

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

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on the Refrigerating Machinery and Appliances of the "W. M. P. Port Wyndham" Tons { Gross Net

Vessel built at Glasgow By whom built J. Brown & Co. Ltd. Yard No. 541 When built 1934

Owners Commonwealth Dominion Line Port belonging to Voyage

Refrigerating Machinery made by J. E. Hall Ltd. Machine No. 9096 9097 9098 When made 1934

Insulation fitted by When fitted System of Refrigeration CO2 + Brine

Method of cooling Cargo Chambers Brine + Air Insulating Material used

Number of Cargo Chambers insulated 21 Total refrigerated cargo capacity 485000 cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed on 2nd deck, aft E.R. Casing.

Refrigerating Units, No. of 3 Single, double, or triple Cubic feet of air delivered per hour

Total refrigeration or ice-melting capacity in tons per 24 hours 168 tons Are all the units connected to all the refrigerated chambers yes

Compressors, driven direct or through single double reduction gearing. Compressors, single or double acting single No. of cylinders 2 per mach. (6)

Diameter of cylinders 5" Diameter of piston rod 2 1/4" Length of stroke 10" No. of strokes per minute 260/300

Motive Power supplied from Electric motors direct coupled.

Steam Engines, high pressure, compound, or triple expansion, surface condensing. No. of cylinders Diameter

Length of stroke Working pressure Diameter of crank shaft journals and pins 6 1/2" journals, 4" pins

Breadth and thickness of crank webs 9" x 4 1/2" No. of sections in crank shaft one Revolutions of engines per minute 260/300

Oil Engines, type 2 or 4 stroke cycle Single or double acting B.H.P.

No. of cylinders Diameter Length of stroke Span of bearings as per Rule

Maximum pressure in cylinders Diameter of crank shaft journals and pins

Breadth and thickness of crank webs No. of sections in crank shaft Revolutions of engine per minute

Electric Motors, type open with canopy No. of 3 Rated 160 B.H.P. Kilowatts

Volts at 220 a revolutions per minute. Diameter of motor shafts at bearings

Reduction Gearing, maximum shaft horse power at 1st pinion Revolutions per minute at full power at 1st pinion

2nd pinion 1st reduction wheel main shaft Pitch circle diameter, 1st pinion 2nd pinion

1st reduction wheel Main wheel Width of face, 1st reduction wheel Main wheel

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings, 1st pinion 2nd pinion

1st reduction wheel Main wheel Flexible pinion shafts, diameter 1st 2nd

Pinion shafts, diameter at bearings, External, 1st 2nd Internal, 1st 2nd

Diameter at bottom of teeth of pinion, 1st 2nd Wheel shafts, diameter at bearings, 1st

Main Diameter at wheel shroud, 1st Main

Gas Condensers, No. of 3 Cast iron or steel casings cast iron Cylindrical or rectangular cylindrical

No. of coils in each 14 Material of coils S.D. copper 3/4" h. x 1" o.d. Can each coil be readily shut off or disconnected yes

Water Circulating Pumps, No. and size of Supplied by Owners how worked Gas Separators, No. of 6

Gas Evaporators, No. of 3 Cast iron or steel casings steel Pressure or gravity type low pressure

No. of coils in each casing 14 Material of coils S.D. steel 1 1/2" x 1 5/8" o.d. Can each coil be readily shut off or disconnected yes

Direct Expansion or Brine Cooled Batteries, No. of 12 Are there two separate systems, so that one may be in use while the other is being

cleared of snow no No. of coils in each battery 8 - 3 coils 2 - 2 do. Material of coils S.D. steel 1 1/2" h. Can each coil be readily shut off or

disconnected yes Total cooling surface of battery coils 9500 sq. ft. Is a watertight tray fitted under each battery yes

Air Circulating Fans, Total No. of 9 - 14 1/2" each of 4000 cubic feet capacity, at 2500 revolutions per minute

Steam or electrically driven Electrically Where spare fans are supplied are these fitted in position ready for coupling up no

Brine Circulating Pumps, No. and size of, including the additional pump 1 - 2" " " how worked Elec. / worm gearing

Brine Cooling System, closed or open closed Are the pipes and tanks galvanised on the inside no

No. of brine sections in each chamber See separate list attached

Can each section be readily shut off or disconnected yes Are the control valves situated in an easily accessible position yes

NOTE - THE WORDS WHICH DO NOT APPLY SHOULD BE DELETED.



Common
 Are thermometers fitted to the outflow and to each return brine pipe yes Where the tanks are closed are they ventilated as per Rule
 Where the tanks are not closed is the compartment in which they are situated efficiently ventilated
 Steam Condensing Plant. State what provision is made for condensing steam, in terms of Section 4, Clauses 13 and 14

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
ENGINE CYLINDERS (IF TESTED)						
GAS COMPRESSORS	20-9-34	1000lb ²	3000lb ²	1500lb ²	St.	
" SEPARATORS	5-12-34	do.	do.	do.	St.	
" CONDENSER COILS	31-4-34 22-8-34	14-8-34 28-8-34	do.	do.	do.	St.
" EVAPORATOR COILS	4-9-34	18-9-34	do.	do.	do.	St.
" CONDENSER HEADERS AND CONNECTIONS	26-9-34 20-9-34	4-9-34 20-9-34	do.	do.	do.	St.
" CONDENSER CASINGS	4-9-34	56 10lb ²	30lb ²	"	St.	
" EVAPORATOR CASINGS	14-9-34	do.	do.	"	St.	
NH ₃ CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE						
BRINE PIPING AFTER ERECTION IN PLACE...						

Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory
 Dates of test _____ Density of Brine _____ by _____ hydrometer
 Temperatures (when the cargo chambers are cooled down to the required test temperatures) of air at the snow box and of the return air _____ &
 or, delivery and return air at direct expansion or brine cooled batteries _____ & _____, outflow and return brine _____ &
 atmosphere _____ cooling water inlet and discharge _____ & _____ gas in condensers _____ and evaporators _____
 the average temperature of the refrigerated chambers _____ and the rise of temperature in these chambers upon the expiration of _____ hours
 time after the machinery and cooling appliances have been shut off _____

SPARE GEAR.

Are the machines in accordance with Section 4, Clause 2 of the Rules
 Are the working parts of the machines, pumps and motors respectively, interchangeable

ARTICLES SUPPLIED AS PER RULE.	ADDITIONAL SPARE GEAR SUPPLIED.
6 pistons & rods for compressor 3 sets of rings for compressor pistons 1 crankshaft 1 spindle & impeller for cent. brine pumps each size 1 set valves and springs for V.D. brine pump. 1 pump bucket complete for do. do. 2 regulator valve spindles 1 additional brine pump in engine room 1 pair main bearing shells Lunell W.M. with bolts & nuts 1 pair crankpin do. do. do. 1 pair crosshead bearings with cap bolts & nuts. 36 lubricator piston leathers 36 do. gland do. 12 sets special metal packing rings for compressor glands 2 sets copper joint rings for compressor 1 do. do. do. for other points. 1 set of two leather moulds 3 lengths each 1 1/2" + 1 1/2" piping 3 W.I. bands each 1 1/2" + 1 1/2" bore. 12 W.I. sockets & backnuts each 1 1/2" + 1 1/2" bore 1 set of ratchet sewing dies 1 1/2" + 1 1/2" bore 2 pair CO ₂ pipe flanges assorted bolts & nuts & sundry brine cocks	6 sets of 2 valves seats & springs for comp. 36 addl. springs for comp. valves 2 springs for water relief valve 2 do. brine do. do. 2 do. CO ₂ safety valve 1 pump for pressure lubricator 3 CO ₂ gauges - 1 hydrometer 12 wood cases thermometers 1 separator drain plug 36 safety valve discs. 3 - 1/2" CO ₂ gauge valves & 9 pipes 6 bolts with 6 sets leather washers for machine coupling 1 fitted box for comp. parts. 1 anemometer.
ELECTRICAL SPARES. Armature in zinc lined case } One of each for Set of field coils } machines motors Set of interpole coils } Porine Pump motor each size Set of brushes } Vertical duplex brine pump Set of starter spares } motor	30 "Gaus 1 spare motor 3 sets brushes 1 set starter spares. 1 spare 2-bladed rotor. 14 1/2" 15" + 12" Gaus. 1 spare vent motor 1 do. long. do. 3 sets brushes 1 set starter spares 12 "Gaus 1 spare motor 1 set brushes. 1 spare rotor for 14 1/2" + 15" Gaus

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED
 The foregoing is a correct description of the Refrigerating Machinery.

J. & E. HALL, LTD.
 C. Nicholson
 Manufacturer.

DESCRIPTION OF INSULATION.

	IN LOWER HOLD CHAMBERS.					IN 'TWEEN DECK CHAMBERS.				
	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto.	Inner Lining.	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto.	Inner Lining.
FRAME NO. (Fore Peak)	A									
FRAME NO.	F									
FRAME NO.	A									
FRAME NO.	F									
FRAME NO.	A									
FRAME NO. (Boiler Room)	F									
FRAME NO. (Engine Room)	A									
FRAME NO.	F									
FRAME NO.	A									
FRAME NO.	F									
FRAME NO.	A									
FRAME NO. (After Peak)	F									
SIDES										
OVERHEADING										
FLOORS OF CHAMBERS										
TRUNK HATCHWAYS										
THRUST RECESS, SIDES AND TOP										
TUNNEL SIDES AND TOP										
TUNNEL RECESS, FRONT AND TOP										
FRAMES OR REVERSE FRAMES, FACE										
BULKHEAD STIFFENERS, TOP						BOTTOM				AND FACE
RIBBAND ON TOP OF DECK										
SIDE STRINGERS, TOP						BOTTOM				AND FACE
WEB FRAMES, SIDES										AND FACE
BRACKETS, TOP						BOTTOM				AND FACE
INSULATED HATCHES, MAIN						BILGE				MANHOLE
HATCHWAY COAMINGS, MAIN						BILGE				
HOLD PILLARS										
MASTS						VENTILATORS				
Are insulated plugs fitted to provide easy access to bilge suction roses tank, air, and sounding pipes heels of pillars										
and manhole doors of tanks Are insulated plugs fitted to ventilators cargo ports and side lights										
Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected if so, how										
Oil Storage Tanks, where adjacent to the insulated chambers, state what provision has been made for ventilating the air space between the insulation and the bulkhead plating										
Coal Bunker Bulkheads, and Brine Outflow and Return Pipes passing through coal bunkers. Is the insulation, so far as practicable, fireproof										
Where Cooling Pipes pass through watertight bulkheads or deck plating, are the fittings and packing of the stuffing boxes both watertight and fireproof										
Cargo Battens, Dimensions and spacing, sides floors tunnel top										
fixed or portable Are screens fitted over the brine grids at chamber sides hinged or permanently fixed										
Thermometer Tubes. No. and position in each chamber										
diameter are they fitted in accordance with Section 3, Clause 8										
Protection of Pipes. Are all pipes, including air and sounding pipes, which pass through or into insulated chambers, well insulated										
Draining Arrangements. Where the chambers are situated below the load water line, what provision is made for draining the inside of the chambers										
Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off										
What provision is made for draining the refrigerating machinery room										
brine return room fan room water circulating pump room										
Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers										

Sounding Pipes, No. and position in each chamber situated below the load water line

Diameter _____ Are all sounding pipes in way of insulated chambers fitted in accordance with Section 3, Clause 11

Are all wood linings tongued and grooved _____ Are cement facings reinforced with expanded steel lattice _____

How is the expanded metal secured in place _____

How are the cork slabs secured to the steel structure of the vessel _____

Air Trunkways in Chambers, inside dimensions, main _____ and branch _____

Are they permanently fixed or collapsible, or portable _____ State position in chambers _____

Where air trunkways pass through watertight bulkheads, are they fitted with watertight doors _____ Are the door frames efficiently insulated _____

Are insulated plugs supplied for the doorways _____ Where are the doors worked from _____

Cooling Pipes in Chambers, diameter _____ Are they galvanised externally _____

How are they arranged in the chambers _____

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers _____

The foregoing is a correct description of the Insulation and Appliances.

Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery _____ and Insulation _____
(If not, state date of approval)

Is the Refrigerating Machinery and Appliances duplicate of a previous case _____ If so, state name of vessel _____

If the survey is not complete, state what arrangements have been made for its completion and what remains to be done _____

General Remarks (State quality of workmanship, opinions as to class, &c.) *The refrigerating machinery has been constructed under special survey and the materials and workmanship are good, and it will be eligible for the notation of + Lloyd's R.M.C. (with date) when the installation and testing are satisfactorily completed.*

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	POWER.		INSULATED CARGO CHAMBERS.	
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.		Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No.	Capacity. Cubic ft.
3	6	Carb. Dicyc	Jr. E. Hall	1934	① Brine piping ② San. Cook.	168	21		

Fee £ 2: 0: 0 (Fee applied for, 28 JAN 1935)
Travelling Expenses £ : : (Received by me, 8-2 1935)

D. Gemmell.
Surveyor to Lloyd's Register.

Committee's Minute *GLASGOW 29 JAN 1935*

Assigned *See Gls. Rpt. 55340a*



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