

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office)

30 MAY 1934

Date of writing Report 2nd May 1934 When handed in at Local Office

Port of STETTIN

No. in Reg. Book 2653 Survey held at Berlin-Tegel Date: First Survey 10th Nov 1933 Last Survey 16th May 1934 (No. of Visits 4)

on the Refrigerating Machinery and Appliances of the Ice Liner Bloemfontein Tons {Gross
Net

Vessel built at Amsterdam By whom built H. V. Nederl. Schips Maats. Yard No. 228 When built 1934

Owners De Koninklijke Nederl. Schips Maats. Port belonging to The Hague Voyage

Refrigerating Machinery made by A. Borzig Maschinenbau AG Machine No. 3745/48 When made 1934

Insulation fitted by _____ When fitted _____ System of Refrigeration Ammonia

Method of cooling Cargo Chambers Wet air Insulating Material used _____

Number of Cargo Chambers insulated 2 Total refrigerated cargo capacity _____ cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY

Where placed Separate space beside Eng. Room.
Refrigerating Units, No. of Two (See below under evaporator) Single, double, or triple double Cubic feet of air delivered per hour 1,200,000

Total refrigeration or ice-melting capacity in tons per 24 hours _____ 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 double acting No. of cylinders each 2

Diameter of cylinders 160 mm Diameter of piston rod 35 mm Length of stroke 160 mm No. of strokes per minute 650

Motive Power supplied from D.C. 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 _____

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

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 A.W.V. 115, D.C. No. of Two Rated 35.3-44.2 Kilowatts 220

Volts at 260/325 revolutions per minute. Diameter of motor shafts at bearings 100 mm

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 Two Cast iron or steel casings Steel casings Cylindrical or rectangular Cylindrical

No. of coils in each 43 tubes Material of coils seamless drawn steel Can each coil be readily shut off or disconnected _____

Water Circulating Pumps, No. and size of 2 rotary each of 50 cm how worked D.C. Motors Gas Separators, No. of 2

Gas Evaporators, No. of 3 sections Cast iron or steel casings Steel casing Pressure or gravity type Open

No. of coils in each casing 3 Material of coils seamless drawn steel Can each coil be readily shut off or disconnected yes

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

cleared of snow _____ No. of coils in each battery _____ Material of coils _____ Can each coil be readily shut off or

disconnected _____ Total cooling surface of battery coils _____ Is a watertight tray fitted under each battery

Air Circulating Fans, Total No. of 4 each of 300,000 cubic feet capacity, at 900-675 revolutions per minute

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 rotary each of 50 cm how worked D.C. Motors

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

No. of brine sections in each chamber _____

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



Are thermometers fitted to the outflow and to each return brine pipe. 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	14.11.33	12 kgs	45 kgs	25 kgs		LLOYD'S TEST WATER 45 kgs N.S. 14.11.33. AIR 25 kgs
SEPARATORS	21.3.34	12 "	35 "	25 "		LLOYD'S TEST WATER 35 kgs N.S. 21.3.34. AIR 25 "
CONDENSER COILS <i>Leavings</i>	21.3.34	12 "	35 "	25 "		LLOYD'S TEST WATER 35 kgs N.S. 21.3.34. AIR 25 "
EVAPORATOR COILS	30.12.33	4 "	35 "	20 "		WATER 35 kgs N.S. 30.12.33. AIR 20 "
CONDENSER HEADERS AND CONNECTIONS	21.3.34	12 "	35 "	20 "		LLOYD'S TEST 25/20 kgs N.S. and date.
CONDENSER CASINGS <i>Lower</i>	23.3.34	2 "	5 "	-		LLOYD'S TEST 5 kgs N.S. 23.3.34
EVAPORATOR CASINGS	9.1.34	Open type	0.3 kgs	-		N.S. 9.1.34
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

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 *yes*

ARTICLES SUPPLIED AS PER RULE

ADDITIONAL SPARE GEAR SUPPLIED.

Spare gear supplied as per approved list attached

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery.

A. BORSIG
MASCHINENBAU A.G. Manufacturer.

We Schneider

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 DECKS

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.

N.V. NEDERLANDSCH SCHEEPSBOUW-MAATSCHAPPIJ

Builders.

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

Is the Refrigerating Machinery and Appliances duplicate of a previous case no 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 Compressors, condensers, evaporators and casing, separators, collectors and strainers of this installation have been built under Special Survey in accordance with the approved plans and the Secretary's letters. They were tested to the prescribed pressures and were found tight and sound in every respect. The workmanship thereon is satisfactory. These parts are eligible in my opinion for the record of Lloyd's R.M.C. after erection on board and trials under working conditions.

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	POWER.		INSULATED CARGO CHAMBERS.	
No. and whether Single or otherwise.	Makers.	Date of Construction.	System.	Type.		Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No.	Capacity.
2 double	A. Boringmaschinenbau AG. Berlin - Vegel.	1934	Ammonia	wet air	Air 2) 4 cork	120000	37	2	40460

Fee £19 : 0 : 0 { Fee applied for 2nd day 1934.
Travelling Expenses £13 : 10 : 0 { Received by me, 19th June 1934.

Committee's Minute TUE. 5 FEB 1935

Assigned See Amb. 51912

M. Roese
Surveyor to Lloyd's Register.