

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Remote Control System Diesel Engine**

with type designation(s)
CQDY (electric pneumatic mixed type),
CDQY (electric type)

Issued to

Henan Guangcai Electric Co., Ltd.
Anyang, China

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
CQDY (electric pneumatic mixed type)					See limitations
CDQY (electric type)	A	A	A	B	See limitations

Issued at **Høvik** on **2017-11-20**This Certificate is valid until **2022-11-19**.for **DNV GL**DNV GL local station: **Qingdao**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

Devices used for CQDY and CDQY:

GCCZ-07-04 (Auxiliary Telegraph)	SW version FCZ07.0506
SIEMENS CPU 226, SW version P.090511	
GCJB-05/16XS01 (Alarm Display Panel)	SW version BJXS16.0906
GCJB-05/16ZK01/00 (Alarm Acquisition Panel)	SW version ZK16.0906
QC-401 (Diaphragm Actuator)	
GCQY (Air Supply Disposal Panel)	
Power Supply: AC220V / DC24V	

Devices used for CQDY

QC-301 (Air-Electric R/C Manipulator)	SW version QC301.0506
GC-CZQVDR (Engine Order Transfer)	SW version CLVDR.0506
GC-CLXS-000-01 (WHC Order Display Panel)	SW version CLXS.0906
CQDY-KZX (Local Control Box)	
CQDY-FX (Local Valve Box)	

Devices used for CDQY

GCKYD-1 (Electric R/C Manipulator)	SW version YKD1.0906
GC-CLXS-WHR-02 (WHC Order Display Panel)	SW version CLXW.0506
CDQY-KZX (Local Control Box)	
CDQY-FX (Local Valve Box)	

Application/Limitation

DNV GL type approved power supply unit is to be used.

Distance to steering magnetic compass is to be at least 5m.

Required protection according to DNV GL Rules shall be provided upon installation.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. 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. The records of all changes are to be forwarded to DNV GL for evaluation and approval. Major changes in the software are to be approved before being installed.

DNV GL type approved power supply unit is to be used.

Distance to steering magnetic compass is to be at least 5m.

Type Approval documentation

Tests carried out

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

Marking of product

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 typeapproved 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