

## Type Approval Certificate Extension

This is to certify that Certificate No. 10/10011 for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

<b>PRODUCER</b>	LSIS Co., Ltd. Chengju Plant #1, Songjeong-dong, Heungdeok-gu, Cheongju-si, 361-720 Korea
<b>PLACE OF PRODUCTION</b>	LSIS Co., Ltd. Chengju Plant #1, Songjeong-dong, Heungdeok-gu, Cheongju-si, 361-720 Korea
<b>DESCRIPTION</b>	Metasol Molded Case Circuit Breaker, 3 pole
<b>TYPE</b>	ABN53c, ABN63c, ABN103c, ABS33c, ABS53c, ABS63c, ABH33c, ABS103c, ABP53c, ABH53c, ABP103c, ABH103c, ABN203c, ABS203c, ABP203c, ABH203c
<b>APPLICATION</b>	Marine, offshore and industrial applications for use in environmental categories ENV3 as defined in LR Type Approval System Test Specification No. 1-2002 where the Test Specification is satisfactory for the intended operation.
<b>DESIGN CODE STANDARD</b>	IEC 60947-2 (2006)

<b>Certificate No.</b>	10/10011(E1)
<b>Issue Date</b>	06 June 2011
<b>Expiry Date</b>	25 March 2015
<b>Sheet</b>	1 of 3

  
H. Murase  
Yokohama Design Support Office  
Lloyd's Register

*Lloyd's Register, registered office:  
71 Fenchurch Street, London EC3M 4BS*

## RATINGS

Type	Current rating at 45°C (A)	Rated voltage (V)	Breaking current (r.m.s.) (kA) I <sub>cu</sub> =I <sub>cs</sub>	Making current (Peak asymmetrical) (kA)	Over current release	Standard
ABN53c	15 - 50	415/460	14	28	Thermal magnetic release	IEC60947-2 (2006) Utilisation category: A
		220/240/250	30	63		
ABN63c	15 - 60	415/460	14	28		
		220/240/250	30	63		
ABN103c	15 - 100	415/460	18	36		
		220/240/250	35	73.5		
ABS33c	15 - 30 (3 - 10)	415/460	14 (10)	28 (17)		
		220/240/250	30 (25)	63 (52.5)		
ABS53c	15 - 50	415/460	18	36		
		220/240/250	35	73.5		
ABS63c	15 - 60	415/460	18	36		
		220/240/250	35	73.5		
ABH33c	15 - 30	415/460	18	36		
		220/240/250	35	73.5		
ABS103c	15 - 125	415/460	37	77.7		
		220/240/250	85	187		
ABP53c	15-50	415/460	42	88.2		
		220/240/250	85	187		
ABH53c	15 - 50	415/460	50	105		
		220/240/250	100	220		
ABP103c	15-125	415/460	42	88.2		
		220/240/250	85	187		
ABH103c	15 - 125	415/460	50	105		
		220/240/250	100	220		
ABN203c	100-250	415/460	26	54.6		
		220/240/250	65	143		

Certificate No. 10/10011(E1)

Issue Date 06 June 2011

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Sheet 2 of 3



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## Ratings Cont'd

Type	Current rating at 45°C (A)	Rated voltage (V)	Breaking current (r.m.s.) (kA) I <sub>cu</sub> =I <sub>cs</sub>	Making current (Peak asymmetrical) (kA)	Over current release	Standard
ABS203c	100-250	415/460	37	77.7	Thermal magnetic release	IEC60947-2 (2006) Utilisation category: A
		220/240/250	85	187		
ABP203c	100-250	415/460	42	88.2		
		220/240/250	85	187		
ABH203c	100-250	415/460	50	105		
		220/240/250	100	220		

*"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 of any modification or changes to the equipment in order to obtain a valid certificate."*

*The attached Design Appraisal Document No. 10/10011(E1) and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

All other details remain as the previous Certificate No. 10/10011 to which this extension should be attached.

Certificate No. 10/10011(E1)  
 Issue Date 06 June 2011  
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 Sheet 3 of 3

  
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# Marine Design Appraisal Document

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Date  
06 June 2011

Quote this reference on all future communications  
YDS/T/AIZ/107474(E10-05)

## THE LR TYPE APPROVAL SYSTEM, 2002.

Issued to: LSIS CO., LTD.

for: METASOL MOLDED CASE CIRCUIT BREAKER, 3 POLE  
TYPE APPROVAL CERTIFICATE No. 10/10011(E1)

The undernoted documents have been reviewed for compliance with the requirements of the LR Type Approval System, 2002 and this Design Appraisal Document forms part of the Certificate.

### APPROVAL DOCUMENTATION

Request for marine services	Form 2502	18 October 2010
Approval services-Request for Quotation	Form LR6606	18 October 2010
14-1 General description of product	-	-
14-2 Design Drawing	-	-
14-3 Performance Specification ( Catalogue )	-	-
CB Test Certificate	NL-17236	30 November 2009
CB Test Certificate	NL-17244/A1	14 December 2009
CB Test Certificate	NL-17241/A1	7 January 2010
Description of changes since previous LR certificate	R&D 623-018	25 April 2011

### TEST REPORTS

14-4-1. Technical file for 100AF	TRF No. IECEN60947_2A	-
14-4-2. Technical file for 125AF	TRF No. IECEN60947_2A	-
14-4-3. Technical file for 250AF	TRF No. IECEN60947_2A	-
Test Report (for ABE 103c)	R49-0911	1 June 2009
Test Report (for ABH 103c)	R49-0912	1 June 2009
Test Report (for ABH 203c)	R49-0913	1 June 2009
Test Report (for ABE 103c)	R49-2019	9 November 2009
Test Report (for ABH 103c)	R49-2020	9 November 2009
Test Report (for ABH 203c)	R49-2021	9 November 2009
CB Test Report	Report Reference No. 2109959.50	13 May 2008
CB Test Report	Report Reference No. 2109959.51	13 May 2008
CB Test Report	Report Reference No. 2109959.52	13 May 2008
CB Test Report	Report Reference No. 2116563.50	27 June 2008
CB Test Report	Report Reference No. 2116563.51	27 June 2008
CB Test Report	Report Reference No. 2116563.52	27 June 2008
CB Test Report	Report Reference No. 2116563.53	27 June 2008
CB Test Report	Report Reference No. 2116563.54	27 June 2008
CB Test Report	Report Reference No. 2116563.55	27 June 2008

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Date  
06 June 2011

Quote this reference on all future communications  
YDS/T/AIZ/107474(E10-05)

Supplementary Type Approval Terms and Conditions

*Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.*

*Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.*

*Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.*

*Lloyd's Register reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.*



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FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Part 2

Circuit Breakers (ENV Tested)

Producer/ Licence No.	Type	Standard	Rating				Short Circuit (kA)	Category/ Additional Tests	Remarks	Cert. No.	
			Normal Current Amperes	A.C. 50/60/400Hz		D.C.					
				Voltage	Power Factor	Voltage					Time Constant Seconds
LSIS Co., Ltd. Choengju Plant #1, Songjeong-dong, Heungdeok-gu, Cheongju, 361-720 Korea	Metasol Moulded Case Circuit Breaker (3 Pole)	IEC60947-2 (2006)	Rated Current at 45°C (A) 15-50	(V) 415/460 220/240/250			(A) Icu/Ics 14/14 30/30	ENV3 (2002)	Expires: 25 March 2015	10/10011(EI)	
	ABN53c		15-60	415/460 220/240/250			(B) Icm 28 63				
	ABN63c		15-100	415/460 220/240/250			18/18 35/35				
	ABN103c		15-30 (3-10)	415/460 220/240/250			14/14 (10/10) 30/30 (25/25)				
	ABS33c		15-50	415/460 220/240/250			18/18 35/35				
	ABS53c		15-60	415/460 220/240/250			18/18 35/35				
	ABH33c		15-30	415/460 220/240/250			37/37 85/85				
	ABS103c		15-125	415/460 220/240/250			42/42 85/85				
	ABP53c		15-50	415/460 220/240/250			50/50 100/100				
	ABH53c		15-125	415/460 220/240/250			42/42 85/85				
	ABP103c										

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 JUN 6, 2011  
 Yokohama Design Support Office

Part 2

Circuit Breakers (ENV Tested)

Producer/ Licence No.	Type	Standard	Rating				Short Circuit	Category/ Additional Tests	Remarks	Cert. No.
			Normal Current Amperes	A.C. 50/60/400Hz		D.C.				
				Voltage	Power Factor					
	ABH103c		15-125	415/460 220/240/250			50/50 100/100			
	ABN203c		100-250	415/460 220/240/250			26/26 65/65			
	ABS203c		100-250	415/460 220/240/250			37/37 85/85			
	ABP203c		100-250	415/460 220/240/250			42/42 85/85			
	ABH203c		100-250	415/460 220/240/250			50/50 100/100			

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 Yokohama Design Support Office



Mr. W.J.Kim

LS Ind. Co.,Ltd

Cheongju Plant #1, Songjeong-dong, Heungdeok-gu, Cheongju,  
361-720, Korea

Date 20 June 2011  
Your ref  
Our ref

Dear Sirs,

**Metasol Molded Case Circuit Breaker, 3 pole**

With satisfactory nature of your tests reports to the subject, hereby Type Approval was granted.

We are pleasure in advising that Type Approval for the above material are issued in accordance with your requisition.

We enclosed herewith the original of Type Approval Certificate No. 10/10011(E1) associated DAD and List entry. Also each one copy of technical documents and test reports were returned with duly endorsed by Yokohama Plan Approval Services (YPAS).

Lloyd's Register of Shipping and me wish you all ways your prosperity, and expressed our best regards our honour to have a chance to serve you.

Sincerely yours,



D.H.KIM  
LR Asia, Seoul

Enclosed: As stated above