

## REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

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Survey held at *Berlin-Tegel* Date: First Survey *10th Nov 1933* Last Survey *16th May 1934*(No. of Visits *44*)on the Refrigerating Machinery and Appliances of the *Reel Rin C. Bloemfontein* Tons {Gross.....  
Net.....Vessel built at *Amsterdam* By whom built *H. V. Nederl. Schips Maats.* Yard No. *328* When built *1934*Owners *Verenigde Nederl. Schips Maats.* Port belonging to *The Hague* VoyageRefrigerating Machinery made by *A. Borsig 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 *Waggonen*) 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* *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 ccm/hour 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 minuteSteam 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 ccm/hour 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 \_\_\_\_\_

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.

**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 yes

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

**The foregoing is a correct description of the Refrigerating Machinery.**

**A. BORSIG**  
MASCHINENBAU A.G. *Manufacturer.*

Mr. Richards in Boston

### DESCRIPTION OF INSULATION.

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	

## MASTS

## VENTILATORS

Are insulated plugs fitted to provide easy access to bilge suction roses \_\_\_\_\_ tank, air, and sounding pipes \_\_\_\_\_ keels 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 Battsens,** *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*

*Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers*

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