

REPORT ON BOILERS.

No. 10617.

Date of writing Report 27th June 1938

Received at London Office

JUL 12 1938

When handed in at Local Office

19

Port of

Copenhagen.

No. in Survey held at

Reg. Book.

Aalborg

Date, First Survey

15th January 1938 Last Survey 21st June 1938.

39064 on the Steel Single Screw Steamer "LOTTA":

(Number of Visits 18.)

Gross 1558.32.
Tons Net 1014.16.

Master Built at Aalborg By whom built Aalborg Værft A/S Yard No. 58. When built 1938.

Engines made at Elsinore By whom made P. Helsingør Jensen & Madsen Engine No. 341 When made 1938.

Boilers made at Aalborg By whom made Aalborg Værft A/S. Boiler No. 287-88 When made 1938.

Nominal Horse Power Owners P/S. VESTERHAVET (J. Hansen) Port belonging to Esbjerg.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Plates & Furnaces: Deutsche Rohrwerke, München; Slags & Screw Slags: Bochumer Verein A.G., Bochum.

Manufacturers of Steel Tubes: Mannesmannröhren Werke, Remscheid. Rivets: Vefce Bolle & Möh. Fr. (Letter for Record)

Total Heating Surface of Boilers $2 \times 154 \text{ m}^2 = 308 \text{ m}^2$.

Is forced draught fitted

Yes.

Coal or Oil fired Coal.

No. and Description of Boilers 2 off single ended return multitubular

Working Pressure $15.4 \text{ kg/cm}^2 = 220 \text{ lb/in}^2$.Tested by hydraulic pressure to 26.6 kg/cm^2 Date of test 11.5.38 No. of Certificate 623-24. Can each boiler be worked separately Yes.Area of Firegrate in each Boiler 3.5 m^2 No. and Description of safety valves to each boiler 2 off directly springloaded.Area of each set of valves per boiler {per Rule 8724 mm^2
as fitted 8836 mm^2 Pressure to which they are adjusted 220 lb/in^2 . Are they fitted with easing gear Yes.

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No donkey boiler fitted.

Smallest distance between boilers or uptakes and bunkers or woodwork 300 mm Is oil fuel carried in the double bottom under boilers No.Smallest distance between shell of boiler and tank top plating 375 mm Is the bottom of the boiler insulated Yes.Largest internal dia. of boilers 3965 mm Length 3380 mm Shell plates: Material P. M. Steel Tensile strength $49.7 - 51.9 \text{ kg/mm}^2$ Thickness 31 mm . Are the shell plates welded or flanged Description of riveting: circ. seams {end double zigzag
inter. $100 - 100.3 \text{ mm}$ long. seams {double butt shape
bride riveted. Diameter of rivet holes in {circ. seams 34 mm
long. seams 34 mm Pitch of rivets { $105 - 210 \text{ mm}$.Percentage of strength of circ. end seams {plate 66.0
rivets 48.8 . Percentage of strength of circ. intermediate seam {plate 83.8
rivets 94.8 .Percentage of strength of longitudinal joint {plate 83.8
rivets 94.8
combined 86.7 . Working pressure of shell by Rules 16.1 kg/cm^2 .Thickness of butt straps {outer 24 mm
inner 27 mm No. and Description of Furnaces in each Boiler 2 off corrugated (Marrisons).Material P. M. Steel Tensile strength $41.2 - 45.5 \text{ kg/mm}^2$ Smallest outside diameter 1188 mm .Length of plain part {top 190 mm
bottom 190 mm Thickness of plates {crown 190 mm
bottom 190 mm Description of longitudinal jointDimensions of stiffening rings on furnace and c.c. bottom: $3\frac{1}{2} \times 3\frac{1}{2} \times \frac{1}{2}$ L bar Working pressure of furnace by Rules 16.6 kg/cm^2 End plates in steam space: Material P. M. Steel Tensile strength $43.3 - 46.1 \text{ kg/mm}^2$ Thickness 31 mm Pitch of stays $495 \text{ mm} \times 406$ How are stays secured Screwed into both plates, nuts inside, nuts & washers outside Working pressure by Rules 17.7 kg/cm^2 .Tube plates: Material {front P. M. Steel Tensile strength $45.1 - 45.5 \text{ kg/mm}^2$ Thickness 27 mm
back P. M. Steel Tensile strength $44.6 - 44.8 \text{ kg/mm}^2$ Thickness 26 mm .Mean pitch of stay tubes in nests 216 mm Pitch across wide water spaces 388 mm Working pressure {front 15.8 kg/cm^2
back 23.9 kg/cm^2 Girders to combustion chamber tops: Material P. M. Steel Tensile strength 51.2 kg/mm^2 Depth and thickness of girderat centre $219 \text{ mm} \times 2 \times 21 \text{ mm}$ Length as per Rule 784 mm Distance apart 250 mm No. and pitch of staysin each 3 off - 195 mm Working pressure by Rules 16.9 kg/cm^2 Combustion chamber plates: Material P. M. SteelTensile strength $42.9 - 45.3 \text{ kg/mm}^2$ Thickness: Sides 18 mm Back 20 mm Top 18 mm Bottom 22 mm
On o.e. back plates welded heads are partly used.Pitch of stays to ditto: Sides $200 \times 216 \text{ mm}$ Back $228 \times 223 \text{ mm}$ Top $195 \times 250 \text{ mm}$ Are stays fitted with nuts or riveted over both methods used.Working pressure by Rules $20.7 - 21.9 - 17.8 - 15.9 \text{ kg/cm}^2$ Front plate at bottom: Material P. M. Steel Tensile strength $44.7 - 45.7 \text{ kg/mm}^2$ Thickness 27 mm . Lower back plate: Material P. M. Steel Tensile strength $44.8 - 47.0 \text{ kg/mm}^2$ Thickness 26 mm Pitch of stays at wide water space 388 mm Are stays fitted with nuts or riveted over nuts inside & outside.Working Pressure 16.1 kg/cm^2 Main stays: Material P. M. Steel Tensile strength $47.4 - 48.7 \text{ kg/mm}^2$ Diameter {At body of stay, 82.55 mm Bottom: 69.85 mm No. of threads per inch 6 Area supported by each stay Bottom: 159043 mm^2
Over threads Top: 82.55 mm Bottom: 69.85 mm Working pressure by Rules Top: 18.4 Bottom: 16.8 kg/cm^2 Screw stays: Material P. M. Steel Tensile strength $47.1 - 49.4 \text{ kg/mm}^2$ Diameter {At turned off part, 47.6 mm No. of threads per inch 9 Area supported by each stay 50844 mm^2
Over threads Back: 57.1 mm Top: 47.6 mm Bottom: 44.45 mm Sides: 44.45 mm

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Working pressure by Rules $16.2 \frac{\text{kg}}{\text{cm}^2}$ Are the stays drilled at the outer ends *no* Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. 54.0 \text{ mm.}$
No. of threads per inch *9* Area supported by each stay 68684 mm^2 Working pressure by Rules $18.8 \frac{\text{kg}}{\text{cm}^2}$
Tubes: Material *S. M. Steel* External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. 76.0 \text{ mm}$ Thickness $7.9 \text{ mm} - 9.5 \text{ mm}$ No. of threads per inch *9*
Pitch of tubes 108 mm Working pressure by Rules $17.5 \frac{\text{kg}}{\text{cm}^2}$ Manhole compensation: Size of opening in
shell plate $520 \text{ mm} \times 420 \text{ mm}$ Section of compensating ring $895 \times 795 \times 33 \text{ mm}$ No. of rivets and diameter of rivet holes $38 \text{ off} - 32 \text{ mm holes}$
Outer row rivet pitch at ends 135 mm Depth of flange if manhole flanged 75 mm Steam Dome: Material *✓*
Tensile strength Thickness of shell Description of longitudinal joint
Diameter of rivet holes Pitch of rivets Percentage of strength of joint $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right.$
Internal diameter Working pressure by Rules Thickness of crown No. and diameter of
stays Inner radius of crown Working pressure by Rules
How connected to shell Size of doubling plate under dome Diameter of rivet holes and pitch
of rivets in outer row in dome connection to shell

Type of Superheater *Schmidt's Patent* Manufacturers of $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel forgings} \\ \text{Steel castings} \end{array} \right. \text{Mannesmannröhren-Werke, Remscheid.}$
Number of elements *per boiler 48* Material of tubes *S. M. Steel* Internal diameter and thickness of tubes $17 \text{ mm} - 3 \text{ mm}$
Material of headers *S. M. Steel* Tensile strength 31.6 Tons/in^2 Thickness $25 \text{ mm} \times 35 \text{ mm}$ Can the superheater be shut off and
the boiler be worked separately *yes* Is a safety valve fitted to every part of the superheater which can be shut off from the boiler *yes*
Area of each safety valve 1257 mm^2 Are the safety valves fitted with easing gear *yes* Working pressure as per
Rules $80 \frac{\text{kg}}{\text{cm}^2}$ Pressure to which the safety valves are adjusted 220 lbs/in^2 Hydraulic test pressure:
tubes $80 \frac{\text{kg}}{\text{cm}^2}$ forgings and castings $47 \frac{\text{kg}}{\text{cm}^2}$ and after assembly in place $47 \frac{\text{kg}}{\text{cm}^2}$ Are drain cocks or
valves fitted to free the superheater from water where necessary *yes - valves*
Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with *yes*

The foregoing is a correct description,

AALBORG VÆRFT A/S

Manufacturer.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops} \end{array} \right. 15/1 - 25/1 - 1/2 - 1/3 - 19/3 - 24/3 - 1/4 - 4/4 - 19/4 - 22/4/1938$ Are the approved plans of boiler and superheater forwarded herewith *yes*
(If not state date of approval.)
while building $\left\{ \begin{array}{l} \text{During erection on} \\ \text{board vessel} \end{array} \right. 4/5 - 10/5 - 11/5 - 18/5 - 30/5 - 3/6 - 15/6 - 21/6/1938$ Total No. of visits *18*

Is this Boiler a duplicate of a previous case *✓* If so, state Vessel's name and Report No. *✓*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

The boilers and superheaters have been built under special survey, in accordance with the requirements of the Rules, the approved plans and the Secretary's letter E dated 24/5 - 15/11 1937 - 12/1 - 31/1 - 17/3 1938.

The material has been examined and listed as required by the Rules - as per certificates produced. The workmanship is good throughout.

The boilers and superheaters have been installed on board to our satisfaction.

Survey Fee ... £ : : } When applied for, 19
Travelling Expenses (if any) £ : : } When received, 19

A. H. Vesterby

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 15 JUL 1938

Assigned

See Cpr. J.C. 10617



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