

Rpt. 4.

REPORT ON MACHINERY.

Con. report No 80053
No. 1495

Received at London Office 10 JAN. 1916

Date of writing Report 3rd Dec. 1915 When handed in at Local Office

19 Port of Stockholm

No. in Survey held at Stockholm
Req. Book. on the *Rennie Smeth's 1270 "Lutona"*

Date, First Survey 9th Feb 1915

Last Survey 22nd Dec 1915

(Number of Visits 15)

Gross
Tons
Net
When built

Master Built at

By whom built

Engines made at Stockholm

By whom made Messrs J. & E. G. Bolinder's Co., Ltd.

when made

Boilers made at

(Messrs James Pollock, Sons & Co's order no. 27650, Cyl. Nos. 10714/15)
By whom made

when made

Registered Horse Power 160

Owners

Port belonging to

Nom. Horse Power as per Section 28

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

ENGINES, &c.—Description of Engines *Bolinder, two stroke cycle reversible, with air injection* No. of Cylinders 2 No. of Cranks 2

Dia. of Cylinders 420^{mm} Length of Stroke 480^{mm} Revs. per minute 225 Dia. of Screw shaft as per rule as fitted Material of screw shaft

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Is the after end of the liner made water tight

in the propeller boss If the liner is in more than one length are the joints burned If the liner does not fit tightly at the part

between the bearings in the stern tube the space charged with a plastic material insoluble in water and non-corrosive If two

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush

Dia. of Tunnel shaft as per rule as fitted Dia. of Crank shaft journals as per rule as fitted 158^{mm} Dia. of Crank pin 174^{mm} Size of Crank webs 240^{mm} Dia. of thrust shaft under

collars 150^{mm} Dia. of screw Pitch of Screw No. of Blades State whether moveable Total surface

No. of *cooling* pumps 1 Diameter of ditto 100^{mm} Stroke 52^{mm} Can one be overhauled while the other is at work

No. of Bilge pumps 1 Diameter of ditto 100^{mm} Stroke 100^{mm} Can one be overhauled while the other is at work

No. of Donkey Engines Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room In Holds, &c.

No. of Bilge Injections sizes Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine room & size

Are all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible Are the sluices on Engine room bulkheads always accessible

Are all connections with the sea direct on the skin of the ship Are they Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Discharge Pipes above or below the deep water line

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate

What pipes are carried through the bunkers How are they protected

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

Dates of examination of completion of fitting of Sea Connections of Stern Tube Screw shaft and Propeller

Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record) Manufacturers of Steel

Total Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers

Working Pressure Tested by hydraulic pressure to Date of test No. of Certificate

Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to

each boiler Area of each valve Pressure to which they are adjusted Are they fitted with easing gear

Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates

Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams

long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

Per centages of strength of longitudinal joint rivets plate Working pressure of shell by rules Size of manhole in shell

Size of compensating ring No. and Description of Furnaces in each boiler Material Outside diameter

Length of plain part top bottom Thickness of plates crown bottom Description of longitudinal joint No. of strengthening rings

Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom

Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules

Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space:

Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays

Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom

Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules

Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays

Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and

thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each

Working pressure by rules Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

012236-011245-0353 1/2

Lloyd's Register
Foundation

WEB

WEB

WEB

BRA
We

BUL

W.T.

N°

N°

N°

.. CO

PAR

LONG

Are t

Are t

FLAT
(if B)

GAB

Star
thick
way of

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

B

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. Description

Made at By whom made When made Where fixed

Working pressure tested by hydraulic pressure to Date of test No. of Certificate Fire grate area Description of Safety

Values No. of Safety Valves Area of each Pressure to which they are adjusted Date of adjustment

If fitted with easing gear If steam from main boilers can enter the donkey boiler Dia. of donkey boiler Length

Material of shell plates Thickness Range of tensile strength Descrip. of riveting long. seams Rivets

Dia. of rivet holes Whether punched or drilled Pitch of rivets Lap of plating Per centage of strength of joint Plates

Working pressure of shell by rules Thickness of shell crown plates Radius of do. No. of stays to do. Dia. of stays

Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint

Working pressure of furnace by rules Thickness of furnace crown plates Radius of do. Stayed by

Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Manufacturer.

Dates During progress of work in shops -- 9.11.24-27/2; 2/3; 29/4; 21/7; 4x5/8; 2.8.9.13x14/10; 22/12/1915

During erection on board vessel --

building Total No. of visits 15

Is the approved plan of main boiler forwarded

Dates of Examination of principal parts—Cylinders 2x8/1915 Covers 2x8/1915 Pistons 2x8/1915

Connecting rods 2x8/1915 Crank shafts 2x8/1915 Thrust shaft 2x8/1915 Tunnel shafts

Stern tube Steam pipes tested Engine and boiler seatings Engines holding down

Completion of pumping arrangements Boilers fixed Engines tried in shop

2 Starting air receivers 13.14/12 1915 Injection air receiver 4/8 22/12/1915

Main boiler safety valves adjusted Thickness of adjusting washers 1/8 22/12/1915

Material of Crank shaft S. M. Steel Identification Mark on Do. 2.8.9.13x14/10 Material of Thrust shaft S. M. Steel Identification Mark

Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts Identification Mark

Material of Steam Pipes Solid drawn copper Test pressure 60 atm.

Material of Solenoid: Cast iron

General Remarks (State quality of workmanship, opinions as to class, &c. This machinery is a duplicate dealt with in Skm. Report No. 1446— See appended sheet.

The amount of Entry Fee .. £

Special mark with test 6.0

Donkey Boiler Fee .. £

Travelling Expenses (if any) £

When applied for, 20/9

When received, 19--

Committee's Minute

FRI 13 JUL 1917

Assigned

FRI NOV 28 1919

FRI NOV 17 1922

FRI 28 DEC 1917

TUE 9 JUL 1918

FRI OCT 28 1918

FRI JUL 30 1920

FRI APR 30 1920

of Stockholm

Continuation of Report No. 1495 dated 3rd January 1916 on the

BOLINDER 160 B. H. P. motor, Cyl. Nos 10714/15

The designs of the crank & thrust shafts and the connecting rods of this type and size of Bolinder Motor have been submitted and approved (See Secretary's letters E 5.3.13 & 9.4.14).

These shafts and connecting rods have been manufactured at the Sandviken and Björneborg Steel Works in accordance with the Rules. They have been inspected while being roughturned and finished and found good and sound. Their materials have been tested by the undersigned and found to fill the Rule Requirements.

The cylinders, of cast iron, have been examined and found sound. Thickness of cylinderwalls stated to be 30 mm. and of waterjackets 15 mm. Cylinders tested with hydraulic pressure to 529 lbs per sq. inch or twice the working pressure of 18 Atm. and found tight. They have been marked on upper flange of each cylinder: Lloyd's Test 529 lbs 8.10.15 A. Their waterjackets have been tested to 50 lbs and found tight.

The compressor cylinders (2 stage) and their waterjackets have been tested: H. P. cyl. to 60 Atm., L. P. cyl. to 16 Atm., or twice the resp. working pressures, and waterjackets to 50 lbs and all found tight.

The starting air receivers, of low tensile S. M. S. plates, lapwelded by the ordinary "water gas" method, are manufactured at the Avesta Steel Works, who have also manufactured and rolled the steel. Length of receiver 1640 mm., outside diam. 300 mm., platethickness 6 mm. Plan submitted and approved (See Secretary's letter E.24.7.1914). The steel material has been tested by the undersigned and found good, and the receiver been tested by me with hydraulic pressure to 24 Atm. or twice the working pressure and found sound and tight. It has been stamped as follows:

Lloyd's Test 24 Atm.
Working Pr. 12 Atm.
No. 2040 Skm. 22.12.15 A

The injection air receiver, of solid drawn S. M. S. tube, is manufactured at the Avesta Steel Works from tube, manufactured at the Storfors Steel Works. Length of receiver 1335 mm., outside diam. 108 mm., platethickness 4.5 mm. Plan submitted and approved (See Secretary's letter E. 5.2.17). The material has been tested by the undersigned and found good, and the receiver tested by me with hydraulic pressure to 60 Atm. or twice the working pressure and found sound and tight. It has been stamped as follows:

Lloyd's Test 60 Atm.
Working Pr. 30 Atm.
No. 2042 Skm. 22.12.15 A

The motor has been tried in shop under full power in my presence and found to give an effect at normal load and 225 revolutions of 160 B. H. P. It has also been tried with a continuous overload at 176 B. H. P. and found to work well.

The Society's Rules with regard to the details of construction, fitting of valves, lubrication, accessibility, etc., have been adhered to so far as concerns the motor itself. The remaining requirements will be attended to at the fitting of the motor in ship, if a classed vessel.

I am of opinion, that this motor is of superior material and workmanship, and as it has been designed and constructed under my special survey, I have respectfully to submit, that it will be eligible to be classed **Y.L.M.C.** and that a special certificate, as referred to in Secretary's letter E, dated 3rd March 1914, be issued and forwarded to this Office.

O. Eriksson
Engineer Surveyor to Lloyd's Register of Shipping.

O. Eriksson
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.