Type Approval Certificate

[Moulded Case Circuit Breaker]

Initial Approval	8 September 2009
Manufacturer	LS Electric Co., Ltd. - Cheongju Plant 95, Baekbong-ro, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do, 28439 Rep. of Korea
Product Description	Metasol MCCB

Type : 100AF - ABS33c, ABN53c, ABN63c, ABH33c, ABS53c,
ABS63c, ABN103c, ABN53d, ABN63d, ABS33d,
ABS53d, ABS63d, ABH33d, ABN103d, ABS53e,
ABS63e, ABH33e, ABN103e
125AF - ABP53c, ABH53c, ABS103c, ABP103c, ABH103c,
ABL53c, ABL103c
250AF - ABN203c, ABS203c, ABP203c, ABH203c, ABL203c

" See Appendix 1 "

Approval Condition " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 1, Art. 803 of the Rules for Classification of Steel Ships and IEC 60947-2.

This Certificate is valid until 7 September 2029

Issued at Dangjin, Korea on 16 August 2024

This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "http://e-cert.krs.co.kr" by using the tracking No(ME24040918078) and certificate No.(PTD00429-EL030).

KOREAN REGISTER

General Manager of
Pyeongtaek-Dangjin Branch Office

Note : *1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.*
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 16 August 2024

A. Product Description

1. Product Specification

1) Product Descriptions

* Note
Icu : Ultimate Shortcircuit Breaking Capacity
Ics : Service Shortcircuit Breaking Capacity
Icm : Shortcircuit making Capacity

- Frame size : 100AF

Type	No. of Poles	Rated Voltage (V)	Rated Current(A) at 45 ℃	Icu (kA)	Ics (kA)	Icm (kA)
ABN53c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50	2.5 7.5 14 18 30	Ics=Icu	3.55 12.75 28 36 63
ABN63c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63	2.5 7.5 14 18 30	Ics=Icu	3.55 12.75 28 36 63
ABN103c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63, 75 80, 100	5 10 18 22 35	Ics=Icu	7.5 17 36 46.2 73.5
ABS33c	3	690 480/500 415/460 380 220/240	(3), (5), (10), 15 16, 20, 25, 30, 32	2.5(-) 7.5(5) 14 (10) 18 (14) 30 (25)	Ics=Icu	3.55 (-) 12.75(7.5) 28 (17) 36 (28) 63 (52.5)
ABS53c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50	5 10 18 22 35	Ics=Icu	7.5 17 36 46.2 73.5
ABS63c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63	5 10 18 22 35	Ics=Icu	7.5 17 36 46.2 73.5
ABH33c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32	5 10 18 22 35	Ics=Icu	7.5 17 36 46.2 73.5
ABN53d	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50	5 10 22 26 42	2.5 7.5 14 18 30	7.5 17 46.2 54.6 88.2

Product Description and/or Approval Condition

Date of Issue : 16 August 2024

Type	No. of Poles	Rated Voltage (V)	Rated Current(A) at 45 ℃	Icu (kA)	Ics (kA)	Icm (kA)
ABN63d	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63	5 10 22 26 42	2.5 7.5 14 18 30	7.5 17 46.2 54.6 88.2
ABN103d	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63, 75 80, 100	7.5 14 26 30 50	5 10 18 22 35	12.8 28 54.6 63 105
ABS33d	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32	5 10 22 26 42	2.5 7.5 14 18 30	7.5 17 46.2 54.6 88.2
ABS53d	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50	7.5 14 26 30 50	5 10 18 22 35	12.8 28 54.6 63 105
ABS63d	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63	7.5 14 26 30 50	5 10 18 22 35	12.8 28 54.6 63 105
ABH33d	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32	7.5 14 26 30 50	5 10 18 22 35	12.8 28 54.6 63 105
ABN103e	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63, 75 80, 100	7.5 14 31 31 65	5 10 18 22 35	12.8 28 65.1 65.1 143
ABS53e	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50	7.5 14 31 31 65	5 10 18 22 35	12.8 28 65.1 65.1 143
ABS63e	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63	7.5 14 31 31 65	5 10 18 22 35	12.8 28 65.1 65.1 143
ABH33e	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32	7.5 14 31 31 65	5 10 18 22 35	12.8 28 65.1 65.1 143

Product Description and/or Approval Condition

Date of Issue : 16 August 2024

- Frame size : 125AF

Type	No. of Poles	Rated Voltage (V)	Rated Current(A) at 45 ℃	Icu (kA)	Ics (kA)	Icm (kA)
ABS103c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63, 75 80, 100, 125	8 26 37 42 85	Ics=Icu	13.6 54.6 77.7 88.2 187
ABP53c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50	10 30 42 50 85	Ics=Icu	17 63 88.2 105 187
ABH53c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50	10 35 50 50 100	Ics=Icu	17 73.5 105 105 220
ABP103c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63, 75 80, 100, 125	10 30 42 50 85	Ics=Icu	17 63 88.2 105 187
ABH103c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63, 75 80, 100, 125	10 35 50 50 100	Ics=Icu	17 73.5 105 105 220
ABL53c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50	10 35 60 60 125	10 35 50 50 100	17 73.5 132 132 275
ABL103c	3	690 480/500 415/460 380 220/240	15, 16, 20, 25 30, 32, 40, 45 50, 60, 63, 75 80, 100, 125	10 35 60 60 125	10 35 50 50 100	17 73.5 132 132 275

- Frame size : 250AF

Type	No. of Poles	Rated Voltage (V)	Rated Current(A) at 45 ℃	Icu (kA)	Ics (kA)	Icm (kA)
ABN203c	3	690 480/500 415/460 380 220/240	100, 125, 150, 160 175, 200, 225, 250	8 18 26 30 65	Ics=Icu	13.6 36 54.6 63 143
ABS203c	3	690 480/500 415/460 380 220/240	100, 125, 150, 160 175, 200, 225, 250	8 26 37 42 85	Ics=Icu	13.6 54.6 77.7 88.2 187

Product Description and/or Approval Condition

Date of Issue : 16 August 2024

Type	No. of Poles	Rated Voltage (V)	Rated Current(A) at 45 ℃	Icu (kA)	Ics (kA)	Icm (kA)
ABP203c	3	690	100,125,150,160	10	Ics=Icu	17
		480/500	175,200,225,250	30		63
		415/460		42		88.2
		380		50		105
		220/240		85		187
ABH203c	3	690	100,125,150,160	10	Ics=Icu	17
		480/500	175,200,225,250	35		73.5
		415/460		50		105
		380		50		105
		220/240		100		220
ABL203c	3	690	100,125,150,160	10	10	17
		480/500	175,200,225,250	35	35	73.5
		415/460		60	50	132
		380		60	50	132
		220/240		125	100	275

2. Approved Drawings and Documents

1) Drawing & Manual
   - Document for KR Type Approval(MCCB623C OUT-19-008)

2) CB Certificate
   - KEMA No. NL-17236, NL-17241/A1, NL-17244/A1
   - UL No. DK-66330-UL (2017-09-18), DK-66364-UL (2017-09-18)
     DK-66517-UL (2017-09-18)

3. Test Reports, etc.

1) Environmental Test Report
   - PT&T No. R49-0911, R49-0912, R49-0913

2) CB Test report
   - KEMA No. 2109959.50, 2109959.51, 2109959.52
   - UL No. 4787859537-1 (2017-08-18), 4787859537-2 (2017-08-18)
     4787859537-3 (2017-08-18)

B. Approval Condition

1. Application & Limitation

1) This approval is granted on the basis of the test reports and the approved documentation.

2. Individual Product Cert. and Drawing Approval Requirement

1) Individual Product Certification is not required.

3. Marking

1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

4. Others

N/A

< End of Certificate >