

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 LR Type Approval System.

This certificate is issued to:

PRODUCER	Hyundai Heavy Industries Co., Ltd
PLACE OF PRODUCTION	Electro Electric Systems 1, Cheonha-Dong, Dong-Ku, Ulsan 682-792 Republic of Korea
DESCRIPTION	Molded Case Circuit Breakers (ENV tested)
TYPE	HiBE-103 HiBS-53, 63, 103, 203 HiBH-103, 203 HiBL-53NT, 103NT, 203NT HiBX-53NT, 103NT, 203NT
APPLICATION	Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2 and ENV3 as defined in LR Type Approval Test Specification No. 1 -2002 where the Test Specification is satisfactory for the intended operation.
STANDARD	IEC 60947-2 (1998) IEC 60947-1 (1999)

Certificate No.	03/10076
Issue Date	15 December 2003
Expiry Date	14 December 2008
Sheet	1 of 2



Y. Hara
Yokohama Plan Approval Services
Lloyd's Register Asia

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

RATINGS

Alternating Current

Type	Current rating at 45°C (A)	Rated voltage (V)	Breaking current (r.m.s.) (kA) Icu/Ics	Making current (Peak asymmetrical) (kA)	Power factor Icu/Ics	Over current release (See Note)	Standard
HiBE-103	5 - 100	460	10/5	17	0.45/-	(1)	IEC60947-2
HiBS-53 HiBS-63	5 - 50 5 - 60	460	10/5	17	0.45/-		
HiBS-103 HiBS-203	15-100 125 - 225	460	25/12.5	52.5	0.2/-	(2)	
HiBH-103 HiBH-203	15 - 100 125 - 225	460	35/17.5	73.5	0.2/-		
HiBL-53NT HiBL-103NT HiBL-203NT	15 - 50 15 - 100 125 - 225	460	85/85	187	0.2/-		
HiBX-53NT HiBX-103NT HiBX-203NT	15 - 50 15 - 100 125 - 225	460	100/100	220	0.2/-		

Note: (1) Magnetic release
(2) Thermal & magnetic release

"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."

The Design Appraisal Document No.03/10076 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No. 03/10076
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Sheet 2 of 2



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Part 2

Circuit Breakers

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	Voltage					Time Constant Seconds
Hyundai Heavy Industries Co., Ltd Electro Electric Systems 1, Cheonha-Dong, Dong-Ku, Ulsan 682-792 Republic of Korea	Molded Case Circuit Breakers Type:	IEC 60947-2 IEC 60947-1	50/60Hz				ENV1 ENV2 ENV3 (2002)	Expires: 14 December 2008	03/10076		
	HIBE-103		460V	0.45/-		A: Breaking current B: Making current (kA) A (r.m.s.) B (Peak) Icu/Ics 10/5 17		Magnetic release			
	HIES-53		"	0.45/-		10/5 17		"			
	HIES-63		"	0.2/-		25/12.5 52.5		Thermal & magnetic release			
	HIES-103		"	0.2/-		35/17.5 73.5		"			
	HIES-203		"	0.2/-		85/85 187		"			
	HIBH-103					100/100 220		"			
	HIBH-203										
	HIBL-53NT										
	HIBL-103NT										
	HIBL-203NT										
	HIBX-53NT										
HIBX-103NT											
HIBX-203NT											

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Design Appraisal Document

Date	15 December 2003	Quote this reference on all future communications	YPA/T/YHA/29422 (E03-65)
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THE LR TYPE APPROVAL SYSTEM, 2002.
Issued to: HYUNDAI HEAVY INDUSTRIES CO., LTD
for: MOLDED CASE CIRCUIT BREAKERS
TYPE APPROVAL CERTIFICATE No. 03/10076

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 Forms dated 10 March 2003
Manufacturer's Catalogues and Drawings

TEST REPORTS

Test Report Nos. 03-001 to 03-013 dated 4 March 2003
Environmental Test Report Nos. HHI-CB-EV-030501, 030506 and 030508 dated 4 June 2003
Environmental Test Report No. HHI-CB-EV-030507 dated 5 June 2003

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 Asia 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