

Report on Refrigerating Machinery and Appliances.

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Date of writing Report 30 - 7 - 19 47 When handed in at Local Office 19 Port of Hamburg

No. in Reg. Book. 72756 Survey held at Hamburg Date: First Survey 31 - 1 - 46 Last Survey 18 - 6 - 19 47
(Number of Visits 15)

Motor vessel "EMPIRE MOWDDACH" ex PONTOS Tons { Gross -
Net -

Vessel built at Bremen-Vegesack By whom built Bremer Vulkan Yard No. 716 When built 1935

Owners Elders and Ryffes Ltd. Port belonging to London Voyage -

Refrigerating Machinery made by Atlas-Werke Machine Nos. 28172 & 28173 When made 1935

Insulation fitted by Messrs. Lohr, Hamburg When fitted 1946-47 System of Refrigeration Brine & Air
Alfol sheets except in tank top

Method of cooling Cargo Chambers Cold air Insulating Material used where 'Tarfoleum' is used.

Number of Cargo Chambers insulated 3 Total refrigerated cargo capacity 167344 cubic feet

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed Main motor room-starbd. side - bottom platform

Refrigerating Units, No. of 2 No. of machines 2 Is each machine independent Yes

Total refrigeration or ice-melting capacity in tons per 24 hours 32.88 each Are all the units connected to all the refrigerated chambers Yes

Compressors, driven direct or through reduction gearing Compressors, single or double acting double If multiple effect compression -

Are relief valves or safety discs fitted safety discs No. of cylinders to each unit 2 Diameter of cylinders 3 11/32"

Diameter of piston rod 1 37/64" Length of stroke 6 11/16" No. of revolutions per minute 300/385

Motive Power supplied from 4 diesel driven electric generators: 3 of 6 cylinders, 1 of 3 cylinders.
(State number of boilers, oil engines or electric generators supplying the motive power.)

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 Diesel 2 or 4 stroke cycle 4 Single or double acting single B.H.P. 3 at 192; 1 at 96

No. of cylinders 1 of 3 cyl. Diameter 8 21/32" Length of stroke 13" Span of bearings as per Rule -

Maximum pressure in cylinders 45 atmos. Diameter of crank shaft journals and pins 135 mm journals, 125 mm pins

Breadth and thickness of crank webs - No. of sections in crank shaft solid Revolutions of engine per minute 475

Air Receivers:—Have they been made under survey Yes State No. of Report or Certificate Germanischer Lloyd

Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes

Can the internal surfaces of the receivers be examined and cleaned Yes Is a drain fitted at the lowest part of each receiver Yes

No. of Receivers 2 Cubic capacity of each 222.48 cu ft Internal diameter - thickness -

Seamless, lap welded or riveted longitudinal joint riveted Material steel Range of tensile strength - Working pressure by Rules 426 lbs/sq. in.

Electric Motors, type AEG A 116 No. of 2 Rated 54/74 Kilowatts 220 Volts

at 300/385 revolutions per minute. Diameter of motor shafts at bearings -

Reduction Gearing - Pitch circle diameter, pinion - Main wheel - Width of face -

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings, pinion - Main wheel -

Pinion shafts, diameter at bearings - Main wheel shaft, diameter at bearings -

Gas Condensers, No. of 2 Cast iron or steel casings cast iron Cylindrical or rectangular rectangular Are safety valves fitted yes

to casings yes No. of coils in each 12 Material of coils copper Can each coil be readily shut off or disconnected yes

Water Circulating Pumps, No. and size of pumps available galls/hr. how worked electrically Gas Separators, No. of -

Gas Evaporators, No. of 2 Cast iron or steel casings steel Pressure or gravity type pressure If pressure type, are safety valves fitted yes

No. of coils in each casing - Material of coils iron Can each coil be readily shut off or disconnected yes

Direct Expansion or Brine Cooled Batteries, No. of 4 Brine 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 7 Material of coils steel Can each coil be readily shut off or disconnected yes

Total cooling surface of battery coils 2374 Is a watertight tray fitted under each battery yes

Air Circulating Fans, Total No. of 4 each of 3 at 50,000 cubic feet capacity, at - revolutions per minute

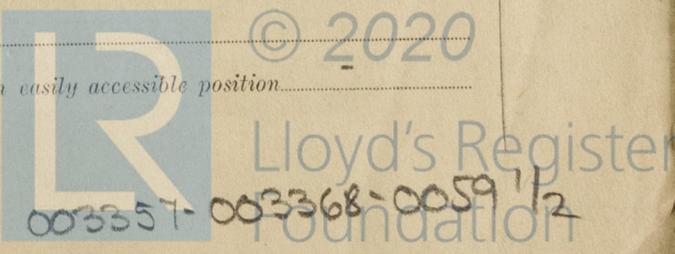
Steam or electrically driven electrically Where spare fans are supplied are these fitted in position ready for coupling up -

Brine Circulating Pumps, No. and size of, including the additional pump 3 at 17,200 galls/hr how worked electrically

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

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 -



MADE AND PRINTED IN ENGLAND.

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...
 Are the number and capacity of the machines and the number of pumps and sea connections in accordance with Section 2, Clause 1 of the Rules...
 Is the exhaust steam led to the main and auxiliary condensers...

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
Engine Cylinders (if tested)						
Gas Compressors						
„ Separators						
„ Multiple Effect Receivers						
„ Condenser Coils						
„ Evaporator Coils						
„ Condenser Headers and Connections						
„ Condenser Casings						
„ Evaporator Casings						
NH ₃ Condenser, Evaporator and Air Cooler Coils after erection in place						
Brine Piping after erection in place...						

Have important steel castings and forgings been tested in accordance with the Rules...
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 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 working parts of the machines, pumps and motors respectively, interchangeable... Yes
 Has the spare gear required by the Rules been supplied... Yes
 Additional Spare Gear Supplied:—

The foregoing is a correct description of the Refrigerating Machinery.

Manufacturer

DESCRIPTION OF INSULATION.

IN LOWER HOLD CHAMBERS. **IN 'TWEEN DECK CHAMBERS.**

Frame No.	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto sheets	Inner Lining.	IN 'TWEEN DECK CHAMBERS.					
						Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto sheets	Inner Lining.	
Frame No. 142 (Fore Peak)	50 m/m	22 m/m	Alfol	20	15 m/m	50 m/m	22 m/m	Alfol	20	15 m/m	lower Tween deck.
Frame No. 117							22 m/m	Alfol	5		
Frame No. 113		22 m/m	Alfol	5			22 m/m	"	10		
Frame No. 107							22 m/m	Alfol	25		lower Tween deck
Frame No. 67 (Boiler Room)							35 m/m	Alfol	25		
Frame No. 47 (Engine Room)		22 m/m	Alfol	25			22 m/m	Alfol	25		
Frame No. 46							35 m/m	"	20		
Frame No. 42						50 m/m	22 m/m	Alfol	20	22 m/m	
Frame No. 13							22 m/m	Alfol	20		
Frame No. 5 (After Peak)		32 m/m	Alfol	22/27			32 m/m	"	22 - 28		
Sides							50 m/m	TarPoleum	150 m/m		
Overheading											
Floors of Chambers							50 m/m	TarPoleum	150 m/m		
Trunk Hatchways											
Thrust Recess, Sides and Top											Original granulated cork
Tunnel Sides and Top											
Tunnel Recess, Front and Top											

Frames or Reverse Frames, Face 5 1/4" x 2" wood ground fastened by 5/8" screw bolts (Alfol)
 Bulkhead Stiffeners, Top 5 1/2" x 2" wood ground (Alfol) Bottom 5 1/2" x 2" wood grounds and Face 5 1/2" x 2" wood ground.
 Ribband on Top of Decks...
 Side Stringers, Top 20 sheets Alfol 7/8" timber Bottom 2 1/2" Oregon pine and Face timber 7/8"
 Web Frames, Sides... and Face...
 Brackets, Top Alfol filled 7/8" timber Bottom... and Face...
 Insulated Hatches, Main 3-6 3/4" x 4 1/4" x 4 1/4" insulated with Bilge 4 1/2" x 1 1/4" x 4 3/4" Tarpoleum Manhole 3 1/2" x 3 1/2" x 3"
 Hatchway Coamings, Main... Bilge...
 Hold Pillars. Boxed in 6 1/2" square timber 5 1/2" x 3 3/4"
 Masts in cooler room only timber faced Ventilators not in insulated spaces
 Are insulated plugs fitted to provide easy access to bilge suction roses... yes tank, air, and sounding pipes boxed in wheels of pillars boxed in
 and manhole doors of tanks... plugs Are insulated plugs fitted to ventilators... no cargo ports... yes and side lights...
 Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected... yes if so, how... 32 m/m fir
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... Oil fuel in D.E. tanks only
 and for draining the tank top...
Fireproof Insulation. Is the insulation and woodwork fireproof in way of bunkers or any surfaces exposed to excessive heat... Where...
Cooling Pipes pass through watertight bulkheads or deck plating, are the fittings and packing of the stuffing boxes both watertight and fireproof... Yes
Cargo Battens, Dimensions and spacing, sides... floors... tunnel top...
 faced 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... In the insulation... (Alfol)
Protection of Pipes. Are all pipes, including air and sounding pipes, which pass through or into insulated chambers, well insulated... (Alfol)
Draining Arrangements. What provision is made for draining the inside of the chambers... scupper pipes...
 Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off... yes, screw caps
 What provision is made for draining the refrigerating machinery room... Drain to E.R. bilges
 brine return room... fan room... to bilges... water circulating pump room...
 Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers... Yes



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

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..... Yes..... 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. Are the arrangements satisfactory and in accordance with the approved plans..... yes

Are they permanently fixed or collapsible, or portable..... fixed

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..... Coolers 48 m/m..... Minimum thickness 5 m/m..... Are they galvanised externally..... yes

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. Specification and Insulation..... approved

Is the Refrigerating Machinery and Appliances duplicate of a previous case..... Yes If so, state name of vessel..... "EMPIRE MOWDDACH" ex "PONTOS"

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

Refrigeration insulation remains to be completed in way of engine room pipes, No 1 hold tank top and No 2 hold, also in way of cooler fans. To complete survey of Refrigerating machinery and appliances, the cooler fans require to be installed, the evaporator coils require to be cleaned out and packing fitted to compressor rods. The whole of the Refrigerating Machinery and appliances require to be tested under working conditions.

General Remarks (State quality of workmanship, opinions as to class, &c.).....

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	Ice melting capacity per 24 hours. Tons.	Is Refrigerating Machinery Electrically Driven?	INSULATED CARGO CHAMBERS.	
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.				No.	Capacity. Cubic ft.
2	4	Carb. Anhy.	Atlas-Marke Bremen	1935	Brine & Air Alfol and Tar-Leum	65 3/4	yes	3	167344

Fee £ 46 : - : - (Fee applied for, 19/7)

Travelling Expenses £ : : (Received by me, 19/7)

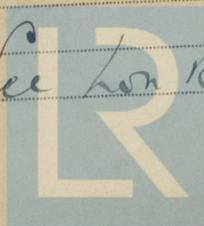
Thomas J. R. P. R. E. Pritchard
Surveyor to Lloyd's Register.

Committee's Minute.....

Assigned.....

Deferred for comp. class'n Survey

FRI. 26 SEP 1947



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Lloyd's Register Foundation