

REPORT ON BOILERS.

No. 8494.

Received at London Office

11 MAY 1931

Date of writing Report

23/4

1931

When handed in at Local Office

1931

Port of

Copenhagen

No. in
Reg. Book

Survey held at

Narvik & Norkov

Date, First Survey

4/4 1930

Last Survey

18/4

1931

90858

on the

Steel Twin P. Motor Tank Vessel "HENRIK AMELN"

(Number of Visits 17)

(Gross 6245. 9)

Tons (Net 3646. 46)

Master

✓

Built at

Narvik

By whom built

Narvik Skibverft

Yard No.

444

When built

1931

Engines made at

Copenhagen

By whom made

N. S. Sørensen & Wain

Engines No.

890-1 When made 1931

Boilers made at

Narvik

By whom made

N. S. Sørensen

Boilers No.

850-1 When made 1930

Nominal Horse Power

543

Owners

N. S. Sørensen (L. H. Sørensen & Co.)

Port belonging to

Oslo

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Plan with Narvik No 48


Manufacturers of Steel Wm. Beardmore & Co. Ld., Parkhead, Glasgow, and Mossend. (Letter for Record 5)

Total Heating Surface of Boilers $130 \text{ m}^2 = 1400 \text{ sq. ft. each}$. Is forced draught fitted *yes*. Coal or Oil fired *oil fired*.No. and Description of Boilers 2 off, single ended, return tubular. Working Pressure 12 kg/cm^2 Tested by hydraulic pressure to 21.5 kg/cm^2 Date of test 10/1 31. No. of Certificates 530-1 Can each boiler be worked separately *yes*Area of Firegrate in each Boiler *✓* No. and Description of safety valves to each boiler 2 off 3" dia. direct spring loaded.Area of each set of valves per boiler (per Rule 11.36 m^2 as fitted 14.12 m^2) Pressure to which they are adjusted 12 kg/cm^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 main boiler.*Smallest distance between boilers or uptakes and bunkers *oil* *at sides* *17"* Is oil fuel carried in the double bottom under boilers *on a platform*Smallest distance between *END* *DEEP* *3 H.D.* *32"* Is the bottom of the boiler insulated *yes*Largest internal dia. of boilers 3800 mm Length 3100 mm Shell plates: Material *S.M. steel* Tensile strength $28-32 \text{ to}$ Thickness 29 mm Are the shell plates welded or flanged *No* Description of riveting: circ. seams *end lap, 266 rivets*long. seams *26 butt strap, 36 riv.* Diameter of rivet holes in (circ. seams 30 mm long. seams 30 mm) Pitch of rivets 100 mm 192 mm Percentage of strength of circ. end seams (plate 70 rivets 45.3) Percentage of strength of circ. intermediate seam (plate $✓$ rivets $✓$)Percentage of strength of longitudinal joint (plate 84.9 rivets 97.0 combined 88.2) Working pressure of shell by Rules 14.05 kg/cm^2 Thickness of butt straps (outer 28 mm inner 28 mm) No. and Description of Furnaces in each Boiler 2 off corrugated, Morrison's type.Material *S.M. steel* Tensile strength $27.2 \text{ to } 10"$ Smallest outside diameter 1131 mm Length of plain part (top $✓$ bottom $✓$) Thickness of plates (crown 15.5 mm bottom $✓$) Description of longitudinal joint *welded*Dimensions of stiffening rings on furnace or c.c. bottom *✓* Working pressure of furnace by Rules 14.02 kg/cm^2 End plates in steam space: Material *S.M. steel* Tensile strength $26-30 \text{ to } 10"$ Thickness 25.5 mm Pitch of stays $425 \times 366 \text{ mm}$ How are stays secured *secured this plate outside washers and nuts* Working pressure by Rules 16.5 kg/cm^2 Tube plates: Material (front *S.M. steel* back *S.M. steel*) Tensile strength $26-30 \text{ to } 10"$ Thickness (front 25.5 mm back 24 mm)Mean pitch of stay tubes in nests 262 mm Pitch across wide water spaces 366 mm Working pressure (front 12.8 kg/cm^2 back 21.5 kg/cm^2)Girders to combustion chamber tops: Material *S.M. steel* Tensile strength $28-32 \text{ to } 10"$ Depth and thickness of girderat centre $190 \times 2 \times 18 \text{ mm}$ Length as per Rule 741 mm Distance apart 220 mm No. and pitch of staysin each 2 off 206 mm Working pressure by Rules 14.2 kg/cm^2 Combustion chamber plates: Material *S.M. steel*Tensile strength $26-30 \text{ to } 10"$ Thickness: Sides 18 mm Back 19 mm Top 18 mm Bottom 18 mm Pitch of stays to ditto: Sides $215 \times 200 \text{ mm}$ Back $206 \times 220 \text{ mm}$ Top $220 \times 250 \text{ mm}$ Are stays fitted with nuts or riveted over *nuts in top plate, rivets over in back & sides*Working pressure by Rules 14.4 kg/cm^2 BACK: 13.1 SIDES: 12.35 Front plate at bottom: Material *S.M. steel* Tensile strength $28-32 \text{ to } 10"$ Thickness 25.5 mm Lower back plate: Material *S.M. steel* Tensile strength $28-32 \text{ to } 10"$ Thickness 24 mm Pitch of stays at wide water space $350 \times 220 \text{ mm}$ Are stays fitted with nuts or riveted over *fitted with nuts*Working Pressure 19.5 kg/cm^2 Main stays: Material *S.M. steel* Tensile strength $44-50 \text{ kg/cm}^2$ Diameter (At body of stay, 64 mm or over threads 70 mm) No. of threads per inch 6 Area supported by each stay $425 \times 366 \text{ mm}^2$ Working pressure by Rules 16.48 kg/cm^2 Screw stays: Material *S.M. steel* Tensile strength $41-47 \text{ kg/cm}^2$ Diameter (At turned off part, 38 mm or over threads 43 mm) No. of threads per inch 9 Area supported by each stay $220 \times 206 \text{ mm}^2$

Working pressure by Rules 16.75 kg/cm^2 Are the stays drilled at the outer ends *Yes*. Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part, } 43 \text{ mm} \\ \text{Over threads } 48 \text{ mm} \end{array} \right.$

No. of threads per inch *9* Area supported by each stay $278 \times 220 \text{ mm}^2$ Working pressure by Rules 16.1 kg/cm^2

Tubes: Material *Steel* External diameter $\left\{ \begin{array}{l} \text{Plain } 83 \text{ mm} \\ \text{Stay } 83 \text{ mm} \end{array} \right.$ Thickness $\left\{ \begin{array}{l} 4 \text{ mm} \\ 8 \text{ mm} \end{array} \right.$ No. of threads per inch *9*

Pitch of tubes $117.5 \times 111 \text{ mm}$ Working pressure by Rules 16 kg/cm^2 Manhole compensation: Size of opening in shell plate $400 \times 520 \text{ mm}$ Section of compensating ring  No. of rivets and diameter of rivet holes *38 off 29 mm*

Outer row rivet pitch at ends 205 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 Manufacturers of $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right.$

Number of elements Material of tubes Internal diameter and thickness of tubes

Material of headers Tensile strength Thickness Can the superheater be shut off and the boiler be worked separately

Is a safety valve fitted to every part of the superheater which can be shut off from the boiler

Area of each safety valve Are the safety valves fitted with easing gear Working pressure as per Rules

Pressure to which the safety valves are adjusted Hydraulic test pressure: tubes, castings and after assembly in place Are drain cocks or valves fitted to free the superheater from water where necessary *✓*

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with *Yes*.

The foregoing is a correct description,
pp. A/S FRICHS Manufacturer.
S. Israelson

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops - - } 4/4, 13/5, 14/5, 17/6, 15/7, 7/8, 7/10, 9/11, 1930, 10/1, 31/1 \\ \text{while building } \left\{ \begin{array}{l} \text{During erection on board vessel - - } 10/2, 20/2, 3/3, 11/3, 18/3, 27/3, 1/4, 18/4, 31/4 \end{array} \right. \end{array} \right.$ Are the approved plans of boiler and superheater forwarded herewith *27/3 30*
 (If not state date of approval.)

Total No. of visits *17*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These donkey boilers have been constructed and fitted on board the vessel under special survey and in accordance with the Society's Rules, the approved plans and the requirements contained in the Secretary's letters to date 27/3 1930 & 27/1 1931. The material used has been made at recognized works and has been examined and tested as per Rules and found satisfactory, and the workmanship is good.*

In connection with the boilers, a Todd oil burning unit with simplex oil feed pressure pump, 2 lb. filter and preheaters and 2 feed pumps, 8" x 6" x 18" simplex, have been fitted and connected complete, and the pipes & connections have been tested as per Rules and found good and tight.

Recommend the vessel to have notation of 2 D.B. - 170 lbs. in the Register Book.

Survey Fee ... *16. 339.00* When applied for, *24/1 1931*
 Travelling Expenses (if any) *2.56.00* When received, *1.6. 1931*

Chishiff
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 15 MAY 1931**

Assigned *See other J.E. Rpt*