

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office

30 SEP 1939)

Date of writing Report

18/9

19

39

When handed in at Local Office

Port of

Copenhagen

No. in

Reg. Book. Survey held at

AARHUS - ODENSE

Date: First Survey

26/4 1939

Last Survey

15/9

1939

33954

(No. of Visits

22

on the Refrigerating Machinery and Appliances of the ¹⁷/₁₆ "SOMMELSDYK"

Tons

Gross 7227.14

Net 5517.53

Vessel built at

Odense

By whom built

Odense Kaalskibværf

Hull No.

77

When built

1939

Owners

Port belonging to

Rothschilds

Voyage

U.S.A.

Refrigerating Machinery made by

J. THOMAS THS. S. ABROE & Co.

Machine No.

12446-7-8

When made

1939

Insulation fitted by

Odense Kaalskibværf

When fitted

1939

System of Refrigeration

CARB. ANHYD.

Method of cooling Cargo Chambers

Brine & Air

Insulating Material used

Flab. cork

Number of Cargo Chambers insulated

6

Total refrigerated cargo capacity

9400

cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY.

Where placed ^{on platform deck, pt. side for.} ~~in engine room~~

Refrigerating Units, No. of

3

Single, double, or triple

single

Cubic feet of air delivered per hour

532.800

Total refrigeration or ice-melting capacity in tons per 24 hours

22.1

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 acting

No. of cylinders

3

Diameter of cylinders

60 in

Diameter of piston rod

30 in

Length of stroke

140 in

No. of strokes per minute

400

Motive Power supplied from

3 of 240 kwh generators, each driven by a 6-cyl. 2500 oil engine.

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

D.C. dip pump, vertical

No. of

3

Rated

23 H.P.

Kilowatts

220

Volts at

400

revolutions per minute

Diameter of motor shafts at bearings

60 in

Reduction Gearing, maximum shaft horse power at 1st pinion

Revolutions per minute at full power at 1st pinion

1st pinion

1st reduction wheel

main shaft

Pitch circle diameter, 1st pinion

2nd pinion

2nd 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

3rd reduction wheel

Main wheel

Flexible pinion shafts, diameter 1st

2nd

Pinion shafts, diameter at bearings, External, 1st

2nd

Internal, 1st

2nd

Pitch circle diameter at bottom of teeth of pinion, 1st

2nd

Wheel shafts, diameter at bearings, 1st

2nd

Diameter at wheel shroud, 1st

Main

Condensers, No. of

3

Cast iron or steel casings

cast iron

Cylindrical or rectangular

cylindrical

No. of coils in each

1

Material of coils

copper 18/24 7/16 in dia

Can each coil be readily shut off or disconnected

yes

Brine Circulating Pumps, No. and size of

4 of 3.6 gph 1 1/2 in dia

how worked

electrically

Oil

Gas Separators, No. of

3

Evaporators, No. of

3

Cast iron or steel casings

steel plate, cylindrical

Pressure or gravity type

pressure type

No. of coils in each casing

1

Material of coils

steel 25/33 in

Can each coil be readily shut off or disconnected

yes

Brine Expansion or Brine Cooled Batteries, No. of

4

Are there two separate systems, so that one may be in use while the other is being

No. of snow

No. of coils in each battery

Material of coils

Can each coil be readily shut off or

Is a watertight tray fitted under each battery

yes

Total cooling surface of battery coils

1720-1720-1720

1400-1400-1400

Brine Circulating Fans, Total No. of

6

each of

1720-1720-1720

cubic feet capacity, at 400-1725-1725 revolutions per minute

Are electrically driven

electrically

Where spare fans are supplied are these fitted in position ready for coupling up

yes

Brine Circulating Pumps, No. and size of, including the additional pump

4 of 9 gph

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

2

only fitted in the two centre chambers

Can each section be readily shut off or disconnected

yes

Are the control valves situated in an easily accessible position

yes



© 2020

Lloyd's Register Foundation

004042-004048-0157 1/2

Are thermometers fitted to the outflow and to each return brine pipe yes. Where the tanks are closed are they ventilated as per Rule open.

Where the tanks are not closed is the compartment in which they are situated efficiently ventilated yes.

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	26/4 39	ca. 70 lbs	210 lbs	105 lbs	LLOYD TEST H.P. 210 A.T.T. A.P. 105 A.T.T. CU 26.4.39	
" SEPARATORS						
" CONDENSER COILS	17/5 39	"	"	"	H.P. 210 A.T.T. A.P. 105 A.T.T. CU 17.5.39	
" EVAPORATOR COILS						
MULTIPLE EFFECT RECEIVERS	14/6 39	"	"	"	H.P. 210 A.T.T. A.P. 105 A.T.T. CU 14.6.39	
CONDENSER HEADERS AND CONNECTIONS						
" CONDENSER CASINGS	17/5 39	ca. 5 lbs	15 lbs		LLOYD TEST 15 lbs CU 17.5.39	
" EVAPORATOR CASINGS	17/5 39	ca. 15 lbs	35 lbs		CU	
NH ₃ CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE						
BRINE PIPING AFTER ERECTION IN PLACE	28/8 39	"	"	90 lbs		

Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory yes.

Dates of test 5/9, 19, 24 Density of Brine 28° by Samuel 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 ~~the~~ brine cooled batteries -17° & -12.8°, outflow and return brine -17° & -21.5° atmosphere 19.5° cooling water inlet and discharge 19.5° & 21.6° gas in condensers +24.5° and evaporators -20° the average temperature of the refrigerated chambers 1.05 -12.75 and the rise of temperature in these chambers upon the expiration of 12 hours time after the machinery and cooling appliances have been shut off 1.05 8.13 C.

SPARE GEAR.

Are the machines in accordance with Section 4, Clause 2 of the Rules yes.

Are the working parts of the machines, pumps and motors respectively, interchangeable yes.

ARTICLES SUPPLIED AS PER approved specification ADDITIONAL SPARE GEAR SUPPLIED.

1 set of main shaft coupling bolts.
1 compressor piston & piston rod.
1 set piston rings.
1 connecting rod bottom end bearing & bolts.
1 connecting rod top end bearing & bolts.
1 crosshead pin.
1 set main bearing brasses with bolts.
2 delivery valves complete.
2 suction valves.
2 delivery & 2 suction valve springs.
1 set installation packings for 1 piston rod.
25 safety lines 1/40 dia.
25 " 80 dia.
1 length of cor. and brine pipes of each size
9 sets of fibre joint rings of each size
1 set of fibre joint material
1 spigot for cor. gas regulating valve
1 " each size of brine valves.
1 sieve for seal trap
1 cor. pressure gauge
1 cor. charging pipe.
1 thermometer.
3 brine thermometers.
2 cooling water thermometers.
1 valve spigot for each cor. valve.
12 sockets to back ends for each size of brine pipes.
2 set of flanges for each size of cor. pipes.
1 set of flanges for multiple effect receivers.
12 dry cocks, valves, flange & fittings.
FOR EACH SIZE OF BRINE PUMP AND COOLING WATER PUMP.
1 impeller with shaft
1 set of bearings
1 armature with bearing
1 set of field & interpole coils
1 set of carbon brushes
1 set of brush holders.
Isolated small parts for motor starters.
FOR COMPRESSOR MOTORS:
1 armature
1 set of bearings
1 set of field & interpole coils
1 set of carbon brushes
1 set of brush holders.
Isolated small parts for motor starters.
FOR EACH SIZE OF FAN WITH MOTOR:
1 propeller
1 armature with bearing
1 set of field & interpole coils
1 set of carbon brushes
1 set of brush holders.
Isolated small parts for motor starters.

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery. THOMAS TH. SABROE & CO. 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. 101	F					✓	✓	cork slabs	338	Expanded steel lattice & 1 1/2" cement
	A					✓	✓	"	50	2 1/2" Pine
FRAME No. 106	F									
	A					✓	✓	cork slabs	250	Expanded steel lattice & 1 1/2" cement
FRAME No. 111	F					✓	✓	"	100	"
	A					✓	✓	"	75	"
FRAME No. (Boiler Room)	F									
	A									
FRAME No. (Engine Room)	A					✓	✓	cork slabs	50	2 1/2" Pine
FRAME No. 119	F					✓	✓	"	300	Expanded steel lattice & 1 1/2" cement
	A									
FRAME No.	F									
	A									
FRAME No. (After Peak)	F									
SIDES						✓	✓	cork slabs	338	Expanded steel lattice & 1 1/2" cement
OVERHEADING						✓	✓	"	365	"
FLOORS OF CHAMBERS						✓	✓	"	350	19+25 1/2" Pine
								Teak decks	62	
TRUNK HATCHWAYS							✓			
THRUST RECESS, SIDES AND TOP							✓			
TUNNEL SIDES AND TOP							✓			
TUNNEL RECESS, FRONT AND TOP							✓			
FRAMES OR REVERSE FRAMES, FACE										
BULKHEAD STIFFENERS, TOP										
RIBBAND ON TOP OF DECKS										
SIDE STRINGERS, TOP										
WEB FRAMES, SIDES										
BRACKETS, TOP										
INSULATED HATCHES, MAIN										
HATCHWAY COAMINGS, MAIN										
HOLD PILLARS										
MASTS										
Are insulated plugs fitted to provide easy access to bilge suction roses						✓				✓
and manhole doors of tanks						✓				✓
Are insulated plugs fitted to ventilators						yes				✓
Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected						✓				✓
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						yes				
Cargo Battens, Dimensions and spacing, sides						✓				✓
fixed or portable						✓				✓
Are screens fitted over the brine grids at chamber sides						yes				✓
hinged or permanently fixed						fixed				
Thermometer Tubes, No. and position in each chamber						1				about centre of chamber
diameter						2"				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						No				
What provision is made for draining the refrigerating machinery room						1 of 1 1/2" scupper to engine room				
brine return room						1 of 2 1/2" scupper to engine room				
water circulating pump room						1 of 2 1/2" scupper to engine 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 nailed with galv. steel cramps.
How are the cork slabs secured to the steel structure of the vessel laid in glue and the outer layers nailed together with hex nails and
Air Trunkways in Chambers, inside dimensions, main 520 x 280 Z and branch 350 x 70 Z to wood spars with nails of galv. steel
Are they permanently fixed or collapsible, or portable. permanent State position in chambers under deck.

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. yes Where are the doors worked from lower deck
Cooling Pipes in Chambers, diameter 38/48 in. Are they galvanised externally. yes.
How are they arranged in the chambers in flat grids under deck and on open most bulkheads
- only fitted in the two centre chambers
Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers Brine hook files.

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

Ham. Petersen Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery 24/4 39 and Insulation 12/1 39.
(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 Refrigerating machinery with Appliances herein described has been constructed and fitted under special survey and in accordance with the Society's Rules, the approved plans and specification and the requirements contained in the Secretary's letters E dated 12/1 1939.

On completion of the installation the machinery was tried under working conditions and found to work satisfactorily and the insulation tested as shown on page 2 of this report.

Recommend the vessel to have notation of + LLOYD'S RMB 9.39

It is submitted that this vessel is eligible for THE RECORD.

+ Lloyd's RMB 9.39 24/10/39

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	3	CARBONIC ANHYDRIDE	AS THOMAS THS. JABROE & CO.	1939	1/ BRINE & AIR 2/ SLAB CORK cement faced	532800	22.1	6	9400

Fee KR. 375.00 { Fee applied for, 28.9.1939
Travelling Expenses & 66.00 { Received by me, 24.1.1940
Late fee " 62.00
Committee's Minute

Christoffer S. Sanderson
Surveyor to Lloyd's Register.

Assigned

+ Lloyd's Rmb 9.39
W. A. G. Jones

CERTIFICATE WRITTEN.



© 2020

Lloyd's Register Foundation