

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:

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

Certificate No. 16 / 20013

Issue Date 02 February 2016

Expiry Date 01 February 2021

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Hamburg Technical Support Office

Lloyd's Register EMEA

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RATINGS

Vacon 100 s	series					
T	Current rating				Light	Heavy
Type Vacon	40°C continuous	Frame size/enclosure	Mains		Overload Current	Overload Current
100-3L-	current I _{Lout}	protection class	voltage	Frequency	at 40°C	at 50°C
100-3L-	Current ILout	protection class	208-	rrequericy	at 40 C	at 50 C
0003-2	3.7A	MR4, IP21, IP54	240V 208-	50-60Hz	3.7A	2.6A
0004-2	4.8A	MR4, IP21, IP54	240V 208-	50-60Hz	4.8A	3.7A
0007-2	6.6A	MR4, IP21, IP54	240V 208-	50-60Hz	6.6A	4.8A
0008-2	8A	MR4, IP21, IP54	240V 208-	50-60Hz	8A	6.6A
0011-2	11A	MR4, IP21, IP54	240V 208-	50-60Hz	11A	8A
0012-2	12.5A	MR4, IP21, IP54	240V 208-	50-60Hz	12.5A	9.6A
0018-2	18A	MR5, IP21, IP54	240V 208-	50-60Hz	18A	12.5A
0024-2	24A	MR5, IP21, IP54	240V 208-	50-60Hz	24A	18A
0031-2	31A	MR5, IP21, IP54	240V 208-	50-60Hz	31A	25A
0048-2	48A	MR6, IP21, IP54	240V 208-	50-60Hz	48A	31A
0062-2	62A	MR6, IP21, IP54	240V 208-	50-60Hz	62A	48A
0075-2	75A	MR7, IP21, IP54	240V 208-	50-60Hz	75A	62A
0088-2	88A	MR7, IP21, IP54	240V 208-	50-60Hz	88A	75A
0105-2	105A	MR7, IP21, IP54	240V 208-	50-60Hz	105A	88A
0140-2	140A	MR8, IP00, IP21, IP54	240V	50-60Hz	140A	114A

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RATINGS	S (continues)					
Туре	Current rating 40°C				Light Overload	Heavy Overload
Vacon	continuous	Frame size/enclosure	Mains		Current	Current
100-3L-	current I _{Lout}	protection class	voltage	Frequency	at 40°C	at 50°C
		•	208-	1 ,		
0170-2	170A	MR8, IP00, IP21, IP54	240V 208-	50-60Hz	170A	140A
0205-2	205A	MR8, IP00, IP21, IP54	240V 208-	50-60Hz	205A	170A
0261-2	261A	MR9, IP00, IP21, IP54	240V 208-	50-60Hz	261A	211A
0310-2	310A	MR9, IP00, IP21, IP54	240V 380-	50-60Hz	310A	251A
0003-5	3.4A	MR4, IP21, IP54	500V 380-	50-60Hz	3.4A	2.6A
0004-5	4.8A	MR4, IP21, IP54	500V 380-	50-60Hz	4.8A	3.4A
0005-5	5.6A	MR4, IP21, IP54	500V 380-	50-60Hz	5.6A	4.3A
0008-5	8A	MR4, IP21, IP54	500V 380-	50-60Hz	8A	5.6A
0009-5	9.6A	MR4,IP21, IP54	500V 380-	50-60Hz	9.6A	8A
0012-5	12A	MR4,IP21, IP54	500V 380-	50-60Hz	12A	9.6A
0016-5	16A	MR5,IP21, IP54	500V 380-	50-60Hz	16A	12A
0023-5	23A	MR5,IP21, IP54	500V 380-	50-60Hz	23A	16A
0031-5	31A	MR5,IP21, IP54	500V 380-	50-60Hz	31A	23A
0038-5	38A	MR6,IP21, IP54	500V 380-	50-60Hz	38A	31A
0046-5	46A	MR6,IP21, IP54	500V	50-60Hz	46A	38A
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DATE NO.						
Type	(continues) Current rating 40°C				Light Overload	Heavy Overload
Vacon	continuous	Frame size/enclosure	Mains		Current	Current
100-3L-	$current \ I_{Lout} \\$	protection class	voltage	Frequency	at 40°C	at 50°C
0061-5	61A	MR6, IP21, IP54	380- 500V 380-	50-60Hz	61A	46A
0072-5	72A	MR7, IP21, IP54	500V 380-	50-60Hz	72A	61A
0087-5	87A	MR7, IP21, IP54	500V 380-	50-60Hz	87A	72A
0105-5	105A	MR7, IP21, IP54	500V 380-	50-60Hz	105A	87A
0140-5(1)	140A	MR8, IP00, IP21, IP54	500V 380-	50-60Hz	140A	105A
$0170-5^{(1)}$	170A	MR8, IP00, IP21, IP54	500V 380-	50-60Hz	170A	140A
$0205-5^{(1)}$	205A	MR8, IP00, IP21, IP54	500V 380-	50-60Hz	205A	170A
$0261-5^{(1)}$	261A	MR9, IP00, IP21, IP54	500V 380-	50-60Hz	261A	205A
0310-5(1)	310A	MR9, IP00, IP21, IP54	500V 380-	50-60Hz	310A	251A
0385-5(1)	385A	MR10, IP00	500V 380-	50-60Hz	385A	310A
0460-5(1)	460A	MR10, IP00	500V 380-	50-60Hz	460A	385A
$0520-5^{(1)}$	520A	MR10, IP00	500V 380-	50-60Hz	520A	460A
0590-5(1)	590A	MR10, IP00	500V 380-	50-60Hz	590A	520A
$0650-5^{(1)}$	650A	MR12, IP00	500V 380-	50-60Hz	650A	590A
0730-5(1)	730A	MR12, IP00	500V	50-60Hz	730A	650A
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RATINGS	(continues)					
Туре	Current rating 40°C				Light Overload	Heavy Overload
Vacon	continuous	Frame size/enclosure	Mains		Current	Current
100-3L-	$current \; I_{Lout}$	protection class	voltage	Frequency	at 40°C	at 50°C
			380-			
$0820-5^{(1)}$	820A	MR12, IP00	500V	50-60Hz	820A	730A
0920-5(1)	920A	MR12, IP00	380- 500V	50-60Hz	920A	820A
0720-507)20/1	WIK12, II 00	380-	30-0011Z	<i>J</i> 2011	02011
$1040-5^{(1)}$	1040A	MR12, IP00	500V	50-60Hz	1040A	920A
			380-			
$1180-5^{(1)}$	1180A	MR12, IP00	500V	50-60Hz	1180A	920A
0004-6	3.9A	MR5, IP21, IP54	525- 600V	50-60Hz	3.9A	2.7A
0004-0	J.7A	WIKJ, II 21, II J4	525-	50-0011Z	3.9A	2./A
0006-6	6.1A	MR5, IP21, IP54	600V	50-60Hz	6.1A	3.9A
			525-			
0009-6	9A	MR5, IP21, IP54	600V	50-60Hz	9A	6.1A
0011-6	11A	MDE ID21 IDE4	525- 600V	50-60Hz	11A	9A
0011-0	11A	MR5, IP21, IP54	525-	30-60F1Z	IIA	9A
0018-6	18A	MR6, IP21, IP54	600V	50-60Hz	18A	13.5A
			525-			
0022-6	22A	MR6, IP21, IP54	600V	50-60Hz	22A	18A
0027 (27.4	MD/ ID01 IDE4	525-	F0 (011-	27.4	22A
0027-6	27A	MR6, IP21, IP54	600V 525-	50-60Hz	27A	22A
0034-6	34A	MR6, IP21, IP54	600V	50-60Hz	34A	27A
		, ,	525-			
0041-6	41A	MR7, IP21, IP54	600V	50-60Hz	41A	34A
0050 (FO.4	MDE IDO4 IDE4	525-	F 0. (01.1	FO 4	11.4
0052-6	52A	MR7, IP21, IP54	600V	50-60Hz	52A	41A

525-

600V

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62A

0062-6

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MR7, IP21, IP54

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50-60Hz

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62A

52A

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Туре	Current rating 40°C				Light Overload	Heavy Overload
Vacon	continuous	Frame size/enclosure	Mains		Current	Current
100-3L-	current I _{Lout}	protection class	voltage 525-	Frequency	at 40°C	at 50°C
0080-6(1)	80A	MR8, IP21, IP54	600V 525-	50-60Hz	80A	62A
0100-6(1)	100A	MR8, IP00, IP21, IP54	600V 525-	50-60Hz	100A	80A
0125-6(1)	125A	MR8, IP00, IP21, IP54	600V 525-	50-60Hz	125A	100A
0144-6(1)	144A	MR9, IP00, IP21, IP54	600V 525-	50-60Hz	144A	125A
0208-6(1)	208A	MR9, IP00, IP21, IP54	600V 525-	50-60Hz	208A	170A
0261-6(1)	261A	MR10, IP00, IP21, IP54	600V 525-	50-60Hz	261A	208A
0325-6(1)	325A	MR10, IP00	600V 525-	50-60Hz	325A	261A
0385-6(1)	385A	MR10, IP00	600V 525-	50-60Hz	385A	325A
0416-6(1)	416A	MR10, IP00	600V 525-	50-60Hz	416A	385A
0460-6(1)	460A	MR12, IP00	600V 525-	50-60Hz	460A	416A

600V

525-

600V

525-

600V

525-

600V

525-

600V

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520A

590A

650A

750A

820A

 $0520-6^{(1)}$

 $0590-6^{(1)}$

 $0650-6^{(1)}$

 $0750 - 6^{(1)}$

 $0820 - 6^{(1)}$

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MR12, IP00

MR12, IP00

MR12, IP00

MR12, IP00

MR12, IP00

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50-60Hz

50-60Hz

50-60Hz

50-60Hz

50-60Hz

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520A

590A

650A

750A

820A

460A

520A

590A

650A

650A

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RATINGS	(continues)
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Type Vacon	Current rating 40°C continuous	Frame size/enclosure	Mains		Light Overload Current	Heavy Overload Current
100-3L-	current I _{Lout}	protection class	voltage 525-	Frequency	at 40°C	at 50°C
0007-7	7.5A	MR6, IP21, IP54	690V 525-	50-60Hz	7.5A	5.5A
0010-7	10A	MR6, IP21, IP54	690V 525-	50-60Hz	10A	7.5A
0013-7	13.5A	MR6, IP21, IP54	690V 525-	50-60Hz	13.5A	10A
0018-7	18A	MR6, IP21, IP54	690V 525-	50-60Hz	18A	13.5A
0022-7	22A	MR6, IP21, IP54	690V 525-	50-60Hz	22A	18A
0027-7	27A	MR6, IP21, IP54	690V 525-	50-60Hz	27A	22A
0034-7	34A	MR6, IP21, IP54	690V 525-	50-60Hz	34A	27A
0041-7	41A	MR7, IP21, IP54	690V 525-	50-60Hz	41A	34A
0052-7	52A	MR7, IP21, IP54	690V 525-	50-60Hz	52A	41A
0062-7	62A	MR7, IP21, IP54	690V 525-	50-60Hz	62A	52A
0080-7(1)	80A	MR8, IP00, IP21, IP54	690V 525-	50-60Hz	80A	62A
0100-7(1)	100A	MR8, IP00, IP21, IP54	690V 525-	50-60Hz	100A	80A
0125-7(1)	125A	MR8, IP00, IP21, IP54	690V 525-	50-60Hz	125A	100A
0144-7(1)	144A	MR9, IP00, IP21, IP54	690V 525-	50-60Hz	144A	125A
$0170-7^{(1)}$	170A	MR9, IP00, IP21, IP54	690V	50-60Hz	170A	144A

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KATINGS (CO	ittiliues)					
	Current				Light	Heavy
Type	rating 40°C				Overload	Overload
Vacon	continuous	Frame size/enclosure	Mains		Current	Current
100-3L-	$current \ I_{Lout}$	protection class	voltage	Frequency	at 40°C	at 50°C
			525-			
$0208-7^{(1)}$	208A	MR9, IP00, IP21, IP54	690V	50-60Hz	208A	170A
22 (1 7/1)		Lene Thee	525-			•00.4
$0261-7^{(1)}$	261A	MR9, IP00	690V	50-60Hz	261A	208A
0005 7(1)	225 4	MD40 ID00	525-	E0 (OII	225 4	261.4
$0325-7^{(1)}$	325A	MR10, IP00	690V	50-60Hz	325A	261A
0205 7(1)	205 4	MD10 ID00	525-	E0 (011-	205 4	225 4
$0385-7^{(1)}$	385A	MR10, IP00	690V 525-	50-60Hz	385A	325A
0416-7(1)	416A	MR10, IP00	690V	50-60Hz	416A	385A
0410-7(-)	410/1	WIKTO, II OO	525-	30 - 00112	410/1	303A
0460-7(1)	460A	MR10, IP00	690V	50-60Hz	460A	416A
01007	10011	1711110) 11 00	525-	00 00112	10011	11011
0520-7(1)	520A	MR12, IP00	690V	50-60Hz	520A	460A
		,	525-			
$0590-7^{(1)}$	590A	MR12, IP00	690V	50-60Hz	590A	520A
			525-			
$0650-7^{(1)}$	650A	MR12, IP00	690V	50-60Hz	650A	590A
			525-			
$0750-7^{(1)}$	750A	MR12, IP00	690V	50-60Hz	750A	650A
			525-			
$0820-7^{(1)}$	820A	MR12, IP00	690V	50-60Hz	820A	650A

Vacon 100 series (market with) $^{(1)}$ = -ED (enclosed drives)

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T 7	-	00		
Vacon	П	()() X	series

vacon 100A	series					
Туре	Current rating 40°C	Frame size/ enclosure			Light Overload	Heavy Overload
Vacon	continuous	protection			Current	Current at
100-3L-	current I _n ⁽⁴⁾	class	Mains voltage	Frequency	at 40°C (2)	40°C (3)
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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Туре	Current rating 40°C	Frame			Light Overload	Heavy Overload
Vacon	continuous	size/enclosure			Current	Current at
100-3L-	current I_n (4)	protection class	Mains voltage	Frequency	at 40°C (2)	40°C (3)
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:

Vacon Plc

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(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

PRODUCTION	Runsorintie 7 65380 Vaasa Finland
	Vacon S.R.L. Via Roma 2 39014 Postal Italy
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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.

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