

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Indicator

with type designation(s)

Dq 96 syn, Dq 144 syn, AZqs 96, AZqs 144, V-Aqs 96, Aqs 144, Fq 96c, Fq 144c, Dqs 96, Dqs 144

Issued to

Gilgen, Müller & Weigert (GMW) GmbH & Co. KG
Cadolzburg, Germany

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.

Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	B

Issued at **Hamburg** on **2018-09-10**

This Certificate is valid until **2023-09-09**.

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Marco Rinkel**

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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

Synchronizing Panel Meters

Degree of protection: IP 54 (front)

Casing: steel, option: Polycarbonate UL 94 V0 for V-Aqs 96

Synchronoscope, type

Dq 96 syn; Dq 144 syn, ranges: 100V to 500 V AC 50 Hz or 60 Hz

Double voltmeter, type:

AZqs 96; AZqs 144, ranges: 100 V to 600 V AC, 15 Hz to 65 Hz

Zero voltmeter, type:

V-Aqs 96, Aqs 144, ranges: 100 V to 500 V AC, 15 Hz to 65 Hz

Double Reed frequency meter, type:

Fq 96c; Fq 144c: 13 or 21 reeds 50 Hz or 60 Hz

Electrodynamic power meter, type:

Dqs 96: for 2 to 4 conductor system, CT.../1 A or .../ 5A

Dqs 144: for 2 to 4 conductor system, CT.../1 A or .../ 5A

Application/Limitation

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 Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

Test report : E14/Götz 9.82 and E11/Götz 3.88

Data sheet: E1/26, E1/28, E1/29, E1/30, E1/31

Type Approval documentation

Test Report: E 11/Götz (01/88 to 08/88) dated 07.03.1988

Documentation: Product specification; Reference list "Vario Serie" - "Basis Serie".

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

Marking of product

The products to be marked with:

- model name
- manufacturer name
- serial number

Job Id: **262.1-029093-1**
Certificate No: **TAA00001Y4**

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