Certificate No: LR25431967TA
Issue Date: 07/01/2026
Expiry Date: 06/01/2031

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	**Cryostar S.a.s**
Address	Zone Industrielle, B.P. 48, Hesingue, 68200, France
Type	Centrifugal Submerged Cryogenic Pump
Description	Submerged pump to be installed in cargo and fuel tanks for transfer of Liquid Nitrogen (LIN) and LNG.
Trade Name	Subtran 9-4/X
Application	Gas systems of Gas Carriers and Gas Fuelled Ships
Specified Standard	LR Rules for Ships, Part 5, July 2024 LR Rules for Ships using Gases or other Low-flashpoint Fuels, July 2024 LR Rules for Ships for the Carriage of Liquefied Gases in Bulk, July 2024

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Mattia Macri

Engineering Piping– Senior Specialist to
Lloyd's Register EMEA
A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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Ratings

Operating design Temperature[1,2] = -165°C/-196°C to +40°C
Design pressure = 20 barg
Max Differential head = 290 m
Max Flow rate = 9 m^3/h
Max speed = 5900 RPM

Note[1]
The Subtran pump type series meets a test temperature of -196°C on the approved pump design.

Note[2]
The design temperature of pumps and other products subject to LNG service conditions on board of liquefied gas carriers covered by the IGC code and LR Rules for Ships for the Carriage of Liquefied Gases in Bulk as well as on board of gas fuelled ships covered by the IGF Code and LR Rules for Ships using Gases or other Low-flashpoint Fuels is limited to -165°C.

If the pump is used on board of a vessel with a cargo temperature below -165° C, the requirements for design temperatures below -165°C shall be specially agreed with the flag state administration.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document LR25431967DA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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