



Certificate No:
TAP000029J

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Hydraulic Actuator for Valve (Not Hydraulic Motor)

with type designation(s)
QHD

Issued to
QRP TECH
Busan, Republic of Korea

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV.
Dsgn. press./Torque 160 bar / see approval documents

Issued at **Høvik** on **2021-05-12**

This Certificate is valid until **2026-05-11**.

DNV local station: **Gimhae Station**

for **DNV**

Approval Engineer: **Jane Lozanov**

Zeinab Sharifi
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.

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 300,000 USD.



Form code: TA 251

Revision: 2021-03

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Product description

Double acting hydraulic actuators in two types:

Rack and pinion: QHD-2, QHD-5, QHD-10, QHD-20, QHD-30

Scotch yoke: QHD-40, QHD-60, QHD-80

Materials:

Housing:	FCD450 (JIS G5502) Nodular cast iron of the ferritic type
Cylinder:	FCD450 (JIS G5502) Nodular cast iron of the ferritic type
Side cover:	FCD450 (JIS G5502) Nodular cast iron of the ferritic type/ S45C (JIS G 4051) Carbon steel
End cup/plug:	S45C (JIS G 4051) Carbon steel
Bolting:	SCM435 (JIS G 4053) Low-alloyed steel (grade 10.9 bolt)
Seals:	O-ring, NBR

Actuator manufacturing plant:

QRP TECH

53 Mieumsandan 1-ro 15beon-gil, Gangseo-gu, Busan, Korea

Application/Limitation

All actuators covered by this certificate are approved for 160 bar design pressure for the design temperature between -20 °C to +100 °C.

Actuators used on remote controlled ship side valves are to have indicators, which will function satisfactory, even if the actuator accidentally should be submerged in water.

Type Approval documentation

Doc. ref.	Rev.	Description
CA-2002	/	Calculation of min. flange thickness
CA-1901	8	Calculation of QHD actuator
QHD-NP01	0	QHD-Actuator name plate
TR-2020	0	DNVGL type approval test
DNVGL-2020	0	Inspection and test plan
QHD-10-01	3	QHD-10 Housing
QHD-5-01	3	QHD-5 Housing
QHD-20-02	1	QHD-20 Cylinder
QHD40-A	0	QHD-40 Actuator assembly
QHD80-A	1	QHD-80 Actuator assembly
QHD30-A	0	QHD-30 Actuator assembly
QHD60-A	0	QHD-60 Actuator assembly
QHD20-A	0	QHD-20 Actuator assembly
QHD2-A	2	QHD-2 Actuator assembly
QHD40-A	0	QHD-10 Actuator assembly
QHD5-A	0	QHD-5 Actuator assembly
		Catalogue
MA-1903	0	Maintenance manual for QHD-30 actuator
MA-1901	0	Maintenance manual for QHD-2/5/10 actuator
MA-1902	0	Maintenance manual for QHD-40/60/80 actuator
MA-1902	0	Maintenance manual for QHD-20 actuator

Production Testing and Certification

Production Testing and Certification for the actual intended application shall follow the latest applicable edition of the Rules (as mentioned on the front page of this certificate).

Marking of product

For traceability to this type approval the actuators are to be marked with:

- Manufacturer's name or trademark
- Design pressure
- Type designation

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.