DNV·GL

Certificate No:
TAS000017H

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Portable Tank

with type designation(s)
ITC-22-E-9.7; ITC-22-P-9.7; ITC-22-E-10; ITC-22-P-10; ITC-22-E-18; ITC-22-P-18; ITC-22-E-22; ITC-22-P-22; ITC-22-E-18/PS; ITC-22-P-18/PS; ITC-22-E-22/PS; ITC-22-P-22/PS

Issued to
Chart Ferox, a.s.
DECIN, Czech Republic

is found to comply with
International Convention for Safe Containers, 1972 (CSC)
International Maritime Dangerous Goods Code (IMDG)
ISO 1496, Part 3: Tank Containers for Liquids, Gases and Pressurized Dry Bulk
DNV 2.7-4 Freight Containers
European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)
Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID)
UIC Code 592-2 - Large containers for transport on wagons
Transport Canada: 4g Impact Test Requirement for Tank Containers

Application :

UN Portable Tank, Tank Instruction 75

Type	Max. gross mass (kg)	Max. payload (kg)	Tank cap. (L)	MAWP/test pr. (bar)	Eq. shell thk. (mm)
ITC-22-E/P-9.7	36000	28480	22170	9.7/13.9	7.73[1]/8.17[2]
ITC-22-E/P-10	36000	28430	22160	10.0/14.3	7.99[1]/8.44[2]
ITC-22-E/P-18	36000	27175[1]/27185[2]	21980[1]/21990[2]	18.0/24.7	13.62[1]/13.98[2]
ITC-22-E/P-22	36000	26405[1]/26415[2]	21890[1]/21900[2]	22.0/29.9	16.5[1]/16.89[2]
ITC-22-E/P-18/PS	36000	28070[3]/27743[4]	21940[3]/21900[4]	18/24.7	10.74[3]/12.05[4]
ITC-22-E/P-22/PS	36000	27440[3]/27048[4]	21870[3]/21820[4]	22/29.9	12.96[3]/14.53[4]

[1] for materials 1.4315 or 1.4311 ; [2] for material 1.4318 ; [3] for material 1.4315 or 1D-450 ; [4] for material 1.4315 or 1.4311.

Issued at **Høvik** on **2017-10-11**
This Certificate is valid until **2021-10-10**.
DNV GL local station: **Ostrava**

for **DNV GL**

Approval Engineer: **Igor Antonijevic**

Inger-Helene Hals
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.

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Job Id: **262.1-022916-1**
Certificate No: **TAS000017H**

Product description

20’ CSC/ISO vacuum insulated cryogenic tank container:
with electrical pump – type E
without the pump, pressure transfer only– type P

non-pressure strengthened

	ITC-22-E-9.7 ITC-22-P-9.7	ITC-22-E-10 ITC-22-P-10	ITC-22-E-18 ITC-22-P-18	ITC-22-E-22 ITC-22-P-22
Max. external dimensions (LxWxH)	6058 x 2438 x 2591 mm			
Tare Mass	7520 kg	7570 kg	8825[1)]/8815[2)] kg	9595[1)]/9585[2)] kg
ISO Designation	1CC			
Size code	22			
Type code	K7			
Tank diameter	2265 mm			
Thickness, inner shell	5.9 mm	6.1 mm	10.4[1)]/10.1[2)] mm	12.6[1)]/12.2[2)] mm
Thickness, inner heads	7.8 mm	7.8 mm	12.2[1)]/11.8[2)] mm	14.2[1)]/13.8[2)] mm
Tank material, inner vessel	EN 10028-7 1.4315; 1.4311; 1.4318			
Tank material, outer jacket, shell	ASME SA 240 T304; EN 10028-7, 1.4301; EN 10088-2, K41 (1.4509) or EN 10028-2, 1.0425			
Tank material, outer jacket, heads	ASME SA 240 T304; EN 10028-7, 1.4301; EN 10088-2, K41 (1.4509) or EN 10028-2, 1.0425			
Pressure Vessel Code	EN 13530-2			

pressure strengthened

	ITC-22-E-18/PS ITC-22-P-18/PS	ITC-22-E-22/PS ITC-22-P-22/PS
Max. external dimensions (LxWxH)	6058 x 2438 x 2591 mm	
Tare Mass	7930[3)]/8257[4)] kg	8560[3)]/8952[4)] kg
ISO Designation	1CC	
Size code	22	
Type code	K7	
Tank diameter	2265 mm	
Thickness, ineer shell	9.2[3)]/8.2[4)] mm	11.1[3)]/9.9[4)] mm
Thickness, inner heads	9.2[3)]/8.2[4)] mm	11.1[3)]/9.9[4)] mm
Tank material, inner vessel	EN 10028-7, 1.4315; 1.4315/1D-450; 1.4311; 1.4318	
Tank material, outer jacket, shell	ASME SA 240 T304; EN 10028-7, 1.4301; EN 10088-2, K41 (1.4509) or EN 10028-2, 1.0425	
Tank material, outer jacket, heads	ASME SA 240 T304; EN 10028-7, 1.4301; EN 10088-2, K41 (1.4509) or EN 10028-2, 1.0425	
Pressure Vessel Code	EN 13530-2	

[1)] for materials 1.4315 or 1.4311 ; [2)] for material 1.4318 ; [3)] for material 1.4315 or 1D-450 ; [4)] for material 1.4315 or 1.4311.

Job Id: **262.1-022916-1**
Certificate No: **TAS000017H**

Application/Limitation

Approved according to 6.7.4 in IMDG and ADR/RID.
CSC/IMDG/ADR/RID Approval Ref No.: N-NV/590/09/17
Numerical code for railway: 76 (Norwegian State Railway)
UIC Category: 20/8½

non-pressure strengthened

	ITC-22-E-9.7 ITC-22-P-9.7	ITC-22-E-10 ITC-22-P-10	ITC-22-E-18 ITC-22-P-18	ITC-22-E-22 ITC-22-P-22
Design pressure, inner vessel	10.7 bar	11.0 bar	19.0 bar	23.0 bar
Setting of relief valve	9.7 bar	10.0 bar	18.0 bar	22.0 bar
Design vacuum	1 bar	1 bar	1 bar	1 bar
Metallurgical design temperature for inner tank	-196°C to + 50°C			
Design temperature for framework and outer jacket	-40°C			
Allowable stacking weight for 1,8g	192000 kg			
Racking test load value	15240 kg			
Effectiveness of the insulation system (heat influx)	129 W (for NITROGEN REFRIGERATED LIQUID)			

Dangerous goods that can be transported

UN No.	Class	Proper Shipping Name (PSN)	Holding time (@ 30°C)			
			0.345 to 9.7 bar	0.345 to 10 bar	0.345 to 18 bar	0.345 to 22 bar
1977	2.2	NITROGEN, REFRIGERATED LIQUID	70 days 14190 kg	71 days 14121 kg	90 days 12450[1)]/12456[2)] kg	96 days 11614[1)]/11619[2)] kg
1073	2.2	OXYGEN, REFRIGERATED LIQUID	100 days 20852 kg	102 days 20774 kg	132 days 18992[1)]/19001[2)] kg	143 days 18190[1)]/18198[2)] kg
1951	2.2	ARGON, REFRIGERATED LIQUID	79 days 25440 kg	81 days 25342 kg	105 days 23114[1)]/23125[2)] kg	114 days 22105[1)]/22115[2)] kg
1003	2.2	AIR, REFRIGERATED LIQUID	76 days 15621 kg	77 days 15550 kg	99 days 13885[1)]/13891[2)] kg	106 days 13086[1)]/13092[2)] kg
2187	2.2	CARBON DOIXIDE, REFRIGERATED LIQUID	-	-	10 bar to 18 bar 234 days 22359[1)]/22369[2)] kg	10 bar to 22 bar 318 days 21636[1)]/21646[2)] kg
1961	2.1	ETHANE, REFRIGERATED LIQUID	281 days 9997 kg	285 days 9958 kg	370 days 9081[1)]/9085[2)] kg	398 days 8685[1)]/8689[2)] kg
1038	2.1	ETHYLENE, REFRIGERATED LIQUID	220 days 10340 kg	223 days 10301 kg	288 days 9409[1)]/9413[2)] kg	310 days 9009[1)]/9013[2)] kg
3136	2.2	TRIFLUOROMETHANE, REFRIGERATED LIQUID	365 days 26336 kg	370 days 26231 kg	473 days 23821[1)]/23832[2)] kg	506 days 22733[1)]/22743[2)] kg
2201	2.2	NITROUS OXIDE, REFRIGERATED LIQUID	381 days 23067 kg	393 days 22992 kg	508 days 21352[1)]/21362[2)] kg	547 days 20650[1)]/20660[2)] kg
1972	2.1	NATURAL GAS, REFRIGERATED LIQUID	115 days 8317 kg	118 days 8287 kg	153 days 7617[1)]/7620[2)] kg	165 days 7319[1)]/7323[2)] kg
3312	2.1	GAS, REFRIGERATED LIQUID, FLAMMABLE, N.O.S.	108 days 7678 kg	109 days 7648 kg	142 days 6951[1)]/6954[2)] kg	152 days 6632[1)]/6635[2)] kg

[1)] for materials 1.4315 or 1.4311 ; [2)] for material 1.4318.

pressure strengthened

	ITC-22-E-18/PS ITC-22-P-18/PS	ITC-22-E-22/PS ITC-22-P-22/PS
Design pressure, inner vessel	19 bar	23 bar
Setting of relief valve	18 bar	22 bar
Design vacuum	1 bar	1 bar
Metallurgical design temperature for	-196°C to + 50°C	
Design temperature for framework and	-40°C	
Allowable stacking weight for 1,8g	192000 kg	
Racking test load value	15240 kg	
Effectiveness of the insulation system	129 W (for NITROGEN REFRIGERATED LIQUID)	

Dangerous goods that can be transported

UN No.	Class	Proper Shipping Name (PSN)	Holding time (@ 30°C)	
			0.345 to 18 bar	0.345 to 22 bar
1977	2.2	NITROGEN, REFRIGERATED LIQUID	90 days 12427[3)]/12405[4)] kg	96 days 11603[3)]/11577[4)] kg
1073	2.2	OXYGEN, REFRIGERATED LIQUID	132 days 18958[3)]/18923[4)] kg	142 days 18173[3)]/18132[4)] kg
1951	2.2	ARGON, REFRIGERATED LIQUID	105 days 23072[3)]/23030[4)] kg	114[3)]/113[4)] days 22085[3)]/22035[4)] kg
1003	2.2	AIR, REFRIGERATED LIQUID	98 days 13859[3)]/13834[4)] kg	105 days 13074[3)]/13044[4)] kg
2187	2.2	CARBON DOIXIDE, REFRIGERATED LIQUID	10 bar to 18 bar 234[3)]/233[4)] days 22318[3)]/22278[4)] kg	10 bar to 22 bar 317 days 21616[3)]/21567[4)] kg
1961	2.1	ETHANE, REFRIGERATED LIQUID	369[3)]/368[4)] days 9065[3)]/9048[4)] kg	397[3)]/396[4)] days 8677[3)]/8657[4)] kg
1038	2.1	ETHYLENE, REFRIGERATED LIQUID	288[3)]/287[4)] days 9392[3)]/9375[4)] kg	310[3)]/309[4)] days 9000[3)]/8980[4)] kg
3136	2.2	TRIFLUOROMETHANE, REFRIGERATED LIQUID	472[3)]/471[4)] days 23778[3)]/23735[4)] kg	505[3)]/504[4)] days 22712[3)]/22660[4)] kg
2201	2.2	NITROUS OXIDE, REFRIGERATED LIQUID	507[3)]/506[4)] days 21313[3)]/21274[4)] kg	546[3)]/545[4)] days 20631[3)]/20584[4)] kg
1972	2.1	NATURAL GAS, REFRIGERATED LIQUID	153 days 7603[3)]/7589[4)] kg	165 days 7313[3)]/7296[4)] kg
3312	2.1	GAS, REFRIGERATED LIQUID, FLAMMABLE, N.O.S.	141 days 6938[3)]/6926[4)] kg	152 days 6626[3)]/6611[4)] kg

[3)] for material 1.4315 or 1D-450 ; [4)] for material 1.4315 or 1.4311.

DNV GL surveyor has to witness important production and test events and issue Form no. 49.04x/a "Certificate for Tank Container or Portable Tank"

Each tank should be subjected to a hydraulic pressure test to test pressure.

Type Approval documentation

Tests carried out

Prototype with serial number 66620 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 CSC requirements including Allowable stacking load of 192000 kg.
- External marking according to CSC, IMDG/ADR/RID requirements
- Marking according to UIC 592-2 requirements
- DNV GL decal for freight containers
- VL mark to be hard stamped on frame
- Marking in accordance with other applicable codes

Periodical assessment

For retention of Type Approval, a DNV GL surveyor shall perform an assessment every 2nd year and before the expiry date of this certificate to verify that the type approval is complied with.

END OF CERTIFICATE