

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office 16 MAY 1926 - 8 MAR 1926)

Date of writing Report 16 MAY 1926

When handed in at Local Office 16 MAY 1926

No. in

Reg. Book.

41102

Survey held at

Dorby and Hong Kong

Date: First Survey 11 February

17th June 1925

Last Survey 4 May 1925

15th Jan. 1926

(No. of Visits)

5 and 11

on the Refrigerating Machinery and Appliances of the

S. S. TAIPING

Tons

Gross 4,323.75

Net 2,582.18

Vessel built at

Hong Kong

By whom built

The Hong Kong & Whampoa Dock Co.

Yard No.

619

When built

1925-1926

Owners

G. S. Guill & Co., Sydney

Port belonging to

Hong Kong

Voyage

Australia

Refrigerating Machinery made by

Haslam Foundry & Engineering Co. Ltd.

Machine No.

3

When made

1925-1926

Installation fitted by

Hong Kong & Whampoa Dock Co.

When fitted

1925-1926

System of Refrigeration

Ammonia

Method of cooling Cargo Chambers

Brine Piping

Insulating Material used

Granulated Brine

Number of Cargo Chambers insulated

8

Total refrigerated cargo capacity

49,005

cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY.

Where placed Upper Deck, Forward.

Refrigerating Units, No. of

1

Single, double, or triple

Double

Cubic feet of air delivered per hour

✓

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

30

Are all the units connected to all the refrigerated chambers

yes

Compressors, driven direct or through

single or double

reduction gearing

Compressors, single or double acting

Double

No. of cylinders

2

Diameter of cylinders

8"

Diameter of piston rod

2"

Length of stroke

12"

No. of strokes per minute

200

motive Power supplied from

Direct acting Steam engine.

Steam Engines, high pressure, compound, or triple expansion, surface condensing.

No. of cylinders

2

Diameter

9" + 14"

Length of stroke

12"

Working pressure

180 lb. sq. in.

Diameter of crank shaft journals and pins

4½" + 4"

Width and thickness of crank webs

5½" x 3"

No. of sections in crank shaft

2

Revolutions of engines per minute

100

Oil Engines, type

2 or 4 stroke cycle

Single or double acting

No. of cylinders

Diameter

Length of stroke

Span of bearings as per Rule

Maximum pressure in cylinders

Diameter of crank shaft journals and pins

Width and thickness of crank webs

No. of sections in crank shaft

Revolutions of engine per minute

Electric Motors, type

No. of

Rated

Kilowatts

RPM at

revolutions per minute

Diameter of motor shafts at bearings

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

2

Cast iron or steel casings in machine base

Cylindrical or rectangular

rectangular

No. of coils in each

2

Material of coils

S.D. Steel

Can each coil be readily shut off or disconnected

no

Water Circulating Pumps, No. and size of

1 - 4½" x 9" x 12"

how worked

Direct acting Steam

Gas Separators, No. of

2

Gas Evaporators, No. of

2

Cast iron or steel casings

Steel

Pressure or gravity type

Gravity

No. of coils in each casing

5

Material of coils

S.D. Steel

Can each coil be readily shut off or disconnected

no

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

each of

cubic feet capacity, at

revolutions per minute

Steam or electrically driven

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 - 6" x 6½" x 6"

how worked

Direct acting Steam

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 T.D. port - 2, N°1 T.D. Star - 2, Hatch trunk - 1

N°3 T.D. port - 2, N°3 T.D. Star - 2, N°3 T.D. Ford - 1, N°1 Hold - 2, N°2 Hold - 3

Can each section be readily shut off or disconnected

yes

Are the control valves situated in an easily accessible position

yes

Are thermometers fitted to the outflow and to each return brine pipe Yes 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.

Independent Steam Condenser - 200 sq. feet Surface.

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
ENGINE CYLINDERS (IF TESTED)	20.3.25	H.P. 180 lb.	350 lb.		J.S.G.	
	10.3.25	L.P. 120 lb.	250 lb.		J.S.G.	
GAS COMPRESSORS	20.3.25	200 lb.	500 lb.		J.S.G.	
	26.3.25	200 lb.	500 lb.		J.S.G.	
" SEPARATORS						
" CONDENSER COILS	10.3.25	200 lb.	1500 lb.	500 lb.	J.S.G.	
" EVAPORATOR COILS	11.2.25	200 lb.	1500 lb.	500 lb.	J.S.G.	
" CONDENSER HEADERS AND CONNECTIONS	10.3.25	15 lb.	1500 lb.		J.S.G.	
" CONDENSER CASINGS	26.3.25	5 lb.	15 lb.		J.S.G.	
" EVAPORATOR CASINGS	20.3.25	5 lb.	15 lb.		J.S.G.	
NH ₃ CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE	4.5.25	Gravity	50 lb.		D.G.	
BRINE PIPING AFTER ERECTION IN PLACE.	11-12-25			250 lb.	T.S.M.	
	13-1-26					
	8-1-26	10 to 15 lb.	50 lb.	90 lb.	T.S.M.	

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

Dates of test January 15th & 16th 1926 Density of Brine 40 by Twaddell 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 0° F. & 3° F. atmosphere 78° F. cooling water inlet and discharge 66° F. & 78° F. gas in condensers 75° F. (135) and evaporators 0° F. (15) the average temperature of the refrigerated chambers 14° F. 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 12° F. average rise in temperature.

SPARE GEAR.

ARTICLES SUPPLIED AS PER RULE.	ADDITIONAL SPARE GEAR SUPPLIED.
1 Crankshaft.	3 lengths each of 1 1/2" & 1 1/4" W.I. piping
1 Steam piston rod + nut.	3 each 1 1/2" & 1 1/4" W.I. bends.
1 H.P. Piston with rings	12 each 1 1/2" & 1 1/4" sockets + backnuts.
1 Set rings for each steam cylinder	1 Set ratchet screwing dies 1 1/2" & 1 1/4"
1 Compressor piston rod + nut.	1 Set joint rings
1 Air pump bucket + rod.	assorted bolts + nuts.
1 Circulating pump bucket + rod.	1 fitted box for rod, valves etc.
1 H.P. cylinder slide valve.	1 gas regulating valve complete.
1 H.P. valve spindle	Sundry cocks, valves + flanges.
1 Eccentric sheave, strap + rod for each pattern used.	1 Set compressor gland packing
1 Cover for each end of compressor	1 patent hatch grid cock.
2 Main bearing bolts.	
1/2 Set connecting rod bolts	
1/2 Set piston rod bolts.	
4 Compressor delivery valves seats + springs	
4 Compressor suction valves seats + springs	
1 Set valves for air, feed, circulating and brine pumps.	
6 tubes or 2 1/2 ferrules for steam condenser	

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery.

THE MASLAM FOUNDRY & ENGINEERING CO. LIMITED

A. V. Hughes 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. 153 (Fore Peak)	A	✓	✓	Gran. Cork	10"	2-1" T+G.	Frame No. 149	✓	Gran. Cork	10"	2-1" T+G.
FRAME No. 137	F	✓	✓	" "	3"	2-1" T+G.	Intermediate Bulkheads	✓	" "	8"	2-1" T+G.
	A	✓	✓	" "	9"	2-1" T+G.	" "	✓	" "	8"	2-1" T+G.
FRAME No. 121	F	✓	✓	" "	12"	2-1" T+G.	" "	✓	" "	10"	2-1" T+G.
	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FRAME No. 1	F	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FRAME No. 1 (Boiler Room)	F	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FRAME No. 59 (Engine Room)	A	✓	✓	✓	✓	✓	✓	Gran. Cork	10"	2-1" T+G.	
FRAME No. 34	F	✓	✓	✓	✓	✓	✓	" "	10"	2-1" T+G.	
	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FRAME No. 1	F	✓	✓	✓	✓	✓	✓	Intermediate Bulkheads	" "	8"	2-1" T+G.
	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FRAME No. 1	F	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FRAME No. 1 (After Peak)	F	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SIDES	✓	✓	✓	Gran. Cork	10" + 10"	2-1" T+G.	✓	✓	Gran. Cork	10"	2-1" T+G.
OVERHEADING	✓	✓	✓	" "	10"	2-1/4" T+G.	✓	✓	" "	10"	2-1/4" T+G.
FLOORS OF CHAMBERS	✓	✓	✓	" "	10"	1-1" T+G.	✓	✓	" "	3"	1-1" T+G.
						1-2" Ceiling					1-2" Ceiling
TRUNK HATCHWAYS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
THRUST RECESS, SIDES AND TOP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TUNNEL SIDES AND TOP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TUNNEL RECESS, FRONT AND TOP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

FRAMES OR REVERSE FRAMES, FACE 2-1" T+G. Cleading + space packed with Granulated Cork.

BULKHEAD STIFFENERS, TOP 2-1" T+G. Cleading + Cork BOTTOM do AND FACE do

RIBBAND ON TOP OF DECKS 3" x 3" grounds on deck with cleading + 2" pine ceiling.

SIDE STRINGERS, TOP 1" Boarding + Cork BOTTOM do AND FACE do

WEB FRAMES, SIDES AND FACE do

BRACKETS, TOP 2-1" T+G. Cleading + cork BOTTOM do AND FACE do

INSULATED HATCHES, MAIN 1-1/4" T+G. each side, 8" cork BILGE 1-1" T+G. each side, 8" cork MANHOLE 2" P.P. sides, 8" cork.

HATCHWAY COAMINGS, MAIN 7" pine x 15" deep BILGE 2 1/2" pine x 12" deep

HOLD PILLARS 1 1/2" cleading, 3" cork

MASTS ✓ VENTILATORS Built in trunk ventilators (See plan)

Are insulated plugs fitted to provide easy access to bilge suction roses Yes tank, air, and sounding pipes Yes heels of pillars Yes

and manhole doors of tanks Yes Are insulated plugs fitted to ventilators Yes cargo ports ✓ and side lights ✓

Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected Yes if so, how 2" Hardwood ceiling

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 None adjacent

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 3" x 2" x 12" floors 3" x 2" x 12" tunnel top ✓

fixed or portable fixed Are screens fitted over the brine grids at chamber sides Hatch hinged or permanently fixed permanently

Thermometer Tubes, No. and position in each chamber No. 1 Lower hold 3, No. 2 Lower hold 4, Tween Decks 2 each, P.S. in fore + aft positions.

diameter 2 1/2" are they fitted in accordance with Section 3, Clause 8 Yes

Protection of Pipes. Are all pipes, including air and sounding pipes, which pass through or into insulated chambers, well insulated Yes

Draining Arrangements. Where the chambers are situated below the load water line, what provision is made for draining the inside of the chambers

Liquid seal traps Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off Yes

What provision is made for draining the refrigerating machinery room scupper to upper deck

brine return room do fan room ✓ water circulating pump room do

Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers No air spaces

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Sounding Pipes, No. and position in each chamber situated below the load water line Above water line
Diameter 2 1/2 Are all sounding pipes in way of insulated chambers fitted in accordance with Section 3, Clause 11 Yes
Are all wood linings tongued and grooved Yes Are cement facings reinforced with expanded steel lattice No cement
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 1 1/2 Are they galvanised externally No
How are they arranged in the chambers In grid sections, overhead, sides & ends.
Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers Steam heating of brine.

HONGKONG & WHAMPOA DOCK CO., LTD.

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

R. N. Dyer
Chief Manager.

Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery ✓ and Insulation Approved
(If not, state date of approval) 1 Feb. Dec. 9th 1924
Is the Refrigerating Machinery and Appliances duplicate of a previous case Yes If so, state name of vessel S.S. "CHANG F"
If the survey is not complete, state what arrangements have been made for its completion and what remains to be done Complete

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

The refrigerating machinery has been constructed under special survey and the materials and workmanship are good.

The insulation of chambers has been fitted in accordance with approved plans, and machinery installed & tested under special survey.

The materials & workmanship are good & it is recommended that the vessel be classed with Lloyd's Refrigerating Machinery Certificate and the record of Lloyd's R.M.C. - 1-26 be made in the Register Book.

It is submitted that
this vessel is eligible for
THE RECORD. + Lloyd's RMC 1. 26.

C. S. L. D. 9/3/26

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 Duplex.	Makers.	Date of Construction.	System.	Type.		Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No.	Capacity.
✓ 1 Double Acting 6" Ad	✓ Haslam & Hundry	✓ 1926	✓ Ammonia	✓ Haslam	✓ ① Brine ② Expansion & Distillation Cork		✓ 30	✓ 8	✓ 49,000.5 Cub. ft.

Fee (3rd fee) £ 3.00
Travelling Expenses £ 5.19.6

Fee applied for, 18 MAY 1925
Received by me, 14/6/25

D. Gemmell & for J. S. Gordon
Surveyor to Lloyd's Register.

Committee's Minute

FRI. 12 MAR 1926

Assigned

+ Lloyd's R.M.C. 1-26

CERTIFICATE WRITTEN



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