



CERTIFICATE NUMBER

DATE

06-BK196838/1-PDA

13 July 2011

ABS TECHNICAL OFFICE

Busan Engineering Services

## CERTIFICATE OF DESIGN ASSESSMENT

This is to Certify that a representative of this Bureau did, at the request of  
**LS IS CO., LTD. - CHEONGJU-SI**

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

PRODUCT: **Molded Case Circuit Breaker**

MODEL: **1. TD series: TD100, TD160  
2. TS series: TS100, TS160, TS250, TS400, TS630, TS800**

This Product Design Assessment (PDA) Certificate 06-BK196838/1-PDA, dated 13/Jul/2011 remains valid until 12/Jul/2016 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

Sung-Moon Kim

Engineer

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**MA Certificate No.: 09-SE1695257-X**

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**PRODUCT:**  
**Molded Case Circuit Breaker**

**MODEL:**  
**1. TD series: TD100, TD160**  
**2. TS series: TS100, TS160, TS250, TS400, TS630, TS800**

**Intended Service:**  
Low-voltage switchgear and control-gear - Circuit breaker

**Description:**  
Fixed thermal & Magnetic, Adjustable thermal & Magnetic, Adjustable thermal & Fixed magnetic  
Electronic trip unit standard, Electronic trip unit Multi-function

**Ratings:**

1. TD series: TD100, TD160

- a) Frame size(A): 100, 160;
- b) Rated breaking/making capacity: Designated with suffix E, N, S, H, P or L;
- c) Rated ultimate short-circuit breaking capacity(kA) at AC 50/60Hz, 440/460V:
  - TD100: 50, 70, 130 for N, H, L Type respectively
  - TD160: 50, 70, 130 for N, H, L Type respectively
  - TD100: 105, 154, 286 for N, H, L Type respectively
  - TD160: 105, 154, 286 for N, H, L Type respectively

2. TS series: TS100, TS160, TS250, TS400, TS630, TS800

- a) Frame size(A): 100, 160, 250, 400, 630, 800;
- b) Rated breaking/making capacity: Designated with suffix E, N, S, H, P or L;
- c) With or without electronic trip unit: suffix 'ETM' or 'ETS/ETM'
- d) Rated ultimate short-circuit making capacity(kA) at AC 50/60Hz, 440/460V:
  - TS100: 50, 70, 130 for N, H, L Type respectively
  - TS160: 50, 70, 130 for N, H, L Type respectively
  - TS250: 50, 70, 130 for N, H, L Type respectively
  - TS400: 65, 85, 130 for N, H, L Type respectively
  - TS630: 65, 85, 130 for N, H, L Type respectively
  - TS800: 65, 100, 130 for N, H, L Type respectively
  - TS100: 105, 154, 286 for N, H, L Type respectively
  - TS160: 105, 154, 286 for N, H, L Type respectively
  - TS250: 105, 154, 286 for N, H, L Type respectively
  - TS400: 143, 187, 286 for N, H, L Type respectively
  - TS630: 143, 187, 286 for N, H, L Type respectively
  - TS800: 143, 220, 286 for N, H, L Type respectively

For the other rated voltage, see attached Table

LS IS CO., LTD.

**Service Restriction:**

Unit Certification is not required for this product.

**Comments:**

Type Approval is based on KEMA Quality Test Certificates/Reports (1) - Ref. No.: 2074986.50, dated 15 February 2005 and (2) - Ref. No.: 2074986.51, dated 15 February 2005, Proto-Type Test Report R36-0770, -0771, -0772, -0773, -0774, -0775, -0776 & -0777 issued on 26 September 2006 and 2nd Annual Assessment for ABS Type Approved Products, Check Sheet & Report No. SE755711 (Check sheet A & B) dated 11 October 2006.

**Notes / Drawings / Documentation:**

This Product Design Assessment (PDA) is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

**Term of Validity:**

This Product Design Assessment (PDA) Certificate 06-BK196838/1-PDA, dated 13/Jul/2011 remains valid until 12/Jul/2016 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

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**STANDARDS**

**ABS Rules:**

2011 Steel Vessel Rules 1-1-4/3.7, 4-1-1/Table 3 & 4-8-3/5.3.3

2011 MODU Rules 4-3-4/11.1

**National:**

NA

**International:**

IEC Publication 60947-1, IEC Publication 60947-2

**Government Authority:**

NA

**EUMED:**

NA

**Others:**

Manufacturer Specifications