

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office.)

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27 AUG 1928

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27 AUG 1928

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9th May 1928

Last Survey

22nd June 1928

(No. of Visits)

8

on the Refrigerating Machinery and Appliances of the **S.S. "NIEUWKERK"**

Tons } Gross
Net

Vessel built at **Rotterdam** By whom built **P. Smit junr** Yard No. **418** When built

Owners **Koninkl. Nederl. Stooml. Maats.** Port belonging to Voyage

Refrigerating Machinery made by **J. E. Hall Ltd.** Machine No. **4648** When made **1928**

Insulation fitted by When fitted System of Refrigeration **CO₂ Brine**

Method of cooling Cargo **Air Cooling** Insulating Material used

Number of Cargo Chambers insulated **2** Total refrigerated cargo capacity **41,000** cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed **Yank top. aft eng. room.**

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

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

Compressors, driven direct ~~through~~ **reduction gearing**. Compressors, single or double acting **double** No. of cylinders **2**

Diameter of cylinders **3"** Diameter of piston rod **1 3/8"** Length of stroke **12"** No. of strokes per minute **200 each**

Motive Power supplied from **Direct acting cross compound steam engine**

Steam Engines, high pressure, compound, or triple expansion, surface condensing. No. of cylinders **2** Diameter **H.P. 10", L.P. 20"**

Length of stroke **12"** Working pressure Diameter of crank shaft journals and pins **4 1/2"**

Breadth and thickness of crank webs **6" x 3 1/8" in** No. of sections in crank shaft **two** Revolutions of engines per minute **100**

Oil Engines, type **2 or 4 stroke cycle** Single or double acting **-**

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 **-** No. of **-** Rated **-** Kilowatts **-**

Volts at **-** 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 **2** Cast iron or steel casings **cast iron** Cylindrical or rectangular **rectangular**

No. of coils in each **3** Material of coils **S.D. Copper 3/4" b. x 1" o.d.** Can each coil be readily shut off or disconnected **1 delivery**

Water Circulating Pumps, No. and size of **1 - 4" x 4 1/2" D.A.** how worked **off crankshaft** Gas Separators, No. of **1 suction**

Gas Evaporators, No. of **2** Cast iron or steel casings **Steel D. casings** Pressure or gravity type **gravity**

No. of coils in each casing **3** Material of coils **S.D. Steel 1 1/2" b. x 1 5/8" o.d.** Can each coil be readily shut off or disconnected **yes**

Direct Expansion or Brine Cooled Batteries, No. of **2** Are there two separate systems, so that one may be in use while the other is being

cleared of snow **yes** No. of coils in each battery **4 - for Tr. DK Cooler** Material of coils **1 1/2" bore W.I. Galv.** Can each coil be readily shut off or

disconnected **yes** Total cooling surface of battery coils **Hold = 760 sq ft** Is a watertight tray fitted under each battery **yes**

Air Circulating Fans, Total No. of **2 - 30"** each of **10,000** cubic feet capacity, at **520** revolutions per minute **maximum**

Steam or electrically driven **Electrically** Where spare fans are supplied are these fitted in position ready for coupling up

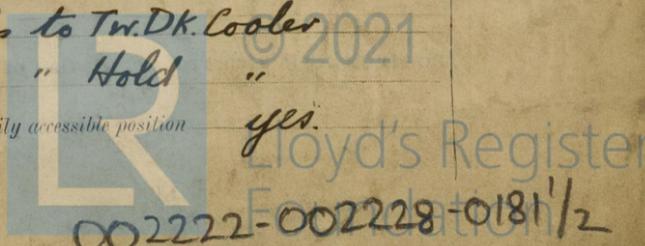
Brine Circulating Pumps, No. and size of, including the additional pump **2 - 6" x 6 1/2" x 6" V.D.** how worked **Steam - direct**

Brine Cooling System, closed or open **open** Are the pipes and tanks galvanised on the inside

No. of brine sections in each chamber **Air Cooler** **4 - 1 1/2" bore deliveries to Tr. DK Cooler**

2 - 1 1/2" " " " Hold " "

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



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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

Machine exhausts to its own Surface Condenser

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
ENGINE CYLINDERS (IF TESTED)	H.P. 4-6-28 L.P. 6-6-28	-----	350lb 0" 250lb 0"			
GAS COMPRESSORS	22-6-28	1000lb 0"	3000lb 0"	1500lb 0"	C.N.H.	
" SEPARATORS	23-5-28	do.	do.	do.	SH	
" CONDENSER COILS	9-5-28	do.	do.	do.	SH	
" EVAPORATOR COILS	30-5-28	do.	do.	do.	SH	
" CONDENSER HEADERS AND CONNECTIONS	23-5-28	do.	do.	do.	SH	
" CONDENSER CASINGS	16-6-28	5 to 10lb 0"	20lb 0"		A.E.	
" EVAPORATOR CASINGS		<i>open top.</i>				
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.

ARTICLES SUPPLIED AS PER RULE.	ADDITIONAL SPARE GEAR SUPPLIED.
1 half crankshaft.	2 sets of 4 valves + springs for compressor
1 steam piston rod and nut.	12 addl. springs for comp. valves
1 piston for H.P. cylinder with rings.	1 guide for grinding in comp. valves
1 set piston rings for H.P. + L.P. cylinders.	1 set valve springs for brine pump
1 set spring rings for each compressor piston.	1 set steam piston rings for do. do.
2 compressor pistons + rods complete.	2 springs for water relief valve
1 pump for water pump.	2 do do brine do.
1 bracket + rod for water pump.	2 do CO ₂ safety valve
1 H.P. slide valve piston top	2 bolts + nuts for comp. rod coupl
1 H.P. do do spindle + nuts	1 pump for pressure lubricator
1 eccentric sheave, strap rod + brasses each pattern.	1 CO ₂ gauge.
1 additional brine pump in E.R.	1 hydrometer.
2 bolts + nuts for main bearing.	2 brass cased thermometers
2 do do for conn. rod big end.	12 copper safety discs
2 do do for X-head	1 - 3/8" CO ₂ gauge valve + 3 spare pipes.
1 set valves for air pump.	1 fitted box for comp. parts
1 do do water pump.	fan motor spares.
1 do do brine pump.	1 armature packed for storage
1 do do feed pump.	1 set field coils
1 set of 2 leather mauls.	2 sets of carbon brushes.
3 tubes + 24 ferrules for steam condenser.	1 line of brush holders
3 lengths each 1 1/4" + 1 1/2" W.I. piping	1 set starter spares
3 W.I. bends do do	1 set bearings
12 W.I. sockets + backguts each 1 1/4" + 1 1/2"	
2 pairs of CO ₂ pipe flanges.	
1 set gatchet screwing dies 1 1/4" + 1 1/2"	
1 regulator valve spindle	
1 set gatchet screwing dies 1 1/4" + 1 1/2"	
12 lubricator piston leathers.	
12 do do gland do.	
2 sets of copper joint rings for comp. joints	
2 do do do for other joints.	
2 sets of special metal packing rings for each comp. gland.	

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery.

FOR J. & E. HALL, LTD. Manufacturer.

Chicholish

DIRECTOR

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. F										
FRAME No. (Boiler Room) A										
FRAME No. (Engine Room) A										
FRAME No. F										
FRAME No. A										
FRAME No. F										
FRAME No. A										
FRAME No. F										
FRAME No. A										
FRAME No. F										
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 DECKS BOTTOM AND FACE

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 VENTILATORS

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



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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.

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					POWER.		INSULATED CARGO CHAMBERS.	
No. and whether Single or Duplex.	Makers.	Date of Construction.	System.	Type.	Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No.	Capacity.
1 Double	J. E. Hall Ltd.	1928	Carb. Amby Hall.	(1) Air		24	2	41,000

Verify date to be sent to

Fee £ 3 : 0 : 0 } Fee applied for, 19
 Travelling Expenses £ : 18 : 5 } Received by me, 19
 Included in Rotterdam fees.

D. Kemmel
 Surveyor to Lloyd's Register.

Committee's Minute FRI. 12 OCT 1928

Assigned See Amb 31537
 (Not 1785P)

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