

LR Type Approval Certificate

This is to certify that the undemoted 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	1, Cheonha-Dong, Dong-ku, Ulsan, Korea
DESCRIPTION	Air Circuit Breaker
TYPE	HAT16, HAT25, HAT40
APPLICATION	Protection and switching of generator and distribution circuits for marine, offshore and industrial applications
SPECIFIED STANDARD	ANCI C37.13-1990 IEC947-2-1997, Annex F

CERTIFICATE NO. 00/10014

ISSUE DATE 29 March 2000

EXPIRY DATE 28 March 2005

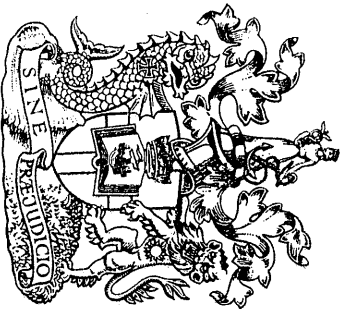
SHEET 1 of 2

M. Kaneda

Lloyd's Register

Lloyd's Register of Shipping
71 Fenchurch Street, London EC3M 4BS

Lloyd's Register



Continuation

RATINGS

Alternating Current

Type	Current rating at 40°C (A)	Rated voltage (V)	Breaking current (r.m.s.) (kA)	Making current (peak asymmetrical) (kA)	Power factor Icu/Ics	Over-current release (See Note)	Standard
HAT16	1600	508	50	122	0.15	1+2+3	ANSI C37.13
HAT25	2500	508	65	154	0.15	1+2+3	
HAT40	3600	508	65	196	0.15	1+2+3	

Note: Solid state over current release: adjustable

1. Long time delay trip
2. Short-time delay trip
3. Instantaneous trip

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

The Design Appraisal Document No.00/10014 forms a part of this certificate.

CERTIFICATE NO. 00/10014

ISSUE DATE 29 March 2000

EXPIRY DATE 28 March 2005

SHEET 2 of 2


M. Kaneda



Lloyd's Register of Shipping
71 Fenchurch Street, London EC3M 4BS

LR Type Approval Certificate Extension

This is to certify that Certificate No.97/00085 for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

PRODUCER Hyundai Heavy Industries Co.,Ltd.

PLACE OF PRODUCTION Industrial & Power Systems
1, Cheonha-Dong, Dong-Ku, Ulsan, 682-061, Republic of Korea

DESCRIPTION Three Pole Air Circuit Breakers, Withdrawable

TYPE HAT 12, HAT 20, HAT 32

APPLICATION Marine, Offshore and Industrial Applications Protection, Isolation and Switching of Generator and Distribution Circuits.

DESIGN CODE IEC 60947-2: 1989, Utilisation Category B

RATING

Type	Current rating at 45° (A)	Rated voltage (V)	Breaking current (rms asymmetrical) Icu/Ics (KA)	Making current (peak asymmetrical) Icm (KA)	Power factor Icu/Ics	Overcurrent release	Standard
HAT 12	1250	500	50	105	0.25	see note 1	IEC 947-2
		660	35	73.5	0.25	see note 1	IEC 947-2
HAT 20	2000	500	50	105	0.25	see note 1	IEC 947-2
		660	35	73.5	0.25	see note 1	IEC 947-2
HAT 32	3200	500	50	105	0.25	see note 1	IEC 947-2
		660	45	94.5	0.25	see note 1	IEC 947-2

Certificate No. 03/10034 (E1)

Issue Date 19 June 2002

Expiry Date 18 June 2007

Sheet 1 of 2



Y. Hara

Yokohama Plan Approval Services

- Notes:
- (1) Solid state microprocessor based overcurrent release
Overload: adjustable long time delay trip
Short-circuit: adjustable short time delay trip + adjustable
Instantaneous trip.
- (2) $I_{w} = I_{cu} = I_{s}$

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

The attached Design Appraisal Document No. 03/10034 (E1) and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. 97/00085 to which this extension should be attached.

Certificate No.	03/10034 (E1)
Issue Date	19 June 2002
Expiry Date	18 June 2007
Sheet	2 of 2



Y. Hara
Yokohama Plan Approval Services

Part 1

Subject: Electrical Equipment (Not Environmentally Tested)

Product: Circuit Breakers

Producer/Licence No.	Description of Product					Cert. No.		
	Type	Details of Approval			Application		Remarks	
Hyundai Heavy Industries Co. Ltd., (Industrial & Power Systems), 1, Cheonha-Dong, Dong-Ku, Ulsan, 682-060, Republic of Korea	3 pole Air Circuit Breakers, Withdrawable	Short Circuit Characteristics (ac) Current Rated Breaking Making Power Rating at Voltage Capacity Capacity Factor 45°C (A) (V) (kA) (kA)					Marine, offshore and industrial applications. Protection, Isolation and switching of Generator and distribution circuits. Expires: 18 June 2007 Standard: IEC 60947-2, Utilisation Category B Solid state microprocessor based overcurrent release. Overload: adjustable long time delay trip Short-circuit: adjustable short time delay trip + adjustable instantaneous trip I _{cw} =I _{cu} =I _{es}	03/10034 (E1)
	HAT 12	1250	500	50	105	0.25		
	HAT 20	2000	500	50	105	0.25		
	HAT 32	3200	500	50	105	0.25		
			660	35	73.5	0.25		
			660	35	73.5	0.25		
			500	50	105	0.25		
			660	45	94.5	0.25		

Page	1 of 1
Document number	03/10034 (E1)
Issue number	1

DESIGN APPRAISAL DOCUMENT

Date	19 June 2002	Quote this reference on all future communications	YPA/T/YHA/TAO/27328/(E03-19)
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LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 1996.
Issued to: **HYUNDAI HEAVY INDUSTRIES CO., LTD.**
for: **THREE POLE AIR CIRCUIT BREAKERS, WITHDRAWABLE**
TYPE APPROVAL CERTIFICATE No. 97/00085

The undernoted documents have been reviewed for compliance with the requirements of Lloyd's Register's Type Approval System, 1996 and this Design Appraisal Document is a supplement to the Certificate.

APPROVAL DOCUMENTATION

Request for Quotation and Request for Services dated 10. 03. 2003

TEST REPORTS

965-0702 KRISS Certificate of testing	15. 07. 1996
12910 Falcon Laboratories	06. 05. 1996
1677 Falcon Laboratories	06. 05. 1996
12911 Falcon Laboratories	06. 05. 1996

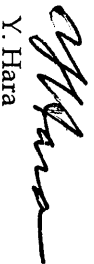
Supplementary Type Approval Terms and Conditions

LR 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.

LR Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules of Lloyd's Register of Shipping are complied with.

This LR Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations of Lloyd's Register of Shipping.

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



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