Certificate No:
TAS00003HX

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Portable Tank

with type designation(s)
20ft CSC/ISO portable tank F2217ACS
20ft CSC/ISO portable tank F2224ACS

Issued to
INOX India Limited
Gujarat, **India**

is found to comply with
International Convention for Safe Containers, 1972 (CSC)
ISO 1496, Part 3: Tank Containers for Liquids, Gases and Pressurized Dry Bulk
DNV 2.7-4 Freight Containers
International Maritime Dangerous Goods Code (IMDG)
European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)
Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID)
Code of Federal Regulations 49
Transport Canada: 4g Impact Test Requirement for Tank Containers

Application :

UN Portable Tank, Tank Instructions T75

Type	Max. gross mass (kg)	Max. payload[1)] (kg)	Tank cap. (L)	MAWP/test pr. (bar)	Eq. shell thk. (mm)
20ft CSC/ISO portable tank F2217ACS	36000	28000 / 27800	22004	16.54 / 23.2	10.25 / 11.53
20ft CSC/ISO portable tank F2224ACS	36000	26750 / 26550	22004	24.13 / 33.1	15.37 / 17.93

[1)] variant without pump / with pump

Issued at **Høvik** on **2023-09-07**
This Certificate is valid until **2028-09-06** .
DNV local unit: **Mumbai**

Approval Engineer: **Igor Antonijevic**

for **DNV**

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.

Product description

20ft CSC/ISO vacuum multi-layer insulated cryogenic tank container.

	# F2217ACS	#F2224ACS
Max. external dimensions (L x W x H)	6058 x 2438 x 2591 mm	
Tare Mass[1)] (without pump / with pump)	8000 / 8200 kg	9250 / 9450 kg
Nominal thickness (shell/heads)	8.0 / 9.0 mm	12.0 / 14.0 mm
Tank internal diameter	2250 mm	
ISO Freight container designation	1CC	
Size code	22	
Type code	K7	
Tank material	SA 240M TYPE 304	
Pressure Vessel Code	ASME VIII Div. 1	

[1)]Tare mass is to be confirmed by weighing. The sum of the tare mass and the payload shall never exceed the Max. gross mass as stated on the front page of this certificate.

Application/Limitation

Approved according to 6.7.4 in IMDG/ADR/RID, US DOT 49 CFR requirements.

	# F2217ACS	#F2224ACS
IMDG/ADR/RID/ design approval reference number	N-NV/639/09/22	
US DOT Approval reference number	SI/0100-23/USA[2)]	
CSC Approval reference number	N-NV/639/09/22	
Design pressure, inner vessel	17.87 bar	25.46 bar
Setting of relief valve	16.54 bar	24.13 bar
Metallurgical design temperature for inner tank	-196°C to + 50°C	
Design vacuum	1 bar	
Design temperature for framework and outer jacket	-20°C to +55°C	
Allowable stacking load for 1,8g	213360 kg	
Racking test load value	150 kN	
Effectiveness of the insulation system (heat influx)	163 W (for NITROGEN, REFRIGERATED LIQUID)	

[2)] issued by Silver/Cims

Dangerous goods that can be transported and holding times

UN No.	Class	Proper shipping name (PSN)	# F2217ACS	#F2224ACS
			Holding time from 0.34 to 16.54 bar @30°C	
UN1977	2.2	NITROGEN, REFRIGERATED LIQUID	12867 kg (70 days)	11332 kg (75 days)
UN1073	2.2	OXYGEN, REFRIGERATED LIQUID	19477 kg (102 days)	18082 kg (105 days)
UN1951	2.2	ARGON, REFRIGERATED LIQUID	23716 kg (81 days)	21955 kg (90 days)
UN1972	2.1	NATURAL GAS, REFRIGERATED LIQUID	7137 kg (106 days)	6576 kg (115 days)
UN1038	2.1	ETHYLENE, REFRIGERATED LIQUID	9650 kg (190 days)	8954 kg (200 days)
UN1961	2.1	ETHANE, REFRIGERATED LIQUID	9225 kg (238 days)	8539 kg (260 days)
UN2201	2.2	NITROUS OXIDE, REFRIGERATED LIQUID	21590 kg (327 days)	20444 kg (350 days)
UN3136	2.2	TRIFLUOROMETHANE, REFRIGERATED LIQUID	24182 kg (301 days)	22271 kg (325 days)
UN2187	2.2	CARBON DIOXIDE, REFRIGERATED LIQUID	NA	From 10.0 to 24.12 bar @ 30°C 21425 kg (290 days)

DNV surveyor has to witness important production and test events and issue Form no. CTT101 “Tank Container Certificate” for each container. In addition to this freight container certificate has to be issued (form no. CTF301 Type Certificate for Container).
Each tank should be subjected to a hydraulic pressure test to test pressure.

Type Approval documentation

Tests carried out

Prototype tested according to the requirements.

Marking of product

Each container to be marked with:

- Data plate for UN tanks according to Ch. 6.7.4.15 requirements in IMDG Code, ADR and RID. Design approval number according to Application/Limitation above.
- Data plate according to DOT and CSC requirements including Allowable stacking load of 213360 kg.
- External marking according to CSC, IMDG/ADR/RID and DOT requirements
- DNV decal for freight containers
- NV mark to be hard stamped on frame
- Marking in accordance with other applicable codes
- “TC IMPACT APPROVED” to be marked on the data plate

Periodical assessment

In order to maintain the validity of the type approval certificate, periodical assessments should be carried out according to DNV-SE-0284 at 2 and 3.5 year intervals. Periodical assessments will, when possible, be harmonized with other surveys and audits carried out. To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com

END OF CERTIFICATE