



Certificate no.:
TAP00002Y0

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Flexible Hoses for CO2 Systems**

with type designation(s)
QZ-08DH, QZ-04PH

issued to

NINGBO QINGZE ELECTROMECHANICAL EQUIPMENT CO., LTD.
Ningbo, Zhejiang Province, China

is found to comply with

DNV class programme DNV-CP-0183 – Type approval – Flexible non-metallic hoses

Application:

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

Temperature range: - 60°C up to + 100°C

Max. working press.: 160bar, 225bar

Sizes: 1/2", 1/4"

Issued at **Hamburg** on **2024-12-05**

This Certificate is valid until **2029-12-04**.

for **DNV**

DNV local unit: **Ningbo FIS**

Approval Engineer: **Hagen Markus**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Flexible rubber hose assemblies with permanently fitted couplings. Hose types 1SN according to ISO1436, GB/T3683/EN853

Hose construction

Tube: Oil resistant synthetic rubber

Reinforcement: One steel wire braid

Cover: Weather and oil-resistant synthetic rubber

Drawings Flexible Hose Assemblies for CO2 System

Drawing No	Type	Sizes	MAWP
NBQZ -08	QZ-08DH (1SN-1/2")	Dash 8, 1/2" inch, DN12.5	160bar
NBQZ -04	QZ-04PH (1SN-1/4")	Dash 4, 1/4" inch, DN6.3	225bar

Hose end fittings

Component	Type	Materials
Inserts	04PH, 08DH01, 08HD02	Carbon steel: C35, C45 acc. to GB/T 699
Ferrules	QZ04, QZ08	C20

Application/Limitation

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled, and delivered by the holder (named as manufacturer) of this certificate.

Approved for use for high pressure CO2 fire extinguishing system and Nitrogen applications.

Flexible hoses are only to be used in short lengths where it is necessary due to vibrations or flexible mounting of the machinery. The hoses shall not replace/be used where permanent piping is possible/required.

The hose assemblies must only be fitted in places where they are always accessible and shall be mounted in accordance with the manufacturer's instructions.

Hose assemblies covered by this certificate shall not be used in system subject to pressure below atmospheric or vacuum condition.

The hoses shall be pin pricked according to manufacturer's written procedure.

Type Approval documentation

Tests carried out

Type test scope on hose

Dimensional check, change in length, leakage test, cold flexibility test, resistance against liquid, cover adhesion, vacuum test, ozone resistance

Type test scope on hose assemblies

Impulse test (ISO 1436, ISO 6803), Proof pressure hold test, burst pressure test (ISO 1436)

Type test scope CO2 hose assemblies CP-0183, Sec. 3.5

Burst pressure test at - 60°C, Validation of pin-prick procedure, Endurance test with liquid carbon dioxide

Production and testing

Crimping procedure

Document Q/QzJD,CP-2023 - CRIMPING PROCEDURE Of Flexible Hose Assemblies for CO2 System, Version A

Each hose assembly shall be subject to a pressure test of at least 1.25 times the relief valve setting of CO2 manifold or minimum 125 bar.

Alternatively, pressure test may be carried out with 1.5 times MAWP of the hose.

Appropriate works certificate to be issued for each batch.

Marking of product

For traceability to this Type Approval, the hose assembly ferrule is to at least to be marked with:

Scope	Example
Plant Code and product type	QZ-08DH
Pressure Rating bar	WP160
Manufacturing date month, year	0124

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNV-CP-0338, Section 4.

In addition, burst pressure testing on selected sizes to be carried out during renewal of the certificate.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

End of certificate