



NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE

Certificate No. TA21256M

This is to certify that the undernoted product(s) has been approved in accordance with the relevant requirements of "Rules for the Survey and Construction of Steel Ships", "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use" as specified below.

This certificate is issued to:


| | |
|----------------------|--|
| Manufacturer | Nikkiso ACD |
| Product description | Submerged Pump for Cryogenic Liquefied Gas with electric motor |
| Type designation(s) | As per attached sheet |
| Applied requirements | <ul style="list-style-type: none">• Chapter 3 Part N Annex 1, Guidance for the Survey and Construction of Steel Ships• Chapter 3 Part GF Annex 1, Guidance for the Survey and Construction of Steel Ships• Part 6, Chapter 2, Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use |


Approval No. **21LA007B**

This certificate is valid until **31 October 2026**

Issued at Tokyo on **1 November 2021**

See detail in the attached sheet.


T. Shimada
General Manger
Machinery Department



1. Particulars:

| | |
|-----------------------|--|
| Type: | TC(MSP) 34 |
| Max. design pressure: | 20 barg |
| Design temperature: | -196 °C to +40 °C |
| Motor rating: | 5.5kW / 230V / 60Hz 11.0kW / 270V / 60Hz 11.0kW / 460V / 60Hz 18.4kW / 460V / 102Hz |
| Kind of fluid: | LNG, LIN, LAR, LPG (Propane), Ethylene |

2. Prototype testing was carried out on 28 Feb 2018.

3. Drawings approved on 1 November 2021: Work Scope (EDM-GL-001)

4. Remarks

1) Drawing Approval is necessary for each individual ship in accordance with 1.2 of Annex 1, Part N/GF of NK Guidance.

In case where there is no change from the approved drawings, drawing exemption form may be used, showing the following specification for each actual product at least:

- ① Applied drawing No.
- ② Rated capacity [m³/h]
- ③ Design pressure [barg]
- ④ Design temperature [°C]
- ⑤ Applied motor rating [kW], [V], [Hz]
- ⑥ RPM
- ⑦ Fluid

2) Individual unit approval is necessary for each individual ship with witness by the Society's Surveyor in accordance with 3.6.2-1 of Annex 1, Part N/GF of NK Guidance:

- ① Material test
- ② Pressure test
- ③ Operation test

3) Applicable parts for the material test are as follows:

① 54095

- a) 3. HOUSING, SUCTION SCREEN, TC-34
- b) 15. TUBE, DISCHARGE
- c) 22 HOUSING, DIFFUSER
- d) 23 HOUSING, SUCTION
- e) 26 MANIFOLD, DISCHARGE LOWER
- f) 27 MANIFOLD, DISCHARGE UPPER

② 59435

- a) 8. HOUSING, SUCTION SCREEN, TC-34
- b) 20. TUBE, DISCHARGE
- c) 21. TUBE, DISCHARGE
- d) 26. HOUSING, DIFFUSER
- e) 27. HOUSING, SUCTION
- f) 29. MANIFOLD, DISCHARGE, LOWER
- g) 33. MANIFOLD DISCHARGE INTERMEDIATE
- h) 39. MANIFOLD, DISCHARGE UPPER

③ 54715

- a) 3. SCREEN ASSY, AC/TC-34
- b) 15. TUBE, DISCHARGE
- c) 22. HOUSING, DIFFUSER
- d) 23. HOUSING, SUCTION
- e) 26 MANIFOLD, DISCHARGE LOWER
- f) 27 MANIFOLD, DISCHARGE UPPER

5. Notice

- 1) Compatibility may be otherwise confirmed by the Society on a basis for each individual ship.
- 2) Any significant changes in design or construction of the above items may render this certificate invalid.

- The End -