

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Contactor Relay

with type designation(s)

HGR04/13/22/31/40, HGC TB02/11/20/04/13/22/31/40

Issued to

Hyundai Electric & Energy Systems Co., Ltd.
ULSAN, Republic of Korea

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Busan** on **2020-03-12**

This Certificate is valid until **2025-03-04**.

DNV GL local station: **Ulsan**

for **DNV GL**

Approval Engineer: **Eun Sook Kim**

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Andreas Kristoffersen
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

Auxiliary Relay, Auxiliary Contact Block

HGR04, HGR13, HGR22, HGR31, HGR40, HGC TB02, -11, -20, -04, -13, -22, -31, -40

Rated insulation voltage U_i :	690 VAC
Rated impulse withstand voltage U_{imp} :	6 kV
Rated operational current:	
Utilization category AC15 (120V):	6 A
Utilization category AC15 (240V):	4 A
Utilization category AC15 (500V):	3 A
Utilization category AC15 (690V):	2 A
Utilization category DC13 (24V):	6 A
Utilization category DC13 (48V):	2.8 A
Utilization category DC13 (120V):	1.1 A
Utilization category DC13 (240V):	0.55 A
Utilization category DC13 (480V):	0.31 A
Utilization category DC13 (600V):	0.2 A

Type Approval documentation

Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, December 2019 for:

- Temperature: B
- Humidity: A
- Vibration: A

IEC 60947-5-1:2003+A1:2009

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE