

REPORT ON MACHINERY.

No. 1283

Port of Gothenburg

Received at London Office TUES. 28 AUG. 1906

No. in Survey held at Gothenburg

Date, first Survey 27th May 1905

Last Survey 22nd August 1906

Reg. Book.

(Number of Visits 58)

153 on the Steel Sc. Sr. "Fermia"

Master Fredrik Olsson Built at Gothenburg

By whom built Eriksbergs Mekaniska Verkstads A.B.

Tons } Gross 522
 } Net 274
When built 1906

Engines made at Gothenburg

By whom made Eriksbergs Mekaniska Verkstads Aktiebolag

when made 1906

Boilers made at Gothenburg

By whom made Eriksbergs Mek. Verkst. A.B.

when made 1906

Registered Horse Power

Owners Ängbåtsaktiebolaget Ferm

Port belonging to Kristinehamn

Nom. Horse Power as per Section 28 65

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple expansion

No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 13 1/4 & 22 & 36

Length of Stroke 24

Revs. per minute 105

Dia. of Screw shaft 7 3/4

as per rule 7 1/2

Material of screw shaft Steel

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 Cedernwall's pat. protecting box fitted Length of stern bush 6'2"

Dia. of Tunnel shaft 7 1/4

as per rule 7 1/2

Dia. of Crank shaft journals 7 1/4

as per rule 7 1/2

Dia. of Crank pin 7 1/4

Size of Crank webs 8 3/4 x 4 5/8

Dia. of thrust shaft under collars 7 1/4

Dia. of screw 9

Pitch of Screw 10'6"

No. of Blades 4 State whether moveable No Total surface 25.60

No. of Feed pumps 1

Diameter of ditto 2 1/2

Stroke 12

Can one be overhauled while the other is at work ✓

No. of Bilge pumps 1

Diameter of ditto 2 1/2

Stroke 12

Can one be overhauled while the other is at work ✓

No. of Donkey Engines 2

Sizes of Pumps 4 1/2 & 3 & 10 & 8 & 6 & 8

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

In Engine Room Three, 2"

In Holds, &c. Three, 2"

No. of Bilge Injections 1 sizes 3 1/2

Connected to condenser, or to circulating pump Circ. pump

Is a separate Donkey Suction fitted in Engine room & size Yes, 3 1/2

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

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

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

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

What pipes are carried through the bunkers Hand pump suction & bilge pump suction from well How are they protected strong wood casings

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes with exception of the wing suction pipes to hold well.

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

Dates of examination of completion of fitting of Sea Connections 14th May 06 of Stern Tube 14th May 06 Screw shaft and Propeller 22nd June 06

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

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Messrs. Thyssen & Co., Mülheim - Ruhr

Total Heating Surface of Boilers 9590 Is Forced Draft fitted No No. and Description of Boilers One cylindrical multitubular.

Working Pressure 180 lbs per sq. in. Tested by hydraulic pressure to 360 lbs per sq. in. Date of test 30th June 1906 No. of Certificate 28

Can each boiler be worked separately ✓ Area of fire grate in each boiler 360 No. and Description of Safety Valves to each boiler Two spring loaded

Area of each valve 70 Pressure to which they are adjusted 183 lbs per sq. in. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 10" Mean dia. of boilers 10' 3 1/2" Length 9' 4 1/4" Material of shell plates Steel

Thickness 15 1/16" Range of tensile strength 44,200 lbs per sq. in. Are the shell plates welded or flanged partly Descrip. of riveting: cir. seams None

long. seams all lap Diameter of rivet holes in long. seams 15 1/16" Pitch of rivets 6" Lap of plates or width of butt straps 13"

Per centages of strength of longitudinal joint rivets 91 Working pressure of shell by rules 184 lbs per sq. in. Size of manhole in shell 16" x 12"

Size of compensating ring 5 1/2" x 15 1/16" No. and Description of Furnaces in each boiler Two corrugated Material Steel Outside diameter 36"

Length of plain part 6' 10" Thickness of plates 1 1/2" Description of longitudinal joint None No. of strengthening rings ✓

Working pressure of furnace by the rules 209 Combustion chamber plates: Material Steel Thickness: Sides 9 1/16" Back 2 1/32" Top 9 1/16" Bottom 9 1/16"

Pitch of stays to ditto: Sides 6 1/2" x 8 1/2" Back 9" x 7 3/4" Top 6 1/2" x 8 1/2" If stays are fitted with nuts or riveted heads bolts Working pressure by rules 183 lbs per sq. in.

Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 60 sq. in. Working pressure by rules 198 lbs per sq. in. End plates in steam space:

Material Steel Thickness 7/8" Pitch of stays 16" x 14" How are stays secured by nuts & washers Working pressure by rules 190 lbs per sq. in. Material of stays Steel

Diameter at smallest part 2 1/2" Area supported by each stay 224 sq. in. Working pressure by rules 219 lbs per sq. in. Material of Front plates at bottom Steel

Thickness 7/8" Material of Lower back plate Steel Thickness 7/8" Greatest pitch of stays as per plan Working pressure of plate by rules

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 3/8" Material of tube plates Steel Thickness: Front 7/8" Back 3/4" Mean pitch of stays 8 3/4" x 9"

Pitch across wide water spaces 15 1/4" Working pressures by rules 180 lbs per sq. in. Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 5 1/2" x 1" x 2 Length as per rule 20 1/2" Distance apart 8 1/2" Number and pitch of stays in each Two 6 1/2"

Working pressure by rules 245 lbs per sq. in. Superheater or Steam chest; how connected to boiler not fitted Can the superheater be shut off and the boiler worked separately ✓

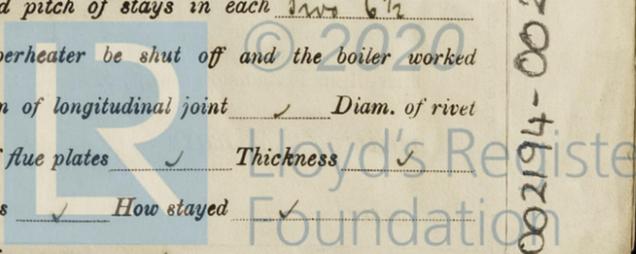
Diameter ✓ Length ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivet holes ✓ Pitch of rivets ✓ Working pressure of shell by rules ✓ Diameter of flue ✓ Material of flue plates ✓ Thickness ✓

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 ✓

Ys fitted 1043 507 13758

002194-002205-0120



VERTICAL DONKEY BOILER—

Manufacturers of Steel

No. **8062**, Description **Cochrane, as per report attached has been fitted onboard.**

Made at By whom made

When made Where fixed **Göteborg**

Working pressure tested by hydraulic pressure to Date of test No. of Certificate **8062** Fire grate area Description of Valves **Direct spring loaded** No. of Safety Valves **2** Area of each Pressure to which they are adjusted **100 lbs per sq** Date of adjustment **22/8/06**

If fitted with easing gear **yes** If steam from main boilers can enter the donkey boiler **no** Dia. of donkey boiler Length

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 Per centage of strength of joint

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 Stayed by

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

SPARE GEAR. State the articles supplied:— **2 connecting rod top end bolts and nuts, 2 connecting rod bottom bolts and nuts, 2 main bearing bolts, 1 set of coupling bolts, 1 set of feed and bilge pump valves, 1 set of L.P. piston springs, 4 rings for H.P. & I.P. pistons, 1 slide valve rod, 1 feed pump plunger, 2 air & 2 circulating pump valves, 1 condenser for donkey boiler safety valve spring, 1 main boiler safety valve spring, 5 main & 5 donkey B. tubes, bolts, nuts and iron as required**

The foregoing is a correct description, **Eriksbergs Mekaniska Verkstads Aktiebolag**

Manufacturer.

M. Olsson

Dates of Survey while building
 During progress of work in shops— 27/5, 29/5, 31/5, 2/6, 15/6, 22/6, 30/6, 1/7, 1905, 12/1, 13/1, 15/1, 19/1, 20/1, 25/1, 26/1, 30/1, 5/2, 6/2, 7/2, 9/2, 26/2, 2/3, 26/4, 6/4, 12/4, 19/4, 23/4, 26/4, 2/5, 9/5, 12/5, 14/5, 15/5, 19/5, 23/5, 26/5, 1906
 During erection on board vessel— 1/6, 12/6, 14/6, 15/6, 16/6, 18/6, 22/6, 28/6, 29/6, 30/6, 30/6, 4/7, 24/7, 28/7, 2/8, 7/8, 9/8, 18/8, 20/8, 22/8, 1906
 Total No. of visits **58**

In the approved plan of main boiler forwarded ~~herewith~~ per cons. for " " " donkey " " "

Dates of Examination of principal parts—Cylinders 11/6, 24/6, 15/7, 4/8, 06. Slides 15/6, 22/6, 4/7, 06. Covers 1/6, 15/6, 22/6, 06. Pistons 1/6, 20/6, 4/7, 06. Rods 1/6, 22/6, 06.

Connecting rods 1/6, 22/6, 06. Crank shaft 3/6, 22/6, 25/6, 14/7, 06. Thrust shaft 2/6, 19/6, 15/6, 06. Tunnel shafts none fitted. Screw shaft 4/4, 19/5, 14/6, 06. Propeller 15/6, 06.

Stern tube 12/4, 06. Steam pipes tested 2/8, 06. Engine and boiler seatings 1/6, 24/7, 06. Engines holding down bolts 16/7, 06.

Completion of pumping arrangements 23/7, 7/8, 06. Boilers fixed 24/7, 06. Engines tried under steam 18/8, 06.

Main boiler safety valves adjusted 22/8, 06. Thickness of adjusting washers **no washers fitted, nuts securely fixed.**

Material of Crank shaft **Steel** Identification Mark on Do. **Lloyd's No. 97, 98, 99** Material of Thrust shaft **Steel** Identification Mark on Do. **No. 100-14**

Material of Tunnel shafts **none fitted** Identification Marks on Do. Material of Screw shafts **Steel** Identification Marks on Do. **No. 101, 14**

Material of Steam Pipes **Copper** Test pressure **360 lbs per sq**

General Remarks (State quality of workmanship, opinions as to class, &c. This machinery has been built under the usual conditions of Survey, castings examined and tested with water pressure as required by the rules, steam and feed pipes tested to double the working pressure. The shafting has been tested as per reports attached.

The main boiler has been built in accordance with the approved plan forwarded to London per cons. pap. post of material manufactured at a Works approved by the Committee. The boiler material has been tested required by the rules.

Workmanship good. Engines tried under steam.

The machinery of this vessel is in a good and safe working condition at a working pressure of 180 lbs per sq and eligible in my opinion to be classed in the Register Book of this Society with the notation of **IMC 8**, Boiler pressures 180 lbs - 100 lbs.

It is submitted that this vessel is eligible for

THE RECORD + IMC 8.06

The amount of Entry Fee.	£ 1 : 0 :	When applied for.
Special	£ 9 15 :	24 th Aug 1906
Donkey Boiler Fee	£ 1 : 1 :	When received.
Travelling Expenses (if any)	£ :	22/8/06

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

Certificate (if appropriate) to be sent to Surveyors Office, Göteborg.

Committee's Minute

FRI, 31 AUG 1906

Assigned

+ IMC 8.06

MACHINERY CERTIFICATE WRITTEN.

