

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office)

28 FEB 1944

Date of writing Report

28 FEB 1944

When handed in at Local Office

28 FEB 1944

Port of NEWCASTLE ON TYNE.

No. in

Reg. Book.

Survey held at Newcastle

Date: First Survey 11-10-43

Last Survey 24-1-

1943

(No. of Visits)

8

on the Refrigerating Machinery and Appliances of the

"UMTATA"

Tons

Gross 7288
Net 3799

Vessel built at Newcastle

By whom built

Swan, Hunter & Wigham Richardson Ltd

Yard No. 1740

When built

1944

Owners

Bullard King & Co Ltd

Port belonging to

London

Voyage

Refrigerating Machinery made by

J & E. Hall Ltd

Machine Nos. 11231
11232

When made

1943

Insulation fitted by

Gregson & Co.

When fitted

1944

System of Refrigeration

CO₂ brine

Method of cooling Cargo Chambers

Air

Insulating Material used

Stillite and Isoglass

Number of Cargo Chambers insulated

4

Total refrigerated cargo capacity

79200.

cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY.

Where placed

Upper deck amidship.

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

45

See also LONDON RPT. R.M.C. N° 1325 of Nov. 1943.

Are all the units connected to all the refrigerated chambers

Compressors, driven direct or through

reduction gearing.

Compressors, single or double acting

Single.

If multiple effect compression

Yes

Are relief valves or safety discs fitted

Yes

No. of cylinders to each unit

2

Diameter of cylinders

3 1/2"

Diameter of piston rod

1 5/8"

Length of stroke

7"

No. of revolutions per minute

360.

Motive Power supplied from

Direct connected Steam Engines, Steam from 4 Main Boilers

(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

2

Length of stroke

6 1/2"

Working pressure

200/225 lb

Diameter of crank shaft journals and pins

ENGS. 3 1/2" JOURNALS, 3 1/2" PINS.

Breadth and thickness of crank webs

ENGS. 5" x 2 1/2"

No. of sections in crank shaft

one

Revolutions of engines per minute

360.

Oil Engines, type

6 1/2"

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

✓

AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule

Can the internal surfaces of the receivers be examined

What means are provided for cleansing their inner surfaces

Is there a drain arrangement fitted at the lowest part of each receiver

If made under survey

No. of Receivers

Cubic capacity of each

Internal diameter

thickness

Seamless, lap welded or riveted longitudinal joint

Material

Range of tensile strength

Working pressure by Rules

Electric Motors, type

No. of

Rated

Kilowatts

Volts at

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

Copper

Cylindrical or rectangular

Cylindrical.

Are safety valves fitted

to casings

Yes

No. of coils in each casing

1 in each casing.

Material of coils

Copper

Can each coil be readily disconnected

Yes

Water Circulating Pumps, No. and size of pumps available

1-10" x 9" x 24"

how worked

Steam direct

Gas Separators, No. of

4

Gas Evaporators, No. of

2

Cast iron or steel casings

Steel

Pressure or gravity type

pressure

If pressure type, are safety

valves fitted

fitted

No. of coils in each casing

7

Material of coils

Steel

Can each coil be readily disconnected

Yes

Direct Expansion or Brine Cooled Batteries, No. of

4 twin type

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

6 in each of 3 twin type

Material of coils

Steel

Can each coil be readily shut off or

disconnected

Yes

Total cooling surface of battery coils

7250 sq. ft

Is a watertight tray fitted under each battery

Yes

Air Circulating Fans, Total No. of

2

each of

23,000.

cubic feet capacity, at

1950/1300.

revolutions per minute.

Steam or electrically driven

Electrically

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

No

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

3-3 1/2" Vert. centri.

how worked

electrically

Brine Cooling System, closed or open

Closed

Are the pipes and tanks galvanised on the inside

No

No. of brine sections in each chamber

N°1. M.T. Dk. Coolers = 6,

N°2. M.T. Dk. Coolers = 8

N°3 " " = 6,

N°4 " " = 6

Can each section be readily shut off or disconnected

Yes

Are the control valves situated in an easily accessible position

Yes

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

Im. 11.57.—T. (MADE IN ENGLAND.)

003875-003883-0149 1/2

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Are thermometers fitted to the ^{common} ~~outlets~~ and to each return brine pipe Yes Where the tanks are closed are they ventilated as per Rule Yes.
 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 Yes
 Is the exhaust steam led to the main and auxiliary condensers Special Condenser, or Ship's Auxiliary Condenser.

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
ENGINE CYLINDERS (IF TESTED)						
GAS COMPRESSORS	3-9-43	1000 lb □	3000 lb □	1500 lb □	RM.	
„ SEPARATORS	26-11-43	"	"	"	DG.	
„ MULTIPLE EFFECT RECEIVERS...	26-11-43	"	"	"	DG	
„ CONDENSER COILS	24-9-43 29-9-43	"	"	"	DG.	
„ EVAPORATOR COILS	21-5-43 2-11-43, 8-10-43	"	"	"	DG.	
„ CONDENSER HEADERS AND CONNECTIONS	18-5-43 8-6-43 24-11-43 12-11-43	"	"	"	DA.	
„ CONDENSER CASINGS	16-11-43	10 to 15 lb □	30 lb □		DG.	
„ EVAPORATOR CASINGS	9-7-43	"	"		DG.	
NH ₃ CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE	11/10/43			90 lbs/sq in		
BRINE PIPING AFTER ERECTION IN PLACE...	28/12/43.					

Have important steel castings and forgings been tested in accordance with the Rules Yes

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

Dates of test 10th & 11th - 1-44 Density of Brine 48° by Twaddell hydrometer

Temperatures (when the cargo chambers are cooled down to the required test temperatures) of delivery and return air at ~~direct expansion~~ brine cooled batteries

-4° F. & Zero° F., outflow and return brine -11° F. & -
 atmosphere 30° F. cooling water inlet and discharge 45° F. & 49° F., gas in condensers 60° F. and evaporators -18° F.

the average temperature of the refrigerated chambers Zero° F. and the rise of temperature in these chambers upon the expiration of twelve hours
 time after the machinery and cooling appliances have been shut off 17½° F.

Admitted to service on 11/11/44.

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: 12 lub. piston leathers, 1 set 2 leather moulds, 1 regulator valve, 2 springs for water relief valve, 12 lub. gland leathers, 8 addl. springs for comp. valves, 2 springs for CO₂ safety valves, 2 bolts & nuts for conn. rod ends, 1 pump for press^{ure} lub., 2 brass cased thermometers, 2 " " " crosshead, 1 CO₂ gauge, 12 safety valve discs, 1-½" CO₂ gauge valve, 2 " " " main bearings, 1 hydrometer, 2 spare pups for ½" CO₂ gauge valve, 2 pairs of CO₂ tube flanges, 2 liners for compressors, 1 fitted box for Comp^{ressor} parts, 1 complete set of coupling bolts.

STEAM ENGINES

1 pr Xhd brasses with bolts & nuts.
1 " crankpin " " " "
1 set piston rings.
1 pair governor springs.
1 Valve rod.
1 piston, rod & nuts.
2 sets gland packing.
6 condenser tubes.
24 ferrules & packing.
1 air pump piston rod.
1 set of pump piston rings.
1 set pump valves.

ELECTRICAL SPARES.

Brine Pumps. Fans each size
1 Armature 1.
Set of field coils 1.
Set of interpole coils 1.
Set of bearings 1
Line brush holders 1
Set brushes for each motor fitted 1
Set Controller spares 1

1 complete Spare Motor

For Brine Pumps

1 impeller
1 sprindle
1 set of brushes

For Circ. Water pumps

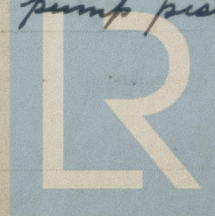
1 set steam piston rings
1 " pump " "
1 set Valves & springs
1 pump piston & rod.

1 spare 2-bladed rotor for each size fan.

The foregoing is a correct description of the Refrigerating Machinery.

Signed by

J. E. HALL LTD



Lloyd's Register
 Manufacturer.
 Foundation

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. 160 (Fore Peak)						None	GALV. SHEET STEEL	STILLITE	9"	Galv. sheet steel.
FRAME No. 140							"	"	6"	"
FRAME No. 107 centre							"	"	6"	"
FRAME No. 100 Sides							"	1/2" GLASS	10"	"
FRAME No. (Boiler Room)							"	1/2" GLASS	10"	"
FRAME No. (Engine Room)							GALV. SHEET STEEL	STILLITE	7"	"
FRAME No. 64							"	"	6"	"
FRAME No. 40							"	"	6"	"
FRAME No.										
FRAME No. 7 (After Peak)							GALV. SHEET STEEL	STILLITE	7"	"
SIDES							"	"	11"	"
OVERHEADING							1/2" T.G. LINING	"	11"	"
FLOORS OF CHAMBERS							1/2" ASPHALT	SLAB CORK	6"	
TRUNK HATCHWAYS										
THRUST RECESS, SIDES AND TOP										
TUNNEL SIDES AND TOP										
TUNNEL RECESS, FRONT AND TOP										

NOT FITTED

In way of After peak tank top and oil fuel bunker at p. 11 wings of No 2 'tween decks.

FRAMES OR REVERSE FRAMES, FACE 3"x2" W.W. grounds on face with galv'd sheet steel lining

BULKHEAD STIFFENERS, TOP Stillite between Bkts. BOTTOM AND FACE Stillite 1" min.

RIBBAND ON TOP OF DECKS Nil.

SIDE STRINGERS, TOP Nil. BOTTOM Nil. AND FACE Nil.

WEB FRAMES, SIDES Nil. AND FACE Nil.

BRACKETS, TOP 3"x2" W.W. grounds on face with galv'd sheet steel linings filled with Stillite. BOTTOM as at Top. AND FACE

INSULATED HATCHES, MAIN Bilge MANHOLE

HATCHWAY COAMINGS, MAIN Trunked between upper & main Bkts. insulated with 9" STILLITE on inside only of Trunk with Galv'd sheet steel lining.

T.W.DK. 6" dia & left - 1" hair felt wrapped with 2" Sisal rope.

MASTS 6" stillite - outer lining Galv'd sheet steel. 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

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

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 3 in No 1 tank, 6 in No 2, 4 in No 3, 4 in No 4. Generally at Sides & ends.

diameter 2 1/2" fore 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. What provision is made for draining the inside of the chambers 2 1/2" dia. trapped Scuppers to bilge.

Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off Screw plugs.

What provision is made for draining the refrigerating machinery room 2" Scupper discharging overboard & fitted with Storm Valves.

brine return room 2 1/2" Scupper fan room 1 1/2" Scupper 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.

Nil.

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.

Bitumen & grounds

Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans.

Are they permanently fixed or collapsible, or portable.

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.

Air Coolers fitted

Minimum thickness.

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.

Air Coolers

hot brine

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

SWAN, HATCHER & WIGHAM, RICHARDSON, LTD.

Thos. Morris

Builders.

Plans. Are approved Plans & Specifications forwarded herewith for the Refrigerating Machinery and Insulation.

Is the Refrigerating Machinery and Appliances duplicate of a previous case.

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 materials and workmanship are good.

The requirements of the Society's Rules have been complied with and the vessel is, in our opinion, eligible to have the notation + Lloyd's R.M.C. 1-44 recorded in the Register Book.

It is submitted that this vessel is eligible for THE RECORD, + Lloyd's Rule 1-44.

CERTIFICATE WRITTEN

GA
8/2/44
In R.B. Slagwood & Glenwood

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	Ice melting capacity per 24 hours.	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. Amby.	J & E. Hall. Ls	1944	(2) Stillite & Isdagham (1) air	Tons. 45.	No.	4	79200

Fee N.W.C. A.S. 12 0 : 0 { Fee applied for, 2/2/43 19
Travelling Expenses £ : : { Received by me, 19

FRI. 11 FEB 1944

Committee's Minute

Assigned.

+ Lloyd's Rule 1.44

Robt Price

Sheel Steel & Co.
E.H. Dean, Aulatt
Surveyors to Lloyd's Register.



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