



Marine & Offshore

Certificate number: 25357/C0 BV

File number: ACE2/124/3

Product code: 2633H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

Siemens AG - GWA

Amberg - GERMANY

for the type of product

CIRCUIT BREAKERS (LOW VOLTAGE)

SIRIUS 3RV20, 3RV21, 3RV23, 3RV24, 3RV27, 3RV28
and accessories

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships

EC Code: 31

IEC 60947-2:2016-06+A1:2019-07

IEC 60947-4-1:2009-09+A1:2012-07

IEC 60947-5-1:2016-05

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate is a renewal of certificate N° 25357/B2 BV expiring on 04/12/2022

This certificate will expire on: 04 Dec 2027

For Bureau Veritas Marine & Offshore,

At BV HAMBURG, on 02 Dec 2022,

Dirk Hoepfner

This certificate was created electronically and is valid without signature



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

SIRIUS 3RV20, 3RV21, 3RV23, 3RV24, 3RV27 and 3RV28 series are utilization category A moulded case air circuit breakers and **3RV19, 3RV29 and 8US** are accessories.

1.1 - Main characteristics of 3RV20/21/23/24/27/28:

Rated operational voltage U_e: 690V AC- 50/60Hz

Rated current I_e: up to 100A (40°C)

1.2 - Variants: 3RV2a bb - cc d e f

a = Function

- 0 circuit breaker for motor protection
- 1 circuit breaker for motor protection with overload function
- 3 circuit breaker for starter combination
- 4 circuit breaker for transformer protection
- 7 circuit breaker adjusted to 13 times rated current
- 8 circuit breaker adjusted to 20 times rated current

bb = Size of terminal for main circuit

- 11 Up to 16A (S00)
- 21 Up to 40A (not for 3RV27, 3RV28) (S0)
- 21 20A ... 22A (for 3RV27, 3RV28) (S0)
- 23 12.5 ... 25A (S0)
- 31/32 14A ... 80A (S2)
- 41/42 40A ... 100A (S3)

cc = Setting Ranges

For Type:

		3RV2x11						3RV2x21						3RV2x23	
		240VAC		440VAC		690VAC		240VAC		440VAC		690VAC		690VAC	
		ICU	ICS	ICU	ICS	ICU	ICS	ICU	ICS	ICU	ICS	ICU	ICS	ICU	ICS
		[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]	[kA]
0A	0.11 ... 0.16 A	100	100	100	100	100	100	100	100	100	100	100	100	-	-
0B	0.14 ... 0.2A	100	100	100	100	100	100	100	100	100	100	100	100	-	-
0C	0.18 ... 0.25A	100	100	100	100	100	100	100	100	100	100	100	100	-	-
0D	0.22 ... 0.32A	100	100	100	100	100	100	100	100	100	100	100	100	-	-
0E	0.28 ... 0.4A	100	100	100	100	100	100	100	100	100	100	100	100	-	-
0F	0.35 ... 0.5A	100	100	100	100	100	100	100	100	100	100	100	100	-	-
0G	0.45 ... 0.63A	100	100	100	100	100	100	100	100	100	100	100	100	-	-
0H	0.55 ... 0.8A	100	100	100	100	100	100	100	100	100	100	100	100	-	-
0J	0.7 ... 1A	100	100	100	100	100	100	100	100	100	100	100	100	-	-
0K	0.9 ... 1.25A	100	100	100	100	100	100	100	100	100	100	100	100	-	-
1A	1.1 ... 1.6A	100	100	100	100	100	100	100	100	100	100	100	100	-	-
1B	1.4 ... 2A	100	100	100	100	10	10	100	100	100	100	10	10	-	-
1C	1.8 ... 2.5A	100	100	100	100	10	10	100	100	100	100	10	10	-	-
1D	2.2 ... 3.2A	100	100	100	100	10	10	100	100	100	100	10	10	-	-
1E	2.8 ... 4A	100	100	100	100	6	4	100	100	100	100	6	4	-	-
1F	3.5 ... 5A	100	100	100	100	6	4	100	100	100	100	6	4	-	-
1G	4.5 ... 6.3A	100	100	100	100	6	4	100	100	100	100	6	4	-	-
1H	5.5 ... 8A	100	100	50	50	6	4	100	100	50	50	6	4	-	-
1J	7 ... 10A	100	100	50	50	6	4	100	100	50	50	6	4	-	-
1K	9 ... 12.5A	100	100	50	50	6	4	100	100	50	50	6	4	6	4
4A	11 ... 15A *	100	100	50	10	4	4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4A	10 ... 16A	100	100	50	10	4	4	100	100	50	10	4	2	4	2
4B	13 ... 20A	100	100	50	10	4	2	100	100	50	10	4	2	4	2
4C	16 ... 22A	100	100	50	10	4	2	100	100	50	10	4	2	4	2
4D	18 ... 25A	100	100	50	10	4	2	100	100	50	10	4	2	4	2
4N	23 ... 28A	100	100	30	10	4	2	100	100	30	10	4	2		
4E	27 ... 32A	100	100	30	10	4	2	100	100	30	10	4	2		
4P	30 ... 36A	100	100	12	8	3	2	100	100	12	8	3	2		
4F	34 ... 40A	100	100	12	8	3	2	100	100	12	8	3	2		

For Type: 3RV2x31

		240VAC		440VAC		690VAC	
		ICU [kA]	ICS [kA]	ICU [kA]	ICS [kA]	ICU [kA]	ICS [kA]
4S	9.5 ... 14A	100	100	50	25	5	3
4T	12 ... 17A	100	100	50	25	5	3
4B	13 ... 20A	100	100	50	25	5	3
4D	18 ... 25A	100	100	50	15	5	3
4E	22 ... 32A	100	100	50	15	4	2
4P	28 ... 36A	100	100	50	15	4	2
4U	32 ... 40A	100	100	50	15	4	2
4V	35 ... 45A	100	100	50	15	4	2
4W	42 ... 52A	100	100	50	15	4	2
4X	49 ... 59A	100	100	50	15	4	2
4J	54 ... 65A	100	100	50	15	4	2
4K	62 ... 73A	100	100	50	15	4	2
4R	70 ... 80A	100	100	50	15	4	2

3RV2x32

		240VAC		440VAC		690VAC	
		ICU [kA]	ICS [kA]	ICU [kA]	ICS [kA]	ICU [kA]	ICS [kA]
		100	100	65	30	8	5
		100	100	65	30	8	5
		100	100	65	30	8	5
		100	100	65	30	8	5
		100	100	65	30	6	4
		100	100	65	30	6	4
		100	100	65	30	6	4
		100	100	65	30	6	4
		100	100	65	30	6	4
		100	100	65	30	6	4
		100	100	50	15	6	4
		100	100	50	15	6	4
		100	100	50	15	6	4
		100	100	50	15	6	4
		100	100	50	15	6	4
		100	100	50	15	6	4

For Type:

3RV2x41

		240VAC		440VAC		690VAC	
		ICU [kA]	ICS [kA]	ICU [kA]	ICS [kA]	ICU [kA]	ICS [kA]
4F	28 ... 40A	100	100	65	30	6	3
4H	36 ... 50A	100	100	65	30	6	3
4J	45 ... 63A	100	100	65	30	6	3
4K	57 ... 75A	100	100	65	30	5	3
4R	65 ... 84A	100	100	65	30	5	3
4Y	75 ... 93A	100	100	65	30	5	3
4M	80 ... 100A	100	100	65	30	5	3

3RV2x42

		240VAC		440VAC		690VAC	
		ICU [kA]	ICS [kA]	ICU [kA]	ICS [kA]	ICU [kA]	ICS [kA]
		100	100	100	50	12	6
		100	100	100	50	10	5
		100	100	70	50	7.5	4
		100	100	70	50	6	3
		100	100	70	50	6	3
		100	100	70	50	6	3
		100	100	70	50	6	3
		100	100	70	50	6	3
		100	100	70	50	6	3

d = Tripping Class

- A Setting ranges with instantaneous tripping and overload tripping Class 10
- B Setting ranges with instantaneous tripping and overload tripping Class 20 (up to 65A)
- C With instantaneous tripping and without overload tripping
- D With instantaneous tripping and fixed current overload tripping *

e = Type of Terminals

- 1 Screw terminal
- 2 Spring terminals (up to 32A)
- 4 Ring lug terminals (up to 32A)

f = Auxiliary Switches: Type 3RV29

- 0 without
- 1 1NO + 1NC, side mounted
- 2 2NO, side mounted
- 3 2NC, side mounted
- 4 1NO/NC Changeover, top mounted
- 5 1NO + 1NC, top mounted
- 6 2NO, top mounted

* for 3RV27, 3RV28

1.3 - Accessories:**3RV29...** : Auxiliary switches, undervoltage trip units, shunt releases, infeed system, ...**3RV19...** : 3-phase bus bar equipment**8US12...** : Bus bar adapter for 60mm systems

2. DOCUMENTS AND DRAWINGS:

- Catalogue: IC 10 dated 2015
- Drawings: NEZ461200100000 Rev. 04 dated 2010-06-15, NEZ461200600000 Rev. 04 dated 2009-12-17
- 4NEB4612582-20DS01 dated 08 June 2010, 4NEB4612580-10DS02 dated 10 March 2010
- NEB461258010000/RS-AA/004 dated 01 August 2012; NEB461258230000/RS-AA/002 dated 30 July 2012

For B0 version:

- A5E3151034000A rev. 2 dated 2015-07-24, NEZ462000100000 rev. 10 dated 2014-08-26

For B1 version:

- Catalogue: E86060-K1010-A101-B1-7600 - Catalogue IC10 Edition 2020
- Operating instructions: A5E37035309001A/RS-AB/002 dated 05 September 2017, A5E35749800001A/RS-AA/001 dated 28 June 2016
- NEZ463000100000 rev. 010 dated 2017-01-20
- Representative Tripping curve and let-through graphs for 3RV24 / In=25A: 4NEP 461 2722 24 000 01, NEP 461272301000 01, NEP 461272302000 01, NEP 461272303000 01
- List of used plastic materials rev 2017-06-27 / February 2018
- Test instruction: 461240000000 rev 09 dated 2011-08-23

3. TEST REPORTS:

- SIEMENS AG: 09052TMs dated 2010-07-27; 13012ENS dated 2013-02-27; Test certificate: 3003c dated 2012-11-21

For B0 version:

- 12sr12 version 3.0 dated April 2016; Test certificate: 3291 dated 2015-06-17; 14031PMV06 dated 2016-03-08

For B1 version:

- Test reports for 3RV2.4 (size S3): 15044ED04 dated 2018-02-14; Type Test Certificate 3347 dated 2017-01-30; 15082I01 dated 2016-12-09; 15082I02 dated 2016-12-09; 15082I03 dated 2017-01-20
- Updated IEC 60947 Type test reports/certificates for 3RV2.1, 3RV2.2, 3RV2.3 and 3RV29: 3003e dated 2017-07-19; 3291a dated 2017-01-17; 16003IR01 dated 2016-04-08; 16003IR02 dated 2016-12-13; 13011ENI03 dated 2017-01-10

For C0 version:

- Updated IEC 60947 Type test reports/certificates for 3RV2.1, 3RV2.2, 3RV2.3, 3RV2.4 and 3RV29: 3003f dated 2021-05-04; 3291b dated 2021-05-21; 3347b dated 2021-05-21; 3115c dated 2021-07-29

4. APPLICATION / LIMITATION:

- 4.1 - Bureau Veritas Rules for the Classification of Steel Ships.
- 4.2 - Bureau Veritas Environmental Category, **EC Code: 31**

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 - The above products are to be supplied by **SIEMENS AG - GWA** in compliance with the type described in this certificate.
- 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.
- 5.3 - **SIEMENS AG - GWA** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

For 3RV2 and 3RV29:

SIEMENS AG - GWA
Werner-von-Siemens-Str. 29
93413 Cham
GERMANY

For 3RV1917, 3RV2917, 3RV29 aux. cont; UVR; STR:

SIEMENS, s.r.o.
Volanovska 516
541 01 Trutnov
CZECH REPUBLIC

6. MARKING OF PRODUCT:

According to IEC 60947 specifications.

7. OTHERS:

- 7.1 - It is **SIEMENS AG - GWA**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.
- 7.2 - This certificate supersedes the Type Approval Certificate 25357/B2 BV issued on 31 May 2021 by the Society.

*** END OF CERTIFICATE ***