



Marine & Offshore
Division

Certificate number: 22021/B0 BV

File number: ACE 02/138/11

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

LSIS CO., LTD. (Cheongju Plant)
Cheongju (Chungbuk) - KOREA (REPUBLIC OF)

for the type of product

CIRCUIT BREAKERS (LOW VOLTAGE)

Molded Case Circuit Breakers (MCCB) types: 100AF, 125AF and 250AF.

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.
IEC 60947-1, IEC 60947-2

This certificate is issued to attest that BUREAU VERITAS 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° 22021/A1 BV expiring on 06/11/2014

This certificate will expire on: 06 Nov 2019

For BUREAU VERITAS,
At BV PUSAN, on 26 Sep 2014,
Hwan Geuk Choi



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. 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 Division 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 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 electronic version is available at: <http://www.veristarp.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=rmj9ynhig5>

BV Mod. Ad.E 530 May 2009

This certificate consists of 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Type 100AF

Rated insulation voltage	750V AC			
Rated operational frequency	50 / 60 Hz			
No. of poles	3			
Impulse Withstand Voltage	8kV			
Utilization Category	A			
IP Code	20			
Release System:	Thermal Magnetic			
Type	Rated current (A) at 45°C	Rated Voltage Ue (V)	Short-Circuit making capacity Icm (kA, peak)	Short-Circuit breaking capacity Icu / Ics (kA)
ABN53c	15, 20, 30, 40, 50	415 / 460 380 220 / 240	28 36 63	14 18 30
ABN63c	15, 20, 30, 40, 50, 60	415 / 460 380 220 / 240	28 36 63	14 18 30
ABN103c	15, 20, 30, 40, 50, 60, 75, 100	415 / 460 380 220 / 240	36 46.2 73.5	18 22 35
ABS33c	(3, 5, 10) 15, 20, 30	415 / 460 380 220 / 240	(17) 28 (28) 36 (52.5) 63	(10) 14 (14) 18 (25) 30
ABS53c	15, 20, 30, 40, 50	415 / 460 380 220 / 240	36 46.2 73.5	18 22 35
ABS63c	15, 20, 30, 40, 50, 60	415 / 460 380 220 / 240	36 46.2 73.5	18 22 35
ABH33c	15, 20, 30	415 / 460 380 220 / 240	36 46.2 73.5	18 22 35

Type 125AF

Rated insulation voltage	750V AC			
Rated operational frequency	50 / 60 Hz			
No. of poles	3			
Impulse Withstand Voltage	8kV			
Utilization Category	A			
IP Code	20			
Release System:	Thermal Magnetic			
Type	Rated current (A) at 45°C	Rated Voltage Ue (V)	Short-Circuit making capacity Icm (kA, peak)	Short-Circuit breaking capacity Icu / Ics (kA)
ABP53c	15, 20, 30, 40, 50	415 / 460 380 220 / 240	88.2 105 187	42 50 85
ABH53c	15, 20, 30, 40, 50	415 / 460 380 220 / 240	105 105 220	50 50 100
ABP103c	15, 20, 30, 40, 50, 60, 75, 100, 125	415 / 460 380 220 / 240	88.2 105 187	42 50 85
ABS103c	15, 20, 30, 40, 50, 60, 75, 100, 125	415 / 460 380 220 / 240	77.7 88.2 187	37 42 85
ABH103c	15, 20, 30, 40, 50, 60, 75, 100, 125	415 / 460 380 220 / 240	105 105 220	50 50 100



Type 250AF

Rated insulation voltage	750V AC			
Rated operational frequency	50 / 60 Hz			
No. of poles	3			
Impulse Withstand Voltage	8kV			
Utilization Category	A			
IP Code	20			
Release System:	Thermal Magnetic			
Type	Rated current (A) at 45°C	Rated Voltage Ue (V)	Short-Circuit making capacity Icm (kA, peak)	Short-Circuit breaking capacity Icu / Ics (kA)
ABN203c	100, 125, 150, 175, 200, 225, 250	415 / 460 380 220 / 240	54.6 63 143	26 30 65
ABS203c	100, 125, 150, 175, 200, 225, 250	415 / 460 380 220 / 240	77.7 88.2 187	37 42 85
ABP203c	100, 125, 150, 175, 200, 225, 250	415 / 460 380 220 / 240	88.2 105 187	42 50 85
ABH203c	100, 125, 150, 175, 200, 225, 250	415 / 460 380 220 / 240	105 105 220	50 50 100

2. DOCUMENTS AND DRAWINGS:

2.1 - Catalogue - ref. 2008.10/(01) 2008.10(E).

2.2 - Specifications and drawings filed in document ref.: 20090616135050, 64621182014~022, 64621182014~023

3. TEST REPORTS:

3.1 - PT&T test report N° R49-0911 dated 01/Jun./2009

3.2 - PT&T test report N° R49-0912 dated 01/Jun./2009

3.3 - PT&T test report N° R49-0913 dated 01/Jun./2009

3.4 - KEMA CB/IEC test report N° 2109959.51 dated 13/May/2008

3.5 - KEMA CB/IEC test report N° 2109959.50 dated 13/May/2008

3.6 - KEMA CB/IEC test report N° 2109959.52 dated 13/May/2008

3.7 - KEMA Certificate N° NL-17236 dated 30/Nov./2009

3.8 - KEMA Certificate N° NL-17241/A1 dated 07/Jan./2010

3.9 - KEMA Certificate N° NL-17244/A1 dated 14/Dec./2009

4. APPLICATION / LIMITATION:

4.1 - Approval also valid for ships to be granted with the notations: **AUT-UMS, AUT-CCS, AUT-PORT** and **AUT-IMS**.

4.2 - According to BV Rules for the Classification of Steel Ships, IEC 60947-2 (2006).

4.3 - The manufacturer should be consulted if Circuit Breaker is to be located where the ambient air temperature may fall below -25°C for an indoor Circuit Breaker and below -40°C for an outdoor Circuit Breaker or where the temperature may exceed 40°C (or if the 24 h average value exceeds 35°C).

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above products are to be supplied by **LSIS Co., Ltd. (Cheongju Plant)** 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.

5.3 - **LSIS Co., Ltd. (Cheongju Plant)** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products :

LSIS Co., Ltd. (Cheongju Plant)
#95, Baekbong-ro
Heungdeok-gu
Cheongju (Chungbuk)
KOREA (REPUBLIC OF)



6. MARKING OF PRODUCT:

Each Circuit Breaker shall be marked in a durable manner according to IEC 60947-2.

7. OTHERS:

7.1 - This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the circuit breakers at any time, and that **LSIS Co., Ltd. (Cheongju plant) - Korea (Republic of)** will accept the responsibility for informing shipbuilders or their sub-contractors of the proper methods of use and general maintenance of the circuit breakers and of the conditions of this approval.

7.2 - This Certificate supersedes the Type Approval Certificate N° 22021/A1 BV issued on 30.06.2011. by the Society.

*** END OF CERTIFICATE ***

