

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electrical Indicators

with type designation(s)

Remote indicators, Remote speed indicator, Moving coil instruments for remote indicators

Issued to

Dr. E. Horn GmbH
Schönaich Baden-Württemberg, Germany

is found to comply with

DNV GL rules for classification – Ships

Application :

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

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Remote indicators, Remote speed indicator	B	B	B	B	Required protection according to the Rules shall be provided upon installation on board.
Moving coil instruments for remote indicators	B	B	B	B	Required protection according to the Rules shall be provided upon installation on board.

Issued at **Hamburg** on **2017-09-26**

This Certificate is valid until **2022-09-25**.

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Andrea Grün**

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Joannis Papanuskas
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

Remote indicators, Remote speed indicator, Moving coil instruments for remote indicators
Type EA ... , WEG058

EA80...; EA 100 ... and EA 160 ... Sp : Panel IndicatorRange of Application
Degree of Protection : IP 53 inside or top mounting
IP 00 connections
with connection box IP 56

EA 106... and EA 107 ... : Waterproof Indicator
Degree of Protection : IP 66, for EA 107.2e S8-1 DW IP 64

EA 150 ... : Panel Indicator (IP 53 inside or top mounting)
EA 188... and and EA 232 ... : Waterproof Indicator (IP 66)
EA 72 x 72; 96 x 96 ; EA 144 x 144 and 192 x 192 : Panel indicator (IP 54)
EA...1 Input : AC Voltage
EA...2 Input : DC Voltage

All indicators except EA 100 ... can be delivered with illumination.

The instruments are equipped with a moving coil instrument type:
WEG05811: 240° needle deflection, up to 74 mm. needle length
WEG05821: 120-0-120° needle deflection, up to 74 mm. needle length

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL Rules for Ships/Offshore Standards Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, November 2016.

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number

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