

Date of writing Report 6th October 1915. when handed in at Local Office

Port of Copenhagen.

No. in Survey held at Copenhagen.

Date, First Survey 1st FebruaryLast Survey 8th September 1915

(Number of Visits 38.

Reg. Book. 37. on the Steel S.S. "Carmen" (Yard No. 131).

Tons { Gross 1206.08
Net 735.78

Master T. Basse. Built at Copenhagen By whom built Akt. Kjöbenhavnens Flydehæ & Skibsværft. When built 1915.

Engines made at Copenhagen By whom made Akt. Kjöbenhavnens Flydehæ & Skibsværft. when made 1915.

Boilers made at Copenhagen By whom made Akt. Kjöbenhavnens Flydehæ & Skibsværft. when made 1915.

Registered Horse Power 98. Owners Dampskibsselskabet Vestersø (J. Lauritzen) Port belonging to Copenhagen.

Nom. Horse Power as per Section 28 98.3. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted No.

ENGINES, &c.—Description of Engines *Vertical triple expansion surface condensing* No. of Cylinders 3 No. of Cranks 3
Dia. of Cylinders 14" x 24" x 40. Length of Stroke 27" Revs. per minute 90 Dia. of Screw shaft 9.75" Material of screw shaft S.M.I. Steel
Is the screw shaft fitted with a continuous liner the whole length of the stern tube *lubricating box 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

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 3' - 10 1/2" Dia. of Tunnel shaft 7.5" Dia. of Crank shaft journals 8" Dia. of Crank pin 8" Size of Crank webs 5 1/2" x 15 1/4" Dia. of thrust shaft under collars 8" Dia. of screw 12-6" Pitch of Screw 10-6" No. of Blades 4 State whether moveable No Total surface 49 sq ft

No. of Feed pumps 2 Diameter of ditto 3 3/4" Stroke 6 3/4" Can one be overhauled while the other is at work Yes One 8 Tons Evaporator. No. of Bilge pumps 2 Diameter of ditto 3 Stroke 13 1/2" Can one be overhauled while the other is at work Yes One feed injector.

No. of Donkey Engines 2 off duplex Sizes of Pumps 6" x 8" x 6" and 5 1/4" x 3 1/2" x 5 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 2 Start & 1 Port side each 2 1/2" diam. In dry tank & Boilers 2 1/2" In Holds, &c. In forehold 2 off 2 1/2" In after hold 2 off 2 1/2" diam.

In tunnel well one 2 1/2" diam. In fore peak tank & after peak tank 3 1/2" diam. In double bottom tanks 4 1/2", 3 1/2", 3 x 2 1/2". No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump pump. Is a separate Donkey Suction fitted in Engine room & size Yes 2 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 None.

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Valves, except blow off cock from boilers. 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 none How are they protected

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes. 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 2/8 1915 of Stern Tube 2/8 1915. Screw shaft and Propeller 2/8 1915. Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from upper deck.

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel and Steel Plates: The Glasgow Iron & Steel Co. Ltd. Wishaw, Glasgow; - Fryingham Iron Works, Fryingham, Suffolk; - Furnaces: William Barrow & Co. Ltd. Glasgow. Rivets: - H. & J. Bros. Copenhagen.

Total Heating Surface of Boilers 1604. Is Forced Draft fitted No. No. and Description of Boilers 2 off, single ended (Scotch Type). Working Pressure 185 lbs. per sq. inch. Tested by hydraulic pressure to 370 lbs. per sq. inch. Date of test 5th July 1915. No. of Certificate 352 & 353.

Can each boiler be worked separately Yes Area of fire grate in each boiler 24 sq ft No. and Description of Safety Valves to each boiler 2 off spring loaded. Area of each valve 3.976 sq in Pressure to which they are adjusted 185 lbs. per sq. inch Are they fitted with easing gear yes.

Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean dia. of boilers 10' 3 3/8" x 1/2 Length 10' 8" Material of shell plates S.M. Steel. Thickness 7/8" + 1/32 Range of tensile strength 28 - 32 Tons Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams double riveted.

long. seams triple riveted. Diameter of rivet holes in long. seams 15/16" Pitch of rivets 6 3/8" Lap of plates or width of butt straps 14 1/4" Per centages of strength of longitudinal joint rivets 86.5% plate 85.25% Working pressure of shell by rules 189.2 lbs. Size of manhole in shell 12" x 16".

Size of compensating ring 25 5/8" x 2 7/8" x 7/8" No. and Description of Furnaces in each boiler 2 off, corrugated, daylight section Material S.M. Steel Outside diameter 3' 4 1/4" Length of plain part top 11" bottom 12" Thickness of plates crown 1 1/2" bottom 1 1/2" Description of longitudinal joint welded. No. of strengthening rings

Working pressure of furnace by the rules 203 lbs. Combustion chamber plates: Material S.M. Steel Thickness: Sides 5/8" Back 5/8" Top 9/16" Bottom 5/8" Pitch of stays to ditto: Sides 7 1/2" x 7 1/4" Back 8 1/2" x 7 7/8" Top 8" x 7 1/4" If stays are fitted with nuts or riveted heads riveted outside, and boundary fitted with nuts.

Material of stays S.M. Steel. Diameter at smallest part 1.759" Area supported by each stay 69.4 sq in Working pressure by rules 231 lbs. End plates in steam space: Material S.M. Steel. Thickness front 15/16" Pitch of stays 16" x 17 3/4". How are stays secured 5/16" rivet washers. Working pressure by rules 195.5 lbs. Material of stays S.M. Steel.

Diameter at smallest part 2.507" Area supported by each stay 237 sq in Working pressure by rules 215 lbs. Material of Front plates at bottom S.M. Steel. Thickness 15/16" Material of Lower back plate S.M. Steel Thickness 7/8" + 1/32 Greatest pitch of stays 15 1/4" x 7 7/8". Working pressure of plate by rules 189 lbs.

Diameter of tubes 3 1/4" Pitch of tubes 4 3/8" x 4 1/2" Material of tube plates S.M. Steel Thickness: Front 15/16" Back 13/16" + 1/32 Mean pitch of stays 11 1/32" Pitch across wide water spaces 13 3/4" Working pressures by rules 190 lbs. Girders to Chamber tops: Material S.M. Steel Depth and thickness of girder at centre 5 1/4" x 5 3/8" x 2 Length as per rule 22 1/2" Distance apart 8" Number and pitch of stays in each 2 off 7 1/4"

Working pressure by rules 190 lbs. Superheater or Steam chest; how connected to boiler by screwless steel pipes Can the superheater be shut off and the boiler worked separately No. 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 each 0.99 sq in. Are they fitted with easing gear No.

9/15 345

9/15 345

9/15 345

9/15 345

IS A DONKEY BOILER FITTED?

None

If so, is a report now forwarded?

✓

SPARE GEAR. State the articles supplied:— 2 connecting rod top end bolts & nuts, 2 connecting rod bottom end bolts, 2 main bearing bolts & nuts, 1 set of coupling bolts & nuts, 1 set of feed pump valves, 1 piston ring for each piston, 1 propeller, 1 slide valve spindle, 1 set of Troell's packing for H.P. piston rod, 1 pair of connecting bottom end brasses, 1 pair of connecting rod top end brasses, 1 air pump rod, 1 set of air pump valves, 1 set of circulating pump valves, 1 set of bilge pump valves, 6 junking bolts, 12 condenser tubes & 24 screw ferrules, 2 safety valve springs for main boilers, 12 boiler tubes, 1 set of firebars for one furnace, 8 water gauge glasses, 3 patent tube stoppers, a quantity of assorted bolts and nuts. Iron of various sizes.

The foregoing is a correct description.

Oct. 8th 1915. **AKTIESELSKABET**

KJØBENHAVNS FLYDEDOK OG SKIBSVÆRFT.

A. Uggerløse.

Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1. 3. 7. 10. 12. 17 & 22 February 26 March, 7, 17 & 29 April, 4, 6, 14 & 29 May, 3, 8, 15, 17, 24 & 28 June, 5, 7 & 19 July.
During erection on board vessel - - 2. 3. 5. 11. 13. 16. 26. 30 & 31 August. 1. 3. 6. 7 & 8 September 1915.
Total No. of visits 38.

Is the approved plan of main boiler forwarded herewith *Yes*.

Dates of Examination of principal parts—Cylinders ^{17/4 4/5} 6/5 & 3/6 1915. Slides ^{26/3 9/4} 29/5 1915. Covers ^{29/4 6/5} 3/6 1915. Pistons ^{4/5 24/5} 8/6 1915. Rods ^{7/2 12/2} 27/4 1915.
Connecting rods ^{3/2 10/2 7/4} 4/5 & 3/6 1915. Crank shaft ^{1/2 22/2 17/4} 6/5 & 27/5 1915. Thrust shaft ^{26/3 18/5} 27/5 1915. Tunnel shafts ^{26/3 19/4 6/5} 17/6 1915. Screw shaft ^{26/3 9/4 8/6} 28/6 1915. Propeller ^{8/6} 8/6 1915.
Stern tube ^{14/5} 1915. Steam pipes tested ^{3/8} 1915. Engine and boiler seatings ^{5/9 17/2} 1915. Engines holding down bolts ^{30/8 & 1/9} 1915.
Completion of pumping arrangements ^{6/9} 1915. Boilers fixed ^{5/8} 1915. Engines tried under steam ^{7/9 & 3/9} 1915.
Main boiler safety valves adjusted ^{8/9} 1915. Thickness of adjusting washers *No washers, check nuts fitted.*
Material of Crank shaft *S.M.I. Steel*. Identification Mark on Do. ^{2.15 H.F. & Co.} Material of Thrust shaft *S.M.I. Steel*. Identification Mark on Do. ^{M.B. 3.15.}
Material of Tunnel shafts *S.M.I. Steel*. Identification Marks on Do. ^{No. 150, 151, 4349 & M.B. 3.15.} Material of Screw shafts *S.M.I. Steel*. Identification Marks on Do. ^{No. 4350.}
Material of Steam Pipes *Seamless steel as per approved plan.* Test pressure *555 lbs per sq inch.*
Is an installation fitted for burning oil fuel *No.* Is the flash point of the oil to be used over 150° F. *✓*

Have the requirements of Section 49 of the Rules been complied with *✓*

Is this machinery duplicate of a previous case *Yes*. If so, state name of vessel *Sr. "Anna" No 1090 in R.B. Cpu Rpt. No. 4257.*

General Remarks (State quality of workmanship, opinions as to class, &c. In accordance with the Rules for Special Survey we have examined the material and workmanship from the commencement until the final trial under steam and found it sound and good in every respect.
The dimensions are as specified and in accordance with the Rules, the approved plans and the requirements contained in letters E dated 16th Sept, 4th 8th & 23rd Decr. 1913 respecting *Sr. Anna*. Cpu. Rpt. No. 4257 and letter M dated 18th Novr. 1915.

The Schmidt's patent steam superheating arrangements have been fitted to the boilers, the arrangements are manufactured by the Ottensener Eisenwerk Aktien Gesellschaft of Altona, in accordance with the approved plan. The material of construction has been tested as required, and the finished arrangements have been tested by hydraulic pressure to 710 lbs. per sq inch, as per certificate issued by the Society's Surveyors at Hamburg.
On the trial trip the engines & boilers worked satisfactorily.

Recommend the vessel's machinery to have notation of *L.M.C. - 9.15.*

It is submitted that this vessel is eligible for
THE RECORD + L.M.C. 9.15.

The amount of Entry Fee ... £ 18 : 12 :
Special ... £ 266 : 36 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, 7.10.1915.
When received, 12. Oct. 1915.

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

Committee's Minute

FRI. 19. NOV. 1915

FRI. 21. JAN. 1916

Assigned

+ L.M.C. 9.15

MACHINERY CERTIFICATE
WRITTEN



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Foundation