DNV·GL

Certificate No:
TAA000020Z

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Control and monitoring of watertight doors

with type designation(s)
ECS 2100 WT

Issued to
Advanced Pneumatic Marine GmbH
Reinfeld (Holstein), Schleswig-Holstein, 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	**A**
Humidity	**B**
Vibration	**A**
EMC	**A**
Enclosure	**See following pages**

Issued at **Hamburg** on **2018-12-12**
This Certificate is valid until **2023-12-11**.
DNV GL local station: **Hamburg**

Approval Engineer: **Marco Rinkel**

for **DNV GL**

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.

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Product description

Electric door drive control system for watertight sliding doors.

Drive System	
Traction Power	10500 N
Speed	30 mm/s
Voltage Input	115 VAC – 230 VAC
Frequency	47 – 63 Hz
Current Input	5,3 – 2,65 A
Voltage Output	20 – 26,4 V DC
Current Output max.	29 A
Emergency Cycle	2 (5)
Engine Speed	3.350 U/min
Type of motors	GR 80x80

Battery
Type Two A512 / 6,5Ah
Voltage 12 (24) V dc

Firmware version: 3.xx (x = minor modifications, bug fixes etc.)
Hardware version: 3.03

Degree of protection acc. to IEC 60529:2014:
Control cabinet (IPX7)
Control Buttons (IPX7)
Electrical motor/Generator (IPX7)
Door position indicator (IPX8; 10 m/36 h)
Door movement warning signal unit (IPX6)
Battery (IPX7)

Application/Limitation

The following documentation of the actual application is to be submitted for approval in each case:

- Scope of supply
- Reference to this Type Approval Certificate
- System block diagram
- Power supply arrangement (may be part of the System block diagram)
- Test program for certification (only when in connection with a computer based management system)

The Type Approval covers hardware and software listed under Product description.

As long as the units are covered by the Type Approval, a product certificate according to Pt.4 Ch.9 Sec.1 [1.2.3] will not be required. Correct configuration and set up for each delivery to be tested during commissioning after installation.

Conditions for application functions.
When used in connection with a computer based management system each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system according to an approved test program before the system is shipped to the yard. After the certification the clause for application software control will be put into force.

Clause for application software control
All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

The control system can be used for sliding doors having a maximum leaf weight of 600 kg.

Type Approval documentation
See ANNEX

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

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

ANNEX
Type Approval documentation
(hidden)