

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Quick Connecting Coupling for LNG / LPG**

with type designation(s)
Cryo DC coupling

issued to

Trelleborg Westbury Ltd.
WILTSHIRE, United Kingdom

is found to comply with

DNV rules for classification – Ships Pt.5 Ch.7 Liquefied gas tankers

Application:

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

Max. working temp.: -196 °C to 70 °C

Max. working press.: 19 bar

Sizes: 8" coupling with 8", 10" or 12" FLANGE CONNECTIONS AS PER ASME
B16.5/EN CLASS 150

Issued at **Høvik** on **2025-05-20**

This Certificate is valid until **2030-05-19**.

for **DNV**

DNV local unit: **UK & Ireland CMC & VMC**

Approval Engineer: **Sarah Miller**

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.



Product description

Cryogenic Dry Coupling (Cryo DC) is suitable for flexible hose applications and intended to be used as connecting device on LNG transfer systems & other Cryogenic Gases. The Cryo DC coupling operates with a single rotary action. Valves open and close automatically on connection and disconnection. Connecting the hose unit to the tank unit brings the two halves of the CRYO DC coupling together. Developed according to EN 13445-3:2009.

MAX working pressure is 19 bar

End connections: Flanges: 8", 10" or 12"
Flanges Class 150 acc. to ASME B16.5

Material: ASTM 479 316/316L

Manufacturing address:
Trelleborg Westbury Ltd. Commerce Business Centre,
Commerce Cl, West Wilts Trading Estate,
Westbury BA13 4LS.

Application/Limitation

Components covered by this certificate may be used for transfer of LNG/LPG applications - Cryogenic Service, into systems within limits of maximum working pressure and temperature range.

Materials and material protection chosen for the specific system shall be suitable for the intended medium and environmental conditions. Component made of austenitic stainless steel shall not be used in direct contact with seawater. Reference is made to DNV Rules for Ships Pt.4 Ch.6 Sec.2

Evaluation of flow or capacity are not covered under the scope of approval. The manufacturer shall certify the flow properties according to a recognized standard for each size and type of valve.

Components covered by this certificate may be installed where fire safe applications are required.
The couplings shall always be installed according to the manufacturer's instructions.
The couplings shall not be installed in systems where vibration may occur.

Type Approval documentation

Tests carried out

Shell Strength test, Seat tightness test, cryogenic test (on shell and seat), fire test and release performance test.

Production Testing and Certification

Each coupling is before delivery to be hydraulic pressure tested to 1.5 times the maximum working pressure. In addition, seat leakage test at a pressure equal to 1.1 times the maximum working pressure on each component shall be performed before each delivery.

In addition to the above tests, cryogenic testing consisting of functionality and leakage verification for a minimum 10% of couplings intended to be used at working temperature below -55°C shall be undertaken.

Material certificates and product certification shall follow the requirement of relevant class notation of the intended vessel.

Production Testing and Certification for the 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 each product is at least to be marked with:

- Manufacturer's name
- Type designation
- Maximum working pressure
- Size

Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results.



Job ID: **262.1-041021-1**
Certificate no.: **TAP00002V9**

For retention of the Type Approval, a DNV 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 DNV-CP-0338.

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