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Certificate No:
MED-MB-1135-15
MED Item No. : MED/3.42b

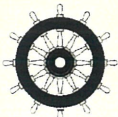
This consists of 5 pages.
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EC CERTIFICATE OF CONFORMITY as per Module B of European Council Directive 2014/90/EU on Marine Equipment (MED)

THIS IS TO CERTIFY that KR Hellas Ltd., designated by the Hellenic Republic as Notified Body according to Council Directive 2014/90/EU on Marine Equipment, did undertake the EC Type Examination procedures for the equipment identified below which was found to be in compliance with the requirements of Marine Equipment Directive (MED) 2014/90/EU:

Manufacturer	Name	: Kangrim Heavy Industries Co., Ltd.
	Address	: 76, Yeondeok-ro, Seongsan-gu, Changwon, Gyungnam, Korea
Authorised Representative	Name	: Ravebo B.V
	Address	: Woud 2, 3232 LN Brielle, Netherlands
Regulation Item (MED item designation)		: Inert gas system : Single components
Product Types		: Inert gas fans/blowers(KB03/04/05/11/12/13/23/32/33/34/35/36, KR01), Inert gas generator (KG01/11/12/13/14/16/17/18/19/20/21, KT01), Deck water seal (KD04/05/06/07/08/11, KWD03/04/05/06/07/08, DS08V)
Specified Standards [(EU) 2020/1170]		: SOLAS 74 Reg. II-2/4, IMO Res.A.567(14), IMO Res.MSC.98(73)-(FSS Code) 15, IMO MSC/Circ.353 as amended by IMO MSC/Circ. 387, IMO MSC/Circ.485, 731 & 1120
Date of issue		: 16 th July 2020
Date of reissue		: 25 th June 2021
Expiration Date		: 15 th July 2025

Issued at Athens, under the authority of the Hellenic Republic by **KR Hellas Ltd.**



Notified Body No.2198



(KRH Endorse)

Dr. Nikos Katiforis

Quality Manager of KR Hellas Ltd.



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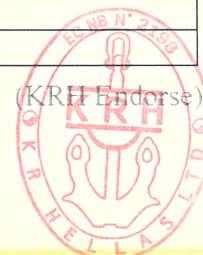
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Attachment to EC Type Examination Certificate(1/4)

Product Description :

1. The equipment is intended for installation onboard ships for the purpose of producing inert gas.
2. Inert gas system single components specification

Equipment	Model	Nomial capacity (m ³ /h)
Inert gas fans/blowers	KB03	7001~10000
	KB04	10001~13000
	KB05	13001~16000
	KB11	0~2470
	KB12	2471~5840
	KB13	5841~8680
	KB23	7001~10000
	KB32	3501~7000
	KB33	7001~10000
	KB34	10001~13000
	KB35	13001~16000
	KB36	16001~20000
	KR01	0~680
	KG01	3521~5840
Inert gas generator	KG11	420~680
	KG12	681~1520
	KG13	1521~2470
	KG14	2471~3520
	KG16	5841~8680
	KG17	8681~12150
	KG18	12151~15310
	KG19	15311~21060
	KG20	21061~25440
	KG21	25441~30704
	KT01	500
Deck water seal	KD04	6501~9500
	KD05	9501~11500
	KD06	11501~15000
	KD07	15001~19500
	KD08	19501~25000
	KD11	0~5250
	KWD03	0~5250
	KWD04	6501~9500
	KWD05	9501~11500
	KWD06	11501~15000
	KWD07	15001~19500
	KWD08	19501~25000
	DS08V	12501~15500





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Attachment to EC Type Examination Certificate(2/4)

Product Description : (Continued)

3. Additional products specification

Equipment	Model	Nomial capacity (m ³ /h)	
Scrubber	KS01	500~3700	
	KS02	3701~6000	
	KS03	6001~8000	
	KS04	8001~11000	
	KS05	11001~15000	
	KS06	15001~20000	
	KS07	20001~25000	
Equipment	Model	Oil/Product Carrier(m ³ /hr)	LNG/LPG Carrier(m ³ /hr)
Combined Inert Gas Generator(IGG) & Inert Gas Scrubber(IGS)	KCG01	3521~5840	2471~3520
	KCG16	5841~8680	3521~5840
	KCG17	8681~12150	5841~8680
	KCG18	12151~15310	8681~12150
	KCG19	15311~21060	12151~15310

Type examination documentation:

1. Technical file including the drawing of Inert Gas Generator(KG01/11/12/13/14/16/17/18/19/20/21), Inert Gas Topping Up Generator(KT01), Scrubber(KS04/05/06/07), Roots Blower(KR01), Centrifugal Blower(KB03/04/05/11/12/13/23/32/33/34/35/36), Deck Water Seal(KD04/05/06/07/08/11) was approved by Korean Register dated 13.07.2015.
2. Technical file including the drawings of combiner IGG & IGS(KCG01/16/17/18/19) was approved by Korean Register dated 27.02.2014.
3. Technical file including the drawings of scrubber(KS01/02/03), Deck Water Seal(KWD03/04/05/06/07/08) as approved by Korean Register dated 21.02.2012.
4. Report of conformity assessment for Module B, No. KRH-0201-2015 dated 14.07.2015, issued by Korean Register.
5. Report of conformity assessment for Module B, No. KRH-0215-2021 dated 23.06.2021, issued by KR Hellas Ltd.





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Attachment to EC Type Examination Certificate(3/4)

Test carried out :

1. Testing according to IMO MSC/Circ.353 as amended by MSC/Circ.387 was carried out at the premises of the manufacturer, witnessed by DNV & KR surveyors.

Application/Limitations of Use:

1. This certificate will not be valid if the manufacturer makes any changes or modifications to the approved type of equipment, which have not been notified to, and agreed with the notified body named on this certificate.
2. The equipment is not permitted to be installed in spaces subject to explosion hazards.
3. Installation, operating and maintenance manual should be provided onboard and available in the ship's official language.
4. The manufacture shall inform the revisions of the approved condition to notified body.
5. All single components of inert gas system are subject to case by case approval.

Conditions of the validity:

1. The products are to be manufactured in accordance with the approved production quality assurance system (Module D) or approved product assurance system (Module E), or are to be subjected to product verification (Module F) of the Council Directive 2014/90/EU on Marine Equipment.
2. If the Directive or the applied Standard(s) is amended, the product is to be re-approved in accordance with the amended requirements prior to it being supplied to vessels to which the amended Directive or Standard(s) apply. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this certificate invalid.
3. The manufacturer must inform the "Notified Body" of all modifications which may affect compliance with the requirements.
4. The mark of conformity may only be affixed to the product and a declaration of conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.






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Attachment to EC Type Examination Certificate(4/4)

Marking of product:

1. Marking of product for identification
 - Manufacturer's name
 - Type and serial number
 - Operational or installation limit considered necessary by the manufacturer.
2. Mark of Conformity

The manufacturer is allowed to affix the Mark of Conformity  according to Chapter 2, Article 9, 10 of the Council Directive 2014/90/EU on marine equipment and issue a Declaration of Conformity, only when the module D or E or F of Annex II of the directive is fully complied with.

Remark:

1. Reissued on 16th July 2020.
 - Renewal of existing certificate issued on 16th July 2015.
2. Reissued on 25th June 2021.
 - Addition of single components (Deck water seal:DS08V).

End of Certificate

