



## 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.

|                           |  |
|---------------------------|--|
| <b>Manufacturer</b>       | <b>LS ELECTRIC Co., Ltd.</b>   |
| <b>Address</b>            | 95, Baekbong-ro, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do, 28439, South Korea  |
| <b>Type</b>               | Circuit Breaker  |
| <b>Description</b>        | Metasol Molded Case Circuit Breaker  |
| <b>Trade Name</b>         | ABN, ABS, ABH, ABL Series  |
| <b>Application</b>        | Marine and offshore applications for use in environmental categories ENV3 as defined in LR Type Approval System Test Specification No.1-2024 where the Test Specification is satisfactory for the intended operation   |
| <b>Specified Standard</b> | IEC60947-2 (2016)  |
| <b>Ratings</b>            | See the Appendix   |
| <b>Other Conditions</b>   | <p>Type approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.</p> <p>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.</p> <p>(In case of applications other than marine) The application of the type approval certificate will be limited to the relevant scope of the specified standard and acceptance thereof by the local authorities.</p> |

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

### Gun-Nam Park

Electrical & Control - Senior Specialist to  
Lloyd's Register Asia  
A member of the Lloyd's Register group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



## Type Approval Certificate

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Asia of any modification or changes to the equipment in order to obtain a valid Certificate.

**Previous Version:** LR2021556TA

The Design Appraisal Document LR2574789TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

## Appendix

| Type    | Current rating at 45°C (A) | Rated voltage (V)          | Breaking current (r.m.s.) (kA)<br>Icu/Ics | Making current (Peak asymmetrical) (kA) | Over current release     | Standard                                     |
|---------|----------------------------|----------------------------|---|---|--------------------------|--|
| ABN53c  | 15 - 50                    | 415/440/460<br>220/240/250 | 14<br>30                                  | 28<br>63                                | Thermal magnetic release | IEC60947-2 (2016)<br>Utilisation category: A |
| ABN63c  | 15 - 63                    | 415/440/460<br>220/240/250 | 14<br>30                                  | 28<br>63                                |                          |  |
| ABN103c | 15 - 100                   | 415/440/460<br>220/240/250 | 18<br>35                                  | 36<br>73.5                              |                          |  |
| ABS33c  | 15 - 32<br>(3 - 10)        | 415/440/460<br>220/240/250 | 14 (10)<br>30 (25)                        | 28 (17)<br>63 (52.5)                    |                          |  |
| ABS53c  | 15 - 50                    | 415/440/460<br>220/240/250 | 18<br>35                                  | 36<br>73.5                              |                          |  |
| ABS63c  | 15 - 63                    | 415/440/460<br>220/240/250 | 18<br>35                                  | 36<br>73.5                              |                          |  |
| ABH33c  | 15 - 32                    | 415/440/460<br>220/240/250 | 18<br>35                                  | 36<br>73.5                              |                          |  |
| ABS103c | 15 - 125                   | 415/440/460<br>220/240/250 | 37<br>85                                  | 77.7<br>187                             |                          |  |
| ABP53c  | 15-50                      | 415/440/460<br>220/240/250 | 42<br>85                                  | 88.2<br>187                             |                          |  |
| ABH53c  | 15 - 50                    | 415/440/460<br>220/240/250 | 50<br>100                                 | 105<br>220                              |                          |  |
| ABP103c | 15-125                     | 415/440/460<br>220/240/250 | 42<br>85                                  | 88.2<br>187                             |                          |  |
| ABH103c | 15 - 125                   | 415/440/460<br>220/240/250 | 50<br>100                                 | 105<br>220                              |                          |  |
| ABN203c | 100-250                    | 415/440/460<br>220/240/250 | 26<br>65                                  | 54.6<br>143                             |                          |  |
| ABS203c | 100-250                    | 415/440/460<br>220/240/250 | 37<br>85                                  | 77.7<br>187                             |                          |  |
| ABP203c | 100-250                    | 415/440/460<br>220/240/250 | 42<br>85                                  | 88.2<br>187                             |                          |  |
| ABH203c | 100-250                    | 415/440/460<br>220/240/250 | 50<br>100                                 | 105<br>220                              |                          |  |

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

| Type    | Current rating at 45°C (A) | Rated voltage (V) | Breaking current (r.m.s.) (kA)<br>Icu/Ics | Making current (Peak asymmetrical) (kA) | Over current release     | Standard                                     |
|---------|----------------------------|-------------------|---|---|--------------------------|--|
| ABN53d  | 15-50                      | 415/440/460       | 22/14                                     | 46.2                                    | Thermal magnetic release | IEC60947-2 (2016)<br>Utilisation category: A |
|         |                            | 220/240/250       | 42/30                                     | 88.2                                    |                          |  |
| ABN63d  | 15-63                      | 415/440/460       | 22/14                                     | 46.2                                    |                          |  |
|         |                            | 220/240/250       | 42/30                                     | 88.2                                    |                          |  |
| ABN103d | 15-100                     | 415/440/460       | 26/18                                     | 54.6                                    |                          |  |
|         |                            | 220/240/250       | 50/35                                     | 105                                     |                          |  |
| ABN103e | 15-100                     | 415/440/460       | 31/18                                     | 65.1                                    |                          |  |
|         |                            | 220/240/250       | 65/35                                     | 143                                     |                          |  |
| ABS33d  | 15-32                      | 415/440/460       | 22/14                                     | 46.2                                    |                          |  |
|         |                            | 220/240/250       | 42/30                                     | 88.2                                    |                          |  |
| ABS53d  | 15-50                      | 415/440/460       | 26/18                                     | 54.6                                    |                          |  |
|         |                            | 220/240/250       | 50/35                                     | 105                                     |                          |  |
| ABS63d  | 15-63                      | 415/440/460       | 26/18                                     | 54.6                                    |                          |  |
|         |                            | 220/240/250       | 50/35                                     | 105                                     |                          |  |
| ABS63e  | 15-63                      | 415/440/460       | 31/18                                     | 65.1                                    |                          |  |
|         |                            | 220/240/250       | 65/35                                     | 143                                     |                          |  |
| ABS53e  | 15-50                      | 415/440/460       | 31/18                                     | 65.1                                    |                          |  |
|         |                            | 220/240/250       | 65/35                                     | 143                                     |                          |  |
| ABH33d  | 15-32                      | 415/440/460       | 26/18                                     | 54.6                                    |                          |  |
|         |                            | 220/240/250       | 50/35                                     | 105                                     |                          |  |
| ABH33e  | 15-32                      | 415/440/460       | 31/18                                     | 65.1                                    |                          |  |
|         |                            | 220/240/250       | 65/35                                     | 143                                     |                          |  |
| ABL53c  | 15-50                      | 415/440/460       | 60/50                                     | 132                                     |                          |  |
|         |                            | 220/240/250       | 125/100                                   | 275                                     |                          |  |
| ABL103c | 15-125                     | 415/440/460       | 60/50                                     | 132                                     |                          |  |
|         |                            | 220/240/250       | 125/100                                   | 275                                     |                          |  |
| ABL203c | 100-250                    | 415/440/460       | 60/50                                     | 132                                     |                          |  |
|         |                            | 220/240/250       | 125/100                                   | 275                                     |                          |  |

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



Certificate Number 24-6462701  
Issue Date 18-JUN-2024  
Expiration Date 29-JUN-2029  
ABS Port Office Seoul, Korea  
Website [www.ls-electric.com](http://www.ls-electric.com)

## CERTIFICATE OF Manufacturing Assessment

This is to certify that the Undersigned evaluated the manufacturing quality procedures of

**LS ELECTRIC CO.,LTD. – CHEONGJU PLANT**

located at

C95, BAEKBONG-RO, HEUNGDEOK-GU, CHEONGJU-SI,  
CHUNGCHONGBUK-DO, KOREA, REPUBLIC OF

The quality monitoring systems during production were verified to reflect the specific surveys, required by the ABS Rules, Guides, the associated Specifications and Standards for the manufacture of

### ELECTRICAL EQUIPMENTS

This manufacturer presented a sample or specimen of the product, representative of the "type" approved for the purpose of verifying that the "type" has been manufactured in conformance with the Manufacturer's Product Design Assessment(s).

This Certificate is manufacturer and location specific and is subject to annual audits. Consult the ABS Type Approval website to confirm the continued validity of this certificate and the status of products.

The ABS Office issuing the certificate is to be kept updated with changes to the production methods, quality control systems, products and models and any changes made.

Annual Endorsement  
First

*Jin Yang Kim*  
Surveyor  
17050918/11 June 2024  
WO and Date



Second

Third



*Yu-Dong Kim*  
Surveyor

Fourth

NOTE: This Certificate evidences compliance with one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Certificate is a representation only that the structure, item of material, equipment, machinery or any other item covered by this Certificate has met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping as of the date of issue. Parties are advised to review the Rules for the scope and conditions of classification and to review the survey records for a fuller description of any restrictions or limitation on the vessel's service or surveys. The validity, applicability and interpretation of this Certificate is governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof. Nothing contained in this Certificate or in any notation made in contemplation of this Certificate shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any warranty express or implied.



# TYPE APPROVAL CERTIFICATE

Certificate no.:  
**TAE000002H**  
Revision No:  
**3**

**This is to certify:**  
**that the Circuit Breaker**

with type designation(s)  
**ABE, ABN, ABH, ABS, ABL, ABP, GBN, GBH & GBL**

issued to  
**LS ELECTRIC Co., Ltd. (Cheong-ju Plant)**  
**Cheongju-si, 04, Korea, Republic of**

is found to comply with  
**DNV rules for classification – Ships, offshore units, and high speed and light craft**

## Application:

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.**

**Rated voltage (V) 460/480 (see specification)**  
**Rated current (A) 3 - 800**

Issued at **Busan** on **2024-07-10**

for **DNV**

This Certificate is valid until **2029-06-30**.

DNV local unit: **Seoul**

Approval Engineer: **Eun Sook Kim**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.  
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



## Product description

I MetaMec: Moulded case circuit breaker with the following data:

|   | ABS33b    | ABH33b  | ABE53b  | ABS53b  | ABE63b  | ABS63b  |    |
|---|-----------|---------|---------|---------|---------|---------|----|
| Rated insulation voltage AC (V)             | 600/690   | 600/690 | 600/690 | 600/690 | 600/690 | 600/690 |    |
| Rated operational voltage AC(V)             | 460       | 460     | 460     | 460     | 460     | 460     |    |
| Rated Current (A)                           | 5-30      | 5-30    | 5-50    | 5-50    | 60      | 5-60    |    |
| Rated Frequency Hz                          | 50/60     | 50/60   | 50/60   | 50/60   | 50/60   | 50/60   |    |
| Rated ultimate breaking capacity Icu (kA)   | 440/ 460V | 5       | 10      | 5       | 10      | 5       | 10 |
|   | 415V      | 5       | 10      | 5       | 10      | 5       | 10 |
|   | 380V      | 7.5     | 14      | 7.5     | 14      | 7.5     | 14 |
|   | 220/ 240V | 10      | 25      | 10      | 25      | 10      | 25 |
| Rated service breaking capacity (%Icu), Ics |           | 50      | 50      | 50      | 50      | 50      | 50 |
| Rated making Capacity Icm (kA)              |           | 7.5     | 17      | 7.5     | 17      | 7.5     | 17 |
| Utilization category                        |           | A       | A       | A       | A       | A       | A  |

|   | ABE103b   | ABE103bM | ABH53b  | ABS103b | ABS103bM | ABH103b |
|---|-----------|----------|---------|---------|----------|---------|
| Rated insulation voltage AC (V)             | 600/690   | 600/690  | 600/690 | 600/690 | 600/690  | 600/690 |
| Rated operational voltage AC(V)             | 460       | 460      | 460     | 460     | 460      | 460     |
| Rated Current (A)                           | 5-100     | 32       | 15-50   | 15-100  | 32       | 15-100  |
| Rated Frequency Hz                          | 50/60     | 50/60    | 50/60   | 50/60   | 50/60    | 50/60   |
| Rated ultimate breaking capacity Icu (kA)   | 440/ 460V | 10       | 10      | 25      | 25       | 35      |
|   | 415V      | 10       | 10      | 25      | 25       | 35      |
|   | 380V      | 14       | 14      | 25      | 25       | 35      |
|   | 220/ 240V | 25       | 25      | 50      | 50       | 65      |
| Rated service breaking capacity (%Icu), Ics |           | 50       | 50      | 50      | 50       | 50      |
| Rated making Capacity Icm (kA)              |           | 17       | 17      | 52.5    | 52.5     | 73.5    |
| Utilization category                        |           | A        | A       | A       | A        | A       |

|   | ABH103b<br>M | ABE203b | ABS203b | ABH203b | ABE403b | ABS403b |
|---|--------------|---------|---------|---------|---------|---------|
| Rated insulation voltage AC (V)             | 600/690      | 600/690 | 600/690 | 600/690 | 600/690 | 600/690 |
| Rated operational voltage AC(V)             | 460          | 460     | 460     | 460     | 480     | 480     |
| Rated Current (A)                           | 32           | 100-225 | 100-225 | 100-225 | 250-400 | 250-400 |
| Rated Frequency Hz                          | 50/60        | 50/60   | 50/60   | 50/60   | 50/60   | 50/60   |
| Rated ultimate breaking capacity Icu (kA)   | 480V         | -       | -       | -       | 18      | 25      |
|   | 440/ 460V    | 35      | 18      | 25      | 35      | 35      |
|   | 415V         | 35      | 18      | 25      | 35      | 35      |
|   | 380V         | 35      | 18      | 25      | 35      | 42      |
|   | 220/ 240V    | 65      | 35      | 50      | 65      | 50      |
| Rated service breaking capacity (%Icu), Ics |              | 50      | 50      | 50      | 100     | 100     |
| Rated making Capacity Icm (kA)              |              | 73.5    | 36      | 52.5    | 73.5    | 52.5    |
| Utilization category                        |              | A       | A       | A       | A       | A       |

|  | ABH403b | ABL403b | ABE803b | ABS803b | ABL803b |
|--|---------|---------|---------|---------|---------|
| Rated insulation voltage AC (V)                | 600/690 | 600/690 | 600/690 | 600/690 | 600/690 |
| Rated operational voltage AC(V)                | 480     | 480     | 480     | 480     | 480     |
| Rated Current (A)                              | 250-400 | 250-400 | 500-800 | 500-800 | 500-800 |
| Rated Frequency Hz                             | 50/60   | 50/60   | 50/60   | 50/60   | 50/60   |
| Rated ultimate breaking capacity Icu (kA) 480V | 35      | 65      | 25      | 45      | 65      |



|   |      |     |      |      |     |
|---|------|-----|------|------|-----|
| 440/ 460V                                   | 50   | 85  | 35   | 50   | 85  |
| 415V  | 50   | 85  | 35   | 50   | 85  |
| 380V  | 65   | 100 | 42   | 65   | 100 |
| 220/ 240V                                   | 85   | 125 | 50   | 100  | 125 |
| Rated service breaking capacity (%Icu), Ics | 50   | 50  | 100  | 50   | 50  |
| Rated making Capacity Icm (kA)              | 73.5 | 143 | 52.5 | 94.5 | 143 |
| Utilization category                        | A    | A   | A    | A    | A   |

|  |         |         |         |         |         |
|--|---------|---------|---------|---------|---------|
|  | GBN53   | GBH53   | GBL53   | GBN103  | GBH103  |
| Rated insulation voltage AC (V)                | 600/690 | 600/690 | 600/690 | 600/690 | 600/690 |
| Rated operational voltage AC(V)                | 480     | 480     | 480     | 480     | 480     |
| Rated Current (A)                              | 16-50   | 16-50   | 16-50   | 16-100  | 16-100  |
| Rated Frequency Hz                             | 50/60   | 50/60   | 50/60   | 50/60   | 50/60   |
| Rated ultimate breaking capacity Icu (kA) 480V | 30      | 42      | 65      | 30      | 42      |
| 440/ 460V                                      | 35      | 50      | 85      | 35      | 50      |
| 415V   | 35      | 50      | 85      | 35      | 50      |
| 380V   | 35      | 50      | 85      | 35      | 50      |
| 220/ 240V                                      | 50      | 85      | 125     | 50      | 85      |
| Rated service breaking capacity (%Icu), Ics    | 75      | 75      | 75      | 75      | 75      |
| Rated making Capacity Icm (kA)                 | 63      | 88.2    | 143     | 63      | 88.2    |
| Utilization category                           | A       | A       | A       | A       | A       |

|  |         |         |         |         |
|--|---------|---------|---------|---------|
|  | GBL103  | GBN203  | GBH203  | GBL203  |
| Rated insulation voltage AC (V)                | 600/690 | 600/690 | 600/690 | 600/690 |
| Rated operational voltage AC(V)                | 480     | 480     | 480     | 480     |
| Rated Current (A)                              | 16-100  | 16-250  | 16-250  | 16-250  |
| Rated Frequency Hz                             | 50/60   | 50/60   | 50/60   | 50/60   |
| Rated ultimate breaking capacity Icu (kA) 480V | 65      | 30      | 42      | 65      |
| 440/ 460V                                      | 85      | 35      | 50      | 85      |
| 415V   | 85      | 35      | 50      | 85      |
| 380V   | 85      | 35      | 50      | 85      |
| 220/ 240V                                      | 125     | 50      | 85      | 125     |
| Rated service breaking capacity (%Icu), Ics    | 75      | 75      | 75      | 75      |
| Rated making Capacity Icm (kA)                 | 143     | 63      | 88.2    | 143     |
| Utilization category                           | A       | A       | A       | A       |



II Metasol: Moulded case circuit breaker with the following data:

|  | ABN53c | ABN63c | ABN103c | ABS33c       | ABS53c | ABS63c | ABH33c |
|--|--------|--------|---------|--------------|--------|--------|--------|
| Rated insulation voltage AC (V)                        | 1000   | 1000   | 1000    | 1000         | 1000   | 1000   | 1000   |
| Rated operational voltage AC(V)                        | 460    | 460    | 460     | 460          | 460    | 460    | 460    |
| Rated Current (A)                                      | 15-50  | 15-63  | 15-100  | 3-10 / 15-32 | 15-50  | 15-63  | 15-32  |
| Rated Frequency Hz                                     | 50/60  | 50/60  | 50/60   | 50/60        | 50/60  | 50/60  | 50/60  |
| Rated ultimate breaking capacity Icu (kA) 480V         | -      | -      | -       | -            | -      | -      | -      |
| 415/440/ 460V  | 14     | 14     | 18      | 10 / 14      | 18     | 18     | 18     |
| 220/240/ 250V  | 30     | 30     | 35      | 25 / 30      | 35     | 35     | 35     |
| Rated service breaking capacity Ics (kA) 415/ 440/460V | 14     | 14     | 18      | 10/14        | 18     | 18     | 18     |
| 220/240/250V   | 30     | 30     | 35      | 25/30        | 35     | 35     | 35     |
| Rated making Capacity Icm (kA) 415/ 440/460V           | 28     | 28     | 36      | 17/ 28       | 36     | 36     | 36     |
| 220/240/250V   | 63     | 63     | 73.5    | 52.5/63      | 73.5   | 73.5   | 73.5   |
| Utilization category                                   | A      | A      | A       | A            | A      | A      | A      |

|  | ABN53d | ABN63d | ABN103d | ABN103e | ABS33d | ABS53d | ABS63d |
|--|--------|--------|---------|---------|--------|--------|--------|
| Rated insulation voltage AC (V)                        | 1000   | 1000   | 1000    | 1000    | 1000   | 1000   | 1000   |
| Rated operational voltage AC(V)                        | 460    | 460    | 460     | 460     | 460    | 460    | 460    |
| Rated Current (A)                                      | 15-50  | 15-63  | 15-100  | 15-100  | 15-32  | 15-50  | 15-63  |
| Rated Frequency Hz                                     | 50/60  | 50/60  | 50/60   | 50/60   | 50/60  | 50/60  | 50/60  |
| Rated ultimate breaking capacity Icu (kA) 480V         | -      | -      | -       | -       | -      | -      | -      |
| 415/ 440/ 460V   | 22     | 22     | 26      | 31      | 22     | 26     | 26     |
| 220/240/ 250V  | 42     | 42     | 50      | 65      | 42     | 50     | 50     |
| Rated service breaking capacity Ics (kA) 415/ 440/460V | 14     | 14     | 18      | 18      | 14     | 18     | 18     |
| 220/240/250V   | 30     | 30     | 35      | 35      | 30     | 35     | 35     |
| Rated making Capacity Icm (kA) 415/ 440/ 460V          | 46.2   | 46.2   | 54.6    | 65.1    | 46.2   | 54.6   | 54.6   |
| 220/240/250V   | 88.2   | 88.2   | 105     | 143     | 88.2   | 105    | 105    |
| Utilization category                                   | A      | A      | A       | A       | A      | A      | A      |

|   | ABS53e | ABS63e | ABH33d | ABH33e |
|---|--------|--------|--------|--------|
| Rated insulation voltage AC (V)                         | 1000   | 1000   | 1000   | 1000   |
| Rated operational voltage AC(V)                         | 460    | 460    | 460    | 460    |
| Rated Current (A)                                       | 15-50  | 15-63  | 15-32  | 15-32  |
| Rated Frequency Hz                                      | 50/60  | 50/60  | 50/60  | 50/60  |
| Rated ultimate breaking capacity Icu (kA) 480V          | -      | -      | -      | -      |
| 415/ 440/ 460V  | 31     | 31     | 26     | 31     |
| 220/ 240/ 250V  | 65     | 65     | 50     | 65     |
| Rated service breaking capacity Ics (kA) 415/ 440/ 460V | 18     | 18     | 18     | 18     |
| 220/ 240/ 250V  | 35     | 35     | 35     | 35     |
| Rated making Capacity Icm (kA) 415/ 440/ 460V           | 65.1   | 65.1   | 54.6   | 65.1   |
| 220/ 240/ 250V  | 143    | 143    | 105    | 143    |
| Utilization category                                    | A      | A      | A      | A      |

|                                 | ABS103c | ABH53c | ABH103c | ABP53c | ABP103c | ABL53c | ABL103c |
|---------------------------------|---------|--------|---------|--------|---------|--------|---------|
| Rated insulation voltage AC (V) | 1000    | 1000   | 1000    | 1000   | 1000    | 1000   | 1000    |
| Rated operational voltage AC(V) | 460     | 460    | 460     | 460    | 460     | 460    | 460     |
| Rated Current (A)               | 15-125  | 15-50  | 15-125  | 15-50  | 15-125  | 15-50  | 15-125  |

|   |       |       |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|
| Rated Frequency Hz                                      | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 |
| Rated ultimate breaking capacity Icu (kA) 480V          | -     | -     | -     | -     | -     | -     | -     |
| 415/ 440/ 460V  | 37    | 50    | 50    | 42    | 42    | 60    | 60    |
| 220/ 240/ 250V  | 85    | 100   | 100   | 85    | 85    | 125   | 125   |
| Rated service breaking capacity Ics (kA) 415/ 440/ 460V | 37    | 50    | 50    | 42    | 42    | 50    | 50    |
| 220/ 240/ 250V  | 85    | 100   | 100   | 85    | 85    | 100   | 100   |
| Rated making Capacity Icm (kA) 415/ 440/ 460V           | 77.7  | 105   | 105   | 88.2  | 88.2  | 132   | 132   |
| 220/ 240/ 250V  | 187   | 220   | 220   | 187   | 187   | 275   | 275   |
| Utilization category                                    | A     | A     | A     | A     | A     | A     | A     |

|   |         |         |         |         |         |
|---|---------|---------|---------|---------|---------|
|   | ABN203c | ABS203c | ABP203c | ABH203c | ABL203c |
| Rated insulation voltage AC (V)                         | 1000    | 1000    | 1000    | 1000    | 1000    |
| Rated operational voltage AC(V)                         | 460     | 460     | 460     | 460     | 460     |
| Rated Current (A)                                       | 100-250 | 100-250 | 100-250 | 100-250 | 100-250 |
| Rated Frequency Hz                                      | 50/60   | 50/60   | 50/60   | 50/60   | 50/60   |
| Rated ultimate breaking capacity Icu (kA) 480V          | -       | -       | -       | -       | -       |
| 415/ 440/ 460V  | 26      | 37      | 42      | 50      | 60      |
| 220/ 240/ 250V  | 65      | 85      | 85      | 100     | 125     |
| Rated service breaking capacity Ics (kA) 415/ 440/ 460V | 26      | 37      | 42      | 50      | 50      |
| 220/ 240/ 250V  | 65      | 85      | 85      | 100     | 100     |
| Rated making Capacity Icm (kA) 415/ 440/ 460V           | 54.6    | 77.7    | 88.2    | 105     | 132     |
| 220/ 240/ 250V  | 143     | 187     | 187     | 220     | 275     |
| Utilization category                                    | A       | A       | A       | A       | A       |

## Application/Limitation

Shall be installed and tested according to DNV Rules for Classification of Ships, High Speed & Light Craft and Offshore Units.

The manufacturer's instructions to be observed.

Suitable for use in an IT system with a capacity of 1.2 times the maximum trip current at 460 V AC (IEC 60947-2, Annex H).

## Type Approval documentation

Technical info:

1-2 Summary of ratings (Ratings to be improved) (Part of documentation for DNV type approval of Metasol dated 2009-06-12).

4. MCCB Types & Ratings to be approved. (Part of documentation for DNV type approval dated 2006-08-21). "Meta-MEC Low Voltage Circuit Breakers", LSIS catalogue dated 2005-05.

Test reports / certificates:

KEMA CB TEST CERTIFICATE Nos.: NL-17236 issued 2009-11-30, NL-17241/A1 issued 2010-01-07 & NL-17244/A1 issued 2009-12-14. KEMA test reports nos.: 2030431.54 dated 2003-11-26, 2074986.50 & 2074986.50 dated 2005-02-17, 2079653.50, 2079653.51 & 2079653.52, dated 2004-12-15, 2030431.53, dated 2004-04-26, 2109959.50, 2109959.51 & 2109959.52 dated 2008-05-13.

Korea Institute of Machinery & Materials report no. 2005047320-1, issued 2005-01-31. PT&T test reports nos. R45-0138, R45-0139, R45-0140 & R45-041 issued 2005-06-22, 2109959.50, 2109959.51 & 2109959.52 dated 2008-05-13.

ERI test report nos. ERI-EN05-0073/74/75/76/77/78/79 issued 2005-06-22.

CB test certificate DK-66330-UL dated 2017-09-18

CB test certificate DK-66364-UL dated 2017-09-18

CB test certificate DK-66517-UL dated 2017-09-18

UL Test reports 4787859537-1 dated 2017-08-18

UL Test reports 4787859537-2 dated 2017-08-18

UL Test reports 4787859537-3 dated 2017-08-18

Type approval periodical assessment report issued 2015-05-18.

Type approval periodical assessment report issued 2019-04-08

UL CB test certificate Ref. No. DK-97577-UL dated 2020-05-26

UL test report No. 4789371918 dated 2020-05-20

UL CB test certificate Ref. No. DK-97750-UL dated 2020-05-28

UL test report No. 4789371913 dated 2020-05-20

DEKRA CB test certificate Ref. No. NL-87634 dated 2023-05-11

DEKRA test report No. 3327374.50 dated 2023-05-08

Type approval assessment report dated 2024-04-30

## Tests carried out

Type tests in accordance with IEC 60947-2. Inclination-, vibration -, dry heat-, damp heat, low temperature & EMC immunity-test (conducted low frequency).

## Marking of product

- Manufacturer name
- Model name
- Serial number
- Power ratings

## Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE



## Declaration Of Conformity

**MANUFACTURER : LS ELECTRIC Co., Ltd**

**Cheong-Ju Plant#1, 95, Beakbong-ro, Heung deok-gu, 28439,  
Cheongju-si, Chungcheongbuk-do, Republic of KOREA**

**Declaration under our own responsibility that the product(s):**

**Product : Molded Case Circuit Breaker**

**Models : ABS32c/33c/34c, ABN52/53/54c, ABS52c/53c/54c, ABN62c/63c/64c, ABS62c/63c/64c,  
ABN102c/103c/104c, ABN102d/103d/104d, ABH52c/53c/54c, ABS102c/103c/104c,  
ABH102c/103c/104c, ABS103c/104c(FMU)  
ABN202c/203c/204c, ABS202c/203c/204c, ABH202c/203c/204c, ABS203c/204c(FMU)  
ABN402c/403c/404c, ABS402c/403c/404c, ABH402c/403c/404c, ABL402c/403c/404c,  
ABN602c/603c/604c, ABS602c/603c/604c, ABL602c/603c/604c, ABN802c/803c/804c,  
ABS802c/803c/804c, ABL802c/803c/804c, ABS1003b, ABS1203b**

**This declaration is issued under the sole responsibility of the manufacturer.**

**We hereby declare, that the product above is in compliance with the essential  
requirements of the UK Statutory Instruments and their amendments: (if applicable):  
Electrical Equipment (Safety) Regulations 2016**

**The Restriction of the Use of Certain Hazardous Substances in Electrical and  
Electronic Equipment Regulations 2012**

**And that standards and/or technical specifications referenced below have been  
applied :**

***Low-voltage Switchgear and Controlgear***

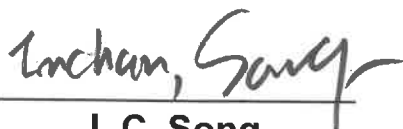
***General rules*** ***BS EN 60947-1:2007+A2:2014***

***Circuit-breakers*** ***BS EN 60947-2:2017- TC***

***Technical Documents*** ***BS EN IEC 63000:2018***

**Done at Plant Cheong-Ju August 29. 2022**

**Signatures :**



**I. C. Song  
Technical Director**



**J. W. Park  
Technical Manager**

**LS ELECTRIC**





# 中国国家强制性产品认证证书

证书编号: 2024120307119461

认证委托人名称及地址

LS ELECTRIC Co., Ltd.

95, Baekbong-ro, HeungDeok-Gu, CheongJu-Si, ChungCheongBuk-Do, Korea

生产者名称及地址

LS ELECTRIC Co., Ltd.

95, Baekbong-ro, HeungDeok-Gu, CheongJu-Si, ChungCheongBuk-Do, Korea

生产企业名称及地址

LS ELECTRIC Co., Ltd. Cheongju 1 Plant

95, Baekbong-ro, HeungDeok-Gu, CheongJu-Si, ChungCheongBuk-Do, Korea

产品名称和系列、型号、规格

塑料外壳式断路器

ABS32c、ABS33c、ABS33cZ、ABS34c、ABS34cZ; Uimp:8kV; Ui:1000V; Ue:AC220V/240V, 380V/415V/460V; In:3A, 5A, 10A, 15A, 20A, 30A; 过电流脱扣器类型:热磁式;

AC220/240V:3A, 5A, 10A: Ics=Icu=25kA; 15A, 20A, 30A: Ics=Icu=30kA;

AC380/415V/460V:3A, 5A, 10A: Ics=Icu=10kA; 15A, 20A, 30A: Ics=Icu=14kA; 选择性类别:A类; 2P、3P、4P(N极可开闭)

产品标准和技术要求

GB/T 14048.2-2020

上述产品符合《强制性产品认证实施规则 低压电器 低压元器件》  
(CNCA-C03-02: 2024)的要求, 特发此证。

发证日期: 2024年08月13日 有效期至: 2029年08月12日

证书信息和有效性可扫描下方二维码或登录发证机构网站查验,  
也可在认监委网站([www.cnca.gov.cn](http://www.cnca.gov.cn))查询。



Signature

方圆标志认证集团  
China Quality Mark Certification Group







# 中国国家强制性产品认证证书

证书编号:2024120307119449

认证委托人名称及地址

LS ELECTRIC Co., Ltd.

127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea

生产者名称及地址

LS ELECTRIC Co., Ltd.

127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea

生产企业名称及地址

LS ELECTRIC Co., Ltd. Cheongju 1 Plant

95, Baekbong-ro, HeungDeok-Gu, CheongJu-Si, ChungCheongBuk-Do, Korea

产品名称和系列、型号、规格

塑料外壳式断路器

ABN52c、ABN53c、ABN53cZ、ABN54c、ABN54cZ、ABS52c、ABS53c、ABS53cZ、ABS54c、ABS54cZ; Uimp: 8kV; Ui:1000V; Ue:AC220V/240V, 380V/415V/460V; In:15A, 20A, 30A, 40A, 50A; 过电流脱扣器类型:热磁式; ABN52c, ABN53c, ABN53cZ, ABN54c, ABN54cZ:AC220/240V: Icu=Ics=30kA, AC380/415V/460V: Icu=Ics=14kA; ABS52c, ABS53c, ABS53cZ, ABS54c, ABS54cZ:AC220/240V: Icu=Ics=35kA, AC380/415V/460V: Icu=Ics=18kA; 选择性类别:A类; 2P、3P、4P(N极可开闭)

产品标准和技术要求

GB/T 14048.2-2020

上述产品符合《强制性产品认证实施规则 低压电器 低压元器件》  
(CNCA-C03-02: 2024)的要求, 特发此证。

发证日期: 2024年08月13日 有效期至: 2029年08月12日

证书信息和有效性可扫描下方二维码或登录发证机构网站查验,  
也可在认监委网站([www.cnca.gov.cn](http://www.cnca.gov.cn))查询。



Signature

方圆标志认证集团  
China Quality Mark Certification Group







# 中国国家强制性产品认证证书

证书编号:2024120307119446

认证委托人名称及地址

LS ELECTRIC Co., Ltd.

127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea

生产者名称及地址

LS ELECTRIC Co., Ltd.

127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea

生产企业名称及地址

LS ELECTRIC Co., Ltd. Cheongju 1 Plant

95, Baekbong-ro, HeungDeok-Gu, CheongJu-Si, ChungCheongBuk-Do, Korea

产品名称和系列、型号、规格

塑料外壳式断路器

ABN202c, ABN203c, ABN203cZ, ABN204c, ABN204cZ, ABS202c, ABS203c, ABS203cZ, ABS204c, ABS204cZ, ABH202c, ABH203c, ABH203cZ, ABH204c, ABH204cZ;  $U_{imp}$ :8kV;  $U_i$ :1000V;  $U_e$ :AC220V/240V, 380V/415V/460V;  $I_n$ : 100A, 125A, 150A, 160A, 175A, 200A, 225A, 250A; 过电流脱扣器类型: 热磁式; ABN202c, ABN203c, ABN204c:AC220/240V:  $I_{cu}$ = $I_{cs}$ =65kA, AC380/415V/460V:  $I_{cu}$ = $I_{cs}$ =26kA; ABS202c, ABS203c, ABS204c:AC220/240V:  $I_{cu}$ = $I_{cs}$ =85kA, AC380/415V/460V:  $I_{cu}$ = $I_{cs}$ =37kA; ABH202c, ABH203c, ABH204c:AC220/240V:  $I_{cu}$ = $I_{cs}$ =100kA, AC380/415V/460V:  $I_{cu}$ = $I_{cs}$ =50kA; 选择性类别:A 类; 2P, 3P, 4P(N 极可关闭)

产品标准和技术要求

GB/T 14048.2-2020

上述产品符合《强制性产品认证实施规则 低压电器 低压元器件》  
(CNCA-C03-02: 2024)的要求, 特发此证。

发证日期: 2024 年 08 月 13 日 有效期至: 2029 年 08 月 12 日

证书信息和有效性可扫描下方二维码或登录发证机构网站查验,  
也可在认监委网站([www.cnca.gov.cn](http://www.cnca.gov.cn))查询。



Signature

方圆标志认证集团  
China Quality Mark Certification Group







# 中国国家强制性产品认证证书

证书编号:2024120307119448

认证委托人名称及地址

LS ELECTRIC Co., Ltd.

127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea

生产者名称及地址

LS ELECTRIC Co., Ltd.

127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea

生产企业名称及地址

LS ELECTRIC Co., Ltd. Cheongju 1 Plant

95, Baekbong-ro, HeungDeok-Gu, CheongJu-Si, ChungCheongBuk-Do, Korea

产品名称和系列、型号、规格

塑料外壳式断路器

ABN402c、ABN403c、ABN403cZ、ABN404c、ABN404cZ、ABS402c、ABS403c、ABS403cZ、ABS404c、ABS404cZ、ABH402c、ABH403c、ABH403cZ、ABH404c、ABH404cZ、ABL402c、ABL403c、ABL403cZ、ABL404c、ABL404cZ;  $U_i$  mp:8kV;  $U_i$ :1000V;  $U_e$ :AC220V/240V, 380V/415V/460V;  $I_n$ :250A, 300A, 350A, 400A; 过电流脱扣器类型:热磁式; ABN402c、ABN403c、ABN403cZ、ABN404c、ABN404cZ:AC220/240V:  $I_{cs}=I_{cu}=50kA$ ; AC380/415V/460V:  $I_{cs}=I_{cu}=37kA$ ; ABS402c、ABS403c、ABS403cZ、ABS404c、ABS404cZ:AC220/240V:  $I_{cs}=I_{cu}=75kA$ ; AC380/415V/460V:  $I_{cs}=I_{cu}=50kA$ ; ABH402c、ABH403c、ABH403cZ、ABH404c、ABH404cZ:AC220/240V:  $I_{cs}=I_{cu}=85kA$ ; AC380/415V/460V:  $I_{cs}=I_{cu}=65kA$ ; ABL402c、ABL403c、ABL403cZ、ABL404c、ABL404cZ:  $I_{cu}=125kA$ ,  $I_{cs}=75\%I_{cu}$  (AC220/240V);  $I_{cu}=85kA$ ,  $I_{cs}=75\%I_{cu}$  (AC380/415V/460V); 选择性类别:A类; 2P, 3P, 4P(3个保护极, N极可开闭)

产品标准和技术要求

GB/T 14048.2-2020

上述产品符合《强制性产品认证实施规则 低压电器 低压元器件》  
(CNCA-C03-02:2024)的要求,特发此证。

发证日期:2024年08月13日 有效期至:2029年08月12日

证书信息和有效性可扫描下方二维码或登录发证机构网站查验,  
也可在认监委网站([www.cnca.gov.cn](http://www.cnca.gov.cn))查询。



Signature

方圆标志认证集团  
China Quality Mark Certification Group







# 中国国家强制性产品认证证书

证书编号: 2024120307119447

认证委托人名称及地址

LS ELECTRIC Co., Ltd.

127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea

生产者名称及地址

LS ELECTRIC Co., Ltd.

127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea

生产企业名称及地址

LS ELECTRIC Co., Ltd. Cheongju 1 Plant

95, Baekbong-ro, HeungDeok-Gu, CheongJu-Si, ChungCheongBuk-Do, Korea

产品名称和系列、型号、规格

塑料外壳式断路器

"ABN102c、ABN103c、ABN103cZ、ABN104c、ABN104cZ; Uimp:8kV; Ui:1000V;  
Ue:AC220V/240V, 380V/415V/460V; In:15A, 16A, 20A, 30A, 32A, 40A, 50A, 60A,  
63A, 75A, 80A, 100A; 过电流脱扣器类型:热磁式; AC220V/240V:Icu=Ics=35kA;  
AC380V/415V/460V:Icu=Ics=18kA; 选择性类别:A类; 2P、3P、4P(N极可开闭) "

产品标准和技术要求

GB/T 14048.2-2020

上述产品符合《强制性产品认证实施规则 低压电器 低压元器件》  
(CNCA-C03-02: 2024)的要求, 特发此证。

发证日期: 2024年08月13日 有效期至: 2029年08月12日

证书信息和有效性可扫描下方二维码或登录发证机构网站查验,  
也可在认监委网站([www.cnca.gov.cn](http://www.cnca.gov.cn))查询。



Signature

方圆标志认证集团  
China Quality Mark Certification Group





# Certificate of Compliance

**Certificate Number:**

UL-US-2422183-0

**Report Reference:**

E532163-20240605

**Issue Date:**

2024-06-07

Issued to:

**LS ELECTRIC Co Ltd**

**95 Baekbong-ro Heungdeok-gu Cheongju-si, Chungcheongbuk-do 28439**

**Republic of Korea**

This certificate confirms that representative samples of:

**JFHR2 - Special-purpose Fuses - Component**

**See Addendum Page for Product Designation(s).**

Have been evaluated by UL in accordance with the component requirements in the Standard(s) indicated on this Certificate. UL Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for installation in complete equipment submitted for investigation to UL LLC.

**UL 248-1, 4th Ed., Issue Date: 2022-10-24, UL 248-13, Edition 3, Issue Date 2022-03-31**

Additional Information:

See UL Product iQ® at <https://iq.ulprospector.com> for additional information.

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Recognized Component Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.



David Piecuch

UL Mark Certification Program Manager



Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact UL Solutions Customer Service at <https://www.ul.com/contact-us>.

# CERTIFICATE OF COMPLIANCE

Certificate number   UL-US-2422183-0  
Report reference     E532163-20240605  
Date                   2024-06-07

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

| Model  | Product Description     |
|--|-------------------------|
| LSG, , followed by R or P, followed by F, K or I, followed by DC1500V, followed by 200, 250, 300 or 320, followed by A, followed by -M or blank. | Fuses - Special Purpose |



David Piecuch  
UL Mark Certification Program Manager

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact UL Solutions Customer Service at <https://www.ul.com/contact-us>.



# Certificate of Compliance

## Certificate Number:

UL-CA-2417692-0

## Report Reference:

E532163-20240605

## Issue Date:

2024-06-07

Issued to:

**LS ELECTRIC Co Ltd**

**95 Baekbong-ro Heungdeok-gu Cheongju-si, Chungcheongbuk-do 28439**

**Republic of Korea**

This certificate confirms that representative samples of:

**JFHR8 - Special-purpose Fuses Certified for Canada - Component**

**See Addendum Page for Product Designation(s).**

Have been evaluated by UL in accordance with the component requirements in the Standard(s) indicated on this Certificate. UL Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for installation in complete equipment submitted for investigation to UL LLC.

**CSA C22.2 No. 248.1:22, 4th Ed., Issue Date: 2022-10-24, CSA C22.2 No. 248.13:22, 3rd Ed., Issue Date: 2022-03-31**

Additional Information:

See UL Product iQ® at <https://iq.ulprospector.com> for additional information.

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Recognized Component Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.



David Piecuch

UL Mark Certification Program Manager



Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact UL Solutions Customer Service at <https://www.ul.com/contact-us>.

# CERTIFICATE OF COMPLIANCE

Certificate number   UL-CA-2417692-0  
Report reference     E532163-20240605  
Date                   2024-06-07

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

| Model  | Product Description     |
|--|-------------------------|
| LSG, , followed by R or P, followed by F, K or I, followed by DC1500V, followed by 200, 250, 300 or 320, followed by A, followed by -M or blank. | Fuses - Special Purpose |



David Piecuch  
UL Mark Certification Program Manager

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact UL Solutions Customer Service at <https://www.ul.com/contact-us>.





СВИДЕТЕЛЬСТВО О ТИПОВОМ ОДОБРЕНИИ  
TYPE APPROVAL CERTIFICATE

Изготовитель  
Manufacturer **LS ELECTRIC CO., LTD. (BRN 116-81-19273)**

Адрес  
Address  
*Юридический адрес / Legal address: 127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, 14119, Korea*

*Заводской адрес / Factory address: Baekbong-ro, Heung deok-gu, Cheongju-si, Chungcheongbuk-do, 27439, Korea*

Изделие\*  
Product\*

*Автоматические выключатели в литом корпусе, типов "Metasol, AB series; Susol, TD/TS series"*

*Molded case circuit breakers, "Metasol, AB series; Susol, TD/TS series"*

Код номенклатуры  
Code of nomenclature **11040607, 11040608**

На основании освидетельствования и проведенных испытаний удостоверяется, что выше-упомянутое(ые) изделие(я) удовлетворяет(ют) требованиям Российского морского регистра судоходства.  
This is to certify that on the basis of the survey and tests carried out the above mentioned item(s) complies(ly) with the requirements of Russian Maritime Register of Shipping.

*Части XI Правил классификации и постройки морских судов, 2021 и Раздела 10, Части IV Правил технического наблюдения за постройкой судов и изготовлением материалов и изделий для судов, 2021 и IEC 60947-2.*

*Part XI of Rules for the Classification and Construction of Sea-Going Ships, 2021 and Section 10, Part IV of Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships, 2021 and IEC 60947-2.*

Настоящее Свидетельство о типовом одобрении действительно до  
This Type Approval Certificate is valid until **26.08.2026**

Настоящее Свидетельство о типовом одобрении теряет силу в случаях, установленных в Правилах технического наблюдения за постройкой судов и изготовлением материалов и изделий для судов.

This Type Approval Certificate becomes invalid in cases stipulated in Rules for the Technical Supervision during Construction of Ships and Manufacture of Shipboard Materials and Products.

Дата выдачи  
Date of issue **26.08.2021** № **21.10639.296**

Российский морской регистр судоходства  
Russian Maritime Register of Shipping

М.П.  
L.S.

(подпись)  
signature

**М. Латухин / M. Latukhin**  
( фамилия, инициалы )  
name

\*Дополнительную информацию смотри на обороте.  
Additional information see overleaf.



Технические данные  
Technical data

| Тип / Type (Metasol, AB series):   | ABH       | ABN       | ABS       | ABL       |
|--|-----------|-----------|-----------|-----------|
| Номинальный ток, In (A) / Rated current, In (A):   | 15 - 400  | 15 - 800  | 3 - 800   | 15 - 800  |
| Ном. рабочее напряжение, Ue (В переменного тока):<br>Rated operation voltage, Ue (V AC):               | 690       | 690       | 690       | 690       |
| Ном. напряжение изоляции, Ui (В переменного тока):<br>Rated insulation voltage, Ui (V AC):             | 1000      | 1000      | 1000      | 1000      |
| Ном. частота, Гц / Rated frequency, Hz:  | 50 / 60   | 50 / 60   | 50 / 60   | 50 / 60   |
| Количество полюсов / Number of poles:  | 2 / 3 / 4 | 2 / 3 / 4 | 2 / 3 / 4 | 2 / 3 / 4 |
| Номин. выдерживаемое импульсное напряжение, Uimp (кВ) /<br>Rated impulse withstand voltage, Uimp (kV): | 8         | 8         | 8         | 8         |

Тип расцепителя / Tripping type: термо-магнитный / thermal magnetic (Metasol, AB series)

Защита / Protection: защита от перегрузки, защита от короткого замыкания / overload protection, short circuit protection (Metasol, AB series)

Техническая документация и дата ее одобрения Российским морским регистром судоходства  
Technical documentation and the date of its approval by Russian Maritime Register of Shipping

Техническая документация одобрена письмом No. 296-381-7-193506 от 29.07.2021.

Technical documentation was approved by RS letter No. 296-381-7-193506 dated 29.07.2021.

Образец изделия испытан под техническим наблюдением Российского морского регистра судоходства.  
Product's specimen has been tested under the technical supervision of Russian Maritime Register of Shipping.Акт № 21.10638.296 от 26.08.2021  
Report No. \_\_\_\_\_ of \_\_\_\_\_Область применения и ограничения  
Application and limitations

Изделия предназначены для использования на морских судах, плавучих сооружениях, стационарных платформах.

Products are intended for using on sea-going ships, floating constructions and fixed offshore platforms.

Вид документа, выдаваемого на изделие  
Type of document issued for product

Документ оформляемый изготовителем (МС) на номинальный ток до 63А / The document drawn up by the manufacturer (MC) for a rated current of up to 63A.

Свидетельство ф.6.5.30(С); Свидетельство ф.6.5.31(С3) при наличии Свидетельства о соответствии контроля качества изготовителя(СКК1) или Документа оформляемый изготовителем(МС) при наличии Свидетельства о соответствии контроля качества изготовителя(СКК2) на ток выше 63А / Certificate f.6.5.30(C); Certificate f. 6.5.31(C3) in the presence of the Certificate of conformity of the manufacturer's quality control (СКК1) or a document drawn up by the manufacturer(MC) in the presence of the Certificate of conformity of the manufacturer's quality control (СКК2) for current above 63A.



ПРИЛОЖЕНИЕ  
ANNEX

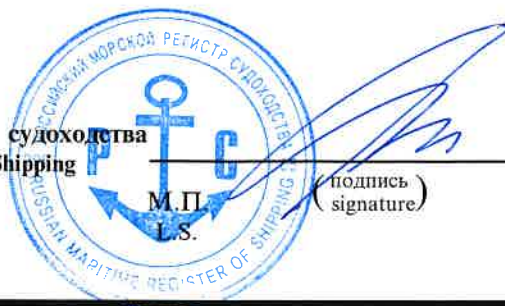
к Свидетельству о типовом одобрении № 21.10639.296  
to the Type Approval Certificate No.

| <i>Тип / Type (Susol, TD/TS series):</i>   | <i>TDN</i> | <i>TDH</i> | <i>TDL</i> | <i>TSN</i> | <i>TSH</i> | <i>TSL</i> |
|--|------------|------------|------------|------------|------------|------------|
| <i>Номинальный ток, In (A) / Rated current, In (A):</i>  | 16 - 160   | 16 - 160   | 16 - 160   | 40 - 800   | 40 - 800   | 40 - 800   |
| <i>Ном. рабочее напряжение, Ue (В переменного тока / В постоянного тока):</i><br><i>Rated operation voltage, Ue (V AC / V DC):</i> | 690 / 500  | 690 / 500  | 690 / 500  | 690 / 500  | 690 / 500  | 690 / 500  |
| <i>Ном. напряжение изоляции, Ui (В переменного тока):</i><br><i>Rated insulation voltage, Ui (V AC):</i>                           | 1000       | 1000       | 1000       | 1000       | 1000       | 1000       |
| <i>Ном. частота, Гц / Rated frequency, Hz:</i>   | 50 / 60    | 50 / 60    | 50 / 60    | 50 / 60    | 50 / 60    | 50 / 60    |
| <i>Количество полюсов / Number of poles:</i>   | 2 / 3 / 4  | 2 / 3 / 4  | 2 / 3 / 4  | 2 / 3 / 4  | 2 / 3 / 4  | 2 / 3 / 4  |
| <i>Номин. выдерживаемое импульсное напряжение, Uimp (кВ) /</i><br><i>Rated impulse withstand voltage, Uimp (kV):</i>               | 8          | 8          | 8          | 8          | 8          | 8          |

*Тип расцепителя / Tripping type: термо-магнитный / thermal magnetic (Susol, TD series);*  
*термо-магнитный или электронный / thermal magnetic or electronic (Susol, TS series)*

*Защита / Protection: защита от перегрузки, защита от короткого замыкания / overload protection, short circuit protection (Susol, TD/TS series)*  
*защита от замыканий на землю / earth fault protection (Susol, TS series)*

Российский морской регистр судоходства  
Russian Maritime Register of Shipping



(подпись)  
signature

М. Латухин / M. Latukhin

( фамилия, инициалы )  
name

## 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.

|                           |   |
|---------------------------|---|
| <b>Manufacturer</b>       | <b>LS ELECTRIC Co., Ltd.</b>  |
| <b>Address</b>            | 95, Beakbong-ro, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do, Republic of Korea  |
| <b>Type</b>               | Circuit Breakers (Env Tested)   |
| <b>Description</b>        | Metasol Molded Case Circuit Breaker   |
| <b>Trade Name</b>         | ABN, ABS, ABH, ABL 400/800AF Series   |
| <b>Application</b>        | Marine, offshore and industrial application for use in environmental categories ENV3 as defined in LR type Approval System Test Specification Number 1–2021 where The Test Specification is satisfactory for the intended operation.  |
| <b>Specified Standard</b> | IEC60947-2 :2016  |
| <b>Ratings</b>            | Rated Voltage : 220V to 460V<br>Current Rating : 250A to 800A<br>See the Appendix   |
| <b>Other Conditions</b>   | Type approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.<br><br>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.<br><br>(In case of applications other than marine) The application of the type approval certificate will be limited to the relevant scope of the specified standard and acceptance thereof by the local authorities. |

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Asia of any modification or changes to the equipment in order to obtain a valid Certificate.

**Previous Version:** LR2003874TA

The Design Appraisal Document LR22310488TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

**Gun-Nam Park**

Senior Specialist to Lloyd's Register Asia  
A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

### Appendix

| Type    | Current rating at 40°C (A) | Rated voltage (V) | Breaking current (r.m.s.) Icu/Ics (kA) | Making Current (Peak-asymmetrical) (kA) | Power factor Icu/Ics | Over current release     | Standard                |
|---------|----------------------------|-------------------|--|---|----------------------|--------------------------|-------------------------|
| ABL403c | 250, 300, 350, 400         | 460/440/415       | 85/65                                  | 187                                     | 0.20                 | Thermal magnetic release | Utilisation category: A |
|         |                            | 250/240/220       | 125/85                                 | 275                                     | 0.19                 |                          |                         |
| ABH403c | 250, 300, 350, 400         | 460/440/415       | 65/65                                  | 143                                     | 0.20                 |                          |                         |
|         |                            | 250/240/220       | 85/85                                  | 187                                     | 0.19                 |                          |                         |
| ABS403c | 250, 300, 350, 400         | 460/440/415       | 50/50                                  | 105                                     | 0.20                 |                          |                         |
|         |                            | 250/240/220       | 75/75                                  | 165                                     | 0.19                 |                          |                         |
| ABN403c | 250, 300, 350, 400         | 460/440/415       | 37/37                                  | 77.7                                    | 0.20                 |                          |                         |
|         |                            | 250/240/220       | 50/50                                  | 105                                     | 0.19                 |                          |                         |
| ABL803c | 500, 630, 700, 800         | 460/440/415       | 85/65                                  | 187                                     | 0.20                 |                          |                         |
|         |                            | 250/240/220       | 125/85                                 | 275                                     | 0.19                 |                          |                         |
| ABS803c | 500, 630, 700, 800         | 460/440/415       | 65/65                                  | 143                                     | 0.20                 |                          |                         |
|         |                            | 250/240/220       | 85/85                                  | 187                                     | 0.19                 |                          |                         |
| ABN803c | 500, 630, 700, 800         | 460/440/415       | 37/37                                  | 77.7                                    | 0.20                 |                          |                         |
|         |                            | 250/240/220       | 50/50                                  | 105                                     | 0.19                 |                          |                         |



Pursuant to the provisions of Executive Order No. 101, Series of 1967,  
and in conjunction with the provisions of  
Republic Act No. 4109, Executive Order No. 913, Series of 1983 and  
Executive Order No. 133, Series of 1987  
and their implementing rules and regulations,  
The Bureau of Philippine Standards hereby grants the license to use the

CONTROL NO.  
0-145861



## Philippine Standard Safety Certification Mark



**CERTIFIED**  
Product Safety

(SYSTEM No. 5 as per ISO/IEC 17067:2013)

In favor of

**LS ELECTRIC CO., LTD.**

95, Baekbong-ro, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do, 361-720 Korea

Having been assessed and found conforming to the requirements of Department Administrative Order No. 4 series of 2008 and its future amendments and revisions, PNS 1573-2:1997 and their implementing guidelines, for its **CIRCUIT BREAKERS** in the scope of certification as described in the attached Certificate No. 1783

Issued on 29 November 2023 at Makati City, Philippines

License No. **Q-1783**

This license is valid until 08 September 2026 subject to the continuing conformity with the PS certification criteria and the Terms and Conditions of this PS License.

Digitally signed by  
Catajay Neil  
Pinuela

**NEIL P. CATAJAY**  
Director



BUREAU OF PHILIPPINE STANDARDS  
3/F Trade and Industry Building  
361 Sen. Gil Puyat Avenue, Makati City  
Tel. No. 632 751 4724 Fax No. 632 751 4735  
Email Address: [bps@dti.gov.ph](mailto:bps@dti.gov.ph)  
Website: [www.bps.dti.gov.ph](http://www.bps.dti.gov.ph)

This license is not valid unless signed by the BPS Bureau Director or his authorized representative and appended to a valid PS certificate. Likewise, All information stated herein shall be published through the BPS and/or DTI website and in any other portal as necessary for the guidance and information of the consumers and the public in general.





Company : LS ELECTRIC CO., LTD.

Plant Address : 95, Baekbong-ro, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do  
361-720 Korea

License No. : Q-1783

Certificate No. : 1783

Revision No. 00

## SCOPE OF CERTIFICATION

Product : CIRCUIT BREAKERS

Brandname : LS

Types/Model : ABS32C 2P (3A,5A,10A,15A,20A,30A), ABS33C 3P (3A,5A,10A, 15A, 20A, 30A), ABS52C 2P (15A, 20A, 30A, 40A, 50A), ABS53C 3P (15A, 20A, 30A, 40A, 50A), ABS62C 2P (15A, 20A, 30A, 40A, 50A, 60A), ABS63C 3P (15A, 20A, 30A, 40A, 50A, 60A), ABS102C 2P (15A, 20A, 30A, 40A, 50A, 60A, 75A, 100A), ABS103C 3P (15A, 20A, 30A, 40A, 50A, 60A, 75A, 100A), ABN52C 2P (15A, 20A, 30A, 40A, 50A), ABN53C 3P (15A, 20A, 30A, 40A, 50A), ABN62C 2P (15A, 20A, 30A, 40A, 50A, 60A), ABN63C 3P (15A, 20A, 30A, 40A, 50A, 60A), ABN101C 1P (16A, 20A, 25A, 32A, 40A, 50A, 63A, 80A, 100A), ABN102C 2P (15A, 20A, 30A, 40A, 50A, 60A, 75A, 100A), ABN103C 3P (15A, 20A, 30A, 40A, 50A, 60A, 75A, 100A), ABH52C 2P (15A, 20A, 30A, 40A, 50A), ABH53C 3P (15A, 20A, 30A, 40A, 50A), ABH102C 2P (15A, 20A, 30A, 40A, 50A, 60A, 75A, 100A), abh103C 3P (15A, 20A, 30A, 40A, 50A, 60A, 75A, 100A) EBS33C 3P (5A, 10A, 15A, 20A, 30A), EBS53C 3P (15A, 20A, 30A, 40A, 50A), EBS63C 3P 60A, EBS103C 3P (15A, 20A, 30A, 40A, 50A, 60A, 75A, 100A) EBN52C 2P (15A, 20A, 30A, 40A, 50A), EBN53C 3P (15A, 20A, 30A, 40A, 50A), EBN63C 3P 60A, EBN102C 2P (60A, 75A, 100A), & EBN103C 3P (60A, 75A, 100A)

Date Approved : 29 November 2023

Nothing follows

Page 2 of 2

Digitally signed by  
Catajay Neil  
Pinuela

NEIL P. CATAJAY  
Director



BUREAU OF PHILIPPINE STANDARDS  
3/F Trade and Industry Building  
361 Sen. Gil Puyat Avenue, Makati City  
Tel. No. 632 751 4724 Fax No. 632 751 4735  
Email Address: [bps@dti.gov.ph](mailto:bps@dti.gov.ph)  
Website: [www.bps.dti.gov.ph](http://www.bps.dti.gov.ph)



This certificate is not valid unless signed by the BPS Bureau Director or his authorized representative and appended to a valid PS Quality and/or Safety Certification Mark License. Likewise, All information stated herein shall be published through the BPS and/or DTI website and in any other portal as necessary for the guidance and information of the consumers and the public in general.





# EU Declaration Of Conformity

**MANUFACTURER : LS ELECTRIC Co., Ltd.**

**Cheong-Ju Plant #1, 95, Beakbong-ro, Heung deok-gu, 28439,  
Cheongju-si, Chungcheongbuk-do, Republic of KOREA**

**Declaration under our own responsibility that the product(s):**

**Product : Molded Case Circuit Breaker**

**Models : ABS32c/33c/34c, ABN52c/53c/54c, ABS52c/53c/54c, ABN62c/63c/64c, ABS62c/63c/64c,  
ABN102c/103c/104c, ABN102d/103d/104d, ABN102e/103e/104e  
ABH52c/53c/54c, ABS102c/103c/104c, ABH102c/103c/104c, ABL102c/103c/104c,  
ABS103c/104c(FMU)  
ABN202c/203c/204c, ABN202c/203c/204c, ABH202c/203c/204c, ABL202c/203c/204c,  
ABS203c/204c(FMU)  
ABN402c/403c/404c, ABS402c/403c/404c, ABH402c/403c/404c, ABL402c/403c/404c,  
ABN602c/603c/604c, ABS602c/603c/604c, ABL602c/603c/604c, ABN802c/803c/804c,  
ABS802c/803c/804c, ABL802c/803c/804c, ABS1003b, ABS1203b**

**Are in conformity with the provisions of the following (E)EU Directive(s)  
when installed in accordance with the installation instructions contained  
in the product documentation :**

**2014/35/EU Low-Voltage Directive**

**2011/65/EU Restriction of the use of certain hazardous substances(RoHS)**

**2015/863/EU RoHS 3**

**And that standards and/or technical specifications referenced below have  
been applied :**

***Low-voltage switchgear and controlgear,***

**General rules EN 60947-1:2007/A2:2014**

**Circuit-breakers EN 60947-2:2017/A1:2020**

**Technical Documents EN IEC 63000:2018**

**Done at Plant Cheong-Ju January 03, 2025.**

**Signatures : Park Junseok  
J.S. Park  
Technical Director**

**Jaeyong Lee  
J.Y. Lee  
Technical Manager**

**LS ELECTRIC**





[www.npower.com.vn](http://www.npower.com.vn)

Tài liệu được tổng hợp bởi đội ngũ kỹ thuật của **NPOWER**

Bản quyền nội dung thuộc về công ty **LS Electric**

Powered by **NAVITECH** | [www.navitech.co](http://www.navitech.co)



[www.npower.com.vn](http://www.npower.com.vn)

Tài liệu được tổng hợp bởi đội ngũ kỹ thuật của **NPOWER**

Bản quyền nội dung thuộc về công ty **LS Electric**

Powered by **NAVITECH** | [www.navitech.co](http://www.navitech.co)