-60Hz	38A	31A
0046-5	46A	MR6, IP21, IP54	380- 500V	50-60Hz	46A	38A

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**RATINGS (continues)**

Type	Current rating 40°C continuous current I <sub>Lout</sub>	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-			380- 500V	50-60Hz		
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 <sup>(1)</sup>	140A	MR8, IP00, IP21, IP54	380- 500V	50-60Hz	140A	105A
0170-5 <sup>(1)</sup>	170A	MR8, IP00, IP21, IP54	380- 500V	50-60Hz	170A	140A
0205-5 <sup>(1)</sup>	205A	MR8, IP00, IP21, IP54	380- 500V	50-60Hz	205A	170A
0261-5 <sup>(1)</sup>	261A	MR9, IP00, IP21, IP54	380- 500V	50-60Hz	261A	205A
0310-5 <sup>(1)</sup>	310A	MR9, IP00, IP21, IP54	380- 500V	50-60Hz	310A	251A
0385-5 <sup>(1)</sup>	385A	MR10, IP00	380- 500V	50-60Hz	385A	310A
0460-5 <sup>(1)</sup>	460A	MR10, IP00	380- 500V	50-60Hz	460A	385A
0520-5 <sup>(1)</sup>	520A	MR10, IP00	380- 500V	50-60Hz	520A	460A
0590-5 <sup>(1)</sup>	590A	MR10, IP00	380- 500V	50-60Hz	590A	520A
0650-5 <sup>(1)</sup>	650A	MR12, IP00	380- 500V	50-60Hz	650A	590A
0730-5 <sup>(1)</sup>	730A	MR12, IP00	380- 500V	50-60Hz	730A	650A

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**RATINGS (continues)**

Type	Current rating 40°C continuous current I <sub>Lout</sub>	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-			380- 500V	50-60Hz		
0820-5 <sup>(1)</sup>	820A	MR12, IP00	380- 500V	50-60Hz	820A	730A
0920-5 <sup>(1)</sup>	920A	MR12, IP00	380- 500V	50-60Hz	920A	820A
1040-5 <sup>(1)</sup>	1040A	MR12, IP00	380- 500V	50-60Hz	1040A	920A
1180-5 <sup>(1)</sup>	1180A	MR12, IP00	500V 525- 600V	50-60Hz	1180A	920A
0004-6	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

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**RATINGS (continues)**

Type	Current rating 40°C continuous current I <sub>Lout</sub>	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-			525- 600V	50-60Hz		
0080-6 <sup>(1)</sup>	80A	MR8, IP21, IP54	525- 600V	50-60Hz	80A	62A
0100-6 <sup>(1)</sup>	100A	MR8, IP00, IP21, IP54	525- 600V	50-60Hz	100A	80A
0125-6 <sup>(1)</sup>	125A	MR8, IP00, IP21, IP54	525- 600V	50-60Hz	125A	100A
0144-6 <sup>(1)</sup>	144A	MR9, IP00, IP21, IP54	525- 600V	50-60Hz	144A	125A
0208-6 <sup>(1)</sup>	208A	MR9, IP00, IP21, IP54	525- 600V	50-60Hz	208A	170A
0261-6 <sup>(1)</sup>	261A	MR10, IP00, IP21, IP54	525- 600V	50-60Hz	261A	208A
0325-6 <sup>(1)</sup>	325A	MR10, IP00	525- 600V	50-60Hz	325A	261A
0385-6 <sup>(1)</sup>	385A	MR10, IP00	525- 600V	50-60Hz	385A	325A
0416-6 <sup>(1)</sup>	416A	MR10, IP00	525- 600V	50-60Hz	416A	385A
0460-6 <sup>(1)</sup>	460A	MR12, IP00	525- 600V	50-60Hz	460A	416A
0520-6 <sup>(1)</sup>	520A	MR12, IP00	525- 600V	50-60Hz	520A	460A
0590-6 <sup>(1)</sup>	590A	MR12, IP00	525- 600V	50-60Hz	590A	520A
0650-6 <sup>(1)</sup>	650A	MR12, IP00	525- 600V	50-60Hz	650A	590A
0750-6 <sup>(1)</sup>	750A	MR12, IP00	525- 600V	50-60Hz	750A	650A
0820-6 <sup>(1)</sup>	820A	MR12, IP00	525- 600V	50-60Hz	820A	650A

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**RATINGS (continues)**

Type	Current rating 40°C continuous current I <sub>Lout</sub>	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-			525-690V	50-60Hz		
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 <sup>(1)</sup>	80A	MR8, IP00, IP21, IP54	525-690V	50-60Hz	80A	62A
0100-7 <sup>(1)</sup>	100A	MR8, IP00, IP21, IP54	525-690V	50-60Hz	100A	80A
0125-7 <sup>(1)</sup>	125A	MR8, IP00, IP21, IP54	525-690V	50-60Hz	125A	100A
0144-7 <sup>(1)</sup>	144A	MR9, IP00, IP21, IP54	525-690V	50-60Hz	144A	125A
0170-7 <sup>(1)</sup>	170A	MR9, IP00, IP21, IP54	525-690V	50-60Hz	170A	144A

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**RATINGS (continues)**

Type	Current rating 40°C continuous current $I_{Lout}$	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C	Heavy Overload Current at 50°C
Vacon 100-3L-			525-690V			
0208-7 <sup>(1)</sup>	208A	MR9, IP00, IP21, IP54	525-690V	50-60Hz	208A	170A
0261-7 <sup>(1)</sup>	261A	MR9, IP00	525-690V	50-60Hz	261A	208A
0325-7 <sup>(1)</sup>	325A	MR10, IP00	525-690V	50-60Hz	325A	261A
0385-7 <sup>(1)</sup>	385A	MR10, IP00	525-690V	50-60Hz	385A	325A
0416-7 <sup>(1)</sup>	416A	MR10, IP00	525-690V	50-60Hz	416A	385A
0460-7 <sup>(1)</sup>	460A	MR10, IP00	525-690V	50-60Hz	460A	416A
0520-7 <sup>(1)</sup>	520A	MR12, IP00	525-690V	50-60Hz	520A	460A
0590-7 <sup>(1)</sup>	590A	MR12, IP00	525-690V	50-60Hz	590A	520A
0650-7 <sup>(1)</sup>	650A	MR12, IP00	525-690V	50-60Hz	650A	590A
0750-7 <sup>(1)</sup>	750A	MR12, IP00	525-690V	50-60Hz	750A	650A
0820-7 <sup>(1)</sup>	820A	MR12, IP00	525-690V	50-60Hz	820A	650A

Vacon 100 series (market with) <sup>(1)</sup> = -ED (enclosed drives)

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**RATINGS (continues)**

Vacon 100X series

Type	Current rating 40°C continuous current I <sub>n</sub> <sup>(4)</sup>	Frame size/ enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C <sup>(2)</sup>	Heavy Overload Current at 40°C <sup>(3)</sup>
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
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

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**RATINGS (continues)**

Type	Current rating 40°C continuous current I <sub>n</sub> <sup>(4)</sup>	Frame size/enclosure protection class	Mains voltage	Frequency	Light Overload Current at 40°C <sup>(2)</sup>	Heavy Overload Current at 40°C <sup>(3)</sup>
Vacon 100-3L-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

**LIMITATIONS**

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

**PLACE OF PRODUCTION**

Vacon Plc  
Runsorintie 7  
65380 Vaasa  
Finland

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

**Certificate No.**

16 / 20013

**Issue Date**

02 February 2016

**Expiry Date**

01 February 2021

**Sheet**

10 of 11

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*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.*

**Certificate No.** 16 / 20013  
**Issue Date** 02 February 2016  
**Expiry Date** 01 February 2021  
**Sheet** 11 of 11

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