

Rpt. 4.

REPORT ON MACHINERY.

No. 1187

Received at London Office

FRI. JUL 4-1913

Date of writing Report 30 June 1913 When handed in at Local Office

10 Port of Stockholm

No. in Survey held at Stockholm

Date, First Survey 28 Sept. 1912 Last Survey 9 June 1913

Reg. Book.

(Number of Visits 23)

on the machinery of the twin screw motor vessel

Master

Built at

By whom built N. T. Soerabayasche Ma-

Tons

Gross

Net

When built

Engines made at Stockholm

By whom made J. C. G. Bolinder's Co. Ltd.

when made 1913

Boilers made at

By whom made

when made

Registered Horse Power 320

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's two stroke cycle, reversible No. of Cylinders 4 No. of Cranks 4

Dia. of Cylinders 420 mm Length of Stroke 480 mm Revs. per minute 225 Dia. of Screw shaft as per rule 186 as fitted 190 Material of screw shaft S. M. S.

Is the screw shaft fitted with a continuous liner the whole length of the stern tube no liner fitted 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, is 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 161 as fitted 165 Dia. of Crank shaft journals as per rule 176 as fitted 180 Dia. of Crank pin 180 Size of Crank webs 270 Dia. of thrust shaft under collars 175 Dia. of screw 1900 mm Pitch of Screw 1710 mm No. of Blades 3 State whether moveable no Total surface 14176 cm.

No. of Feed pumps Diameter of ditto Stroke Can one be overhauled while the other is at work

No. of Bilge pumps 2 Diameter of ditto 100 mm Stroke 50 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 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 Thickness of plates crown Description of longitudinal joint No. of strengthening rings

bottom 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

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VERTICAL DONKEY BOILER—

Manufacturers of Steel

No.	Description	When made	Where fixed
Made at	By whom made	No. of Certificate	Fire grate area
Working pressure	tested by hydraulic pressure to	Date of test	Description of Safety
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
If fitted with easing gear	If steam from main boilers can enter the donkey boiler	Date of adjustment	
Material of shell plates	Thickness	Range of tensile strength	Descrip. of riveting long. seams
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
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 of Survey while building
 During progress of work in shops -- 28 Sept. 14th & 15 Oct. 29 Nov. 13 Dec 1912, 15 Jan. 27 Jan. 5 & 22 Febr. 4 & 28 March,
 During erection on board vessel -- 3, 4, 14, 17, 23 & 30 April, 7, 8 & 22 May, 2 & 9 June 1913.
 Total No. of visits

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders 4 & 28, 3 & 7 1913
 Connecting rods 15, 13, 1912 Crank shaft 9, 1912 Thrust shaft 27, 5 & 22 Tunnel shafts 30, 9, 2 & 9 Screw shaft 4, 14, 17 & 23 Propeller 2, 1913
 Stern tube Steam pipes tested 15, 5 & 22 1913 Engine and boiler seatings Engines holding down bolts
 Completion of pumping arrangements Boilers fixed Engines tried under steam 7 May 1913
 Main boiler safety valves adjusted Thickness of adjusting washers
 Material of Crank shaft S.M.S. Identification Mark on Do. 2. 6. 1913
 Material of Tunnel shafts S.M.S. Identification Marks on Do. 2. 6. 13 & 36
 Material of Steam Pipes Test pressure 15. Mark on spare prop. shaft Lloyd's no. 4

General Remarks (State quality of workmanship, opinions as to class, &c. The designs of the crank-, thrust-, intermediate-, and propeller shafts, connecting rods and clutch gearing of this type and size of Bolinder motor have been submitted and approved (See Sec. Letters E. 31.10.1912, 21.1.1912, & 13.9.1912). These shafts (except the intermediate shafts) and the connecting rods have all been manufactured at the Sandvik Steel works—the intermediate shafts have been manufactured at the Björnsborg steel works—and all in accordance with the Rules. The shafts have been examined while being forged, and when being rough-turned and finished and found good and sound. The materials have been tested by the undersigned and found to fill the Rule requirements. The cylinders, of cast iron, have been examined in- and outside and found sound. Thickness of cylinder walls is stated to be 30 mm. and of water jackets 16 mm. Cylinders tested with hydraulic pressure to 529 lbs. per sq. in. or double the working pressure of 18 atm. and found tight. They have been marked on upper flange of each cylinder Lloyd's Test 28.3.13 A. Their water jackets have been tested to 50 lbs. and found tight. The Silencer and its water jacket have been tested to 50 lbs. and found tight. The motor has been tried in shop under full power in my presence and found to give an eff. at normal load of and 225 revolutions of 320 B.H.P. The bilge pumps, of 100 mm. diam. & 50 mm. stroke, are in accordance with the approved design this instance (See Sec. Letter E. 28.10.1912).

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 of the Rules will have to be attended to at the fitting of the motor in ship. I am of opinion, that this motor is of superior material and workmanship, and as it has been signed and constructed under my special survey, I have respectfully to submit, that it will be eligible to be classed L.M.C. as soon as it has been fitted in ship to the satisfaction of the Society's Local Surveyor.

The amount of Entry Fee £ 12.00
 Special Donkey Boiler Fee £ 20 June 1913
 Travelling Expenses (if any) £
 When received, J. H. L.

Committee's Minute

Assigned

TUE. MAR. 31. 1914

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



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