

REPORT ON BOILERS.

Received at London Office

Date of writing Report 29-3-1927 When handed in at Local Office 1927 Port of Rotterdam

No. in Survey held at Rotterdam Date, First Survey 11-6-10 Last Survey 23-3-1927

on the steel screw steamer "FORELAND" (Number of Visits 21) Tons { Gross 522.03 Net 285.77

Master Built at Rotterdam By whom built Wiltons Eng & Shipw. Co. No. 294 When built 1924

Engines made at Rotterdam By whom made Wiltons Eng & Shipw. Co Engine No. 415 When made 1924

Boilers made at do By whom made do Boiler No. 713 When made 1924

Nominal Horse Power 79 Owners Shipping & Coal Co Port belonging to London

MULTITUBULAR BOILERS MAIN, ~~AUXILIARY~~ OR DONKEY

Manufacturers of Steel Mannesmann Werke Akt. Schulz Krauss (Letter for Record S)

Total Heating Surface of Boilers 1490 ft² Is forced draught fitted no Coal or Oil fired Coal

No. and Description of Boilers One multitubular Working Pressure 100 lbs.

Tested by hydraulic pressure to 320 lbs. Date of test 21-2-27 No. of Certificate 059 Can each boiler be worked separately ✓

Area of Firegrate in each Boiler 415 ft² No. and Description of safety valves to each boiler 2 spring loaded

Area of each set of valves per boiler 22.090 Pressure to which they are adjusted 100 lbs. Are they fitted with easing gear Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler ✓

Smallest distance between boilers or uptakes and bunkers or woodwork 20" Is oil fuel carried in the double bottom under boilers ✓

Smallest distance between shell of boiler and tank top plating 10" Is the bottom of the boiler insulated no

Largest internal dia. of boilers 12'-11" Length 10'-4" Shell plates: Material S.M. steel Tensile strength 20-32 tons

Thickness 1 1/8" Are the shell plates welded or flanged no Description of riveting: circ. seams end 2 x riv.

long. seams double butt. 3 x riv. Diameter of rivet holes in 1 3/16" Pitch of rivets 3 7/8"

Percentage of strength of circ. end seams { plate 69.3% rivets 43.5% Percentage of strength of circ. intermediate seam { plate ✓ rivets ✓

Percentage of strength of longitudinal joint { plate 84.7% rivets 94.5% combined 80% Working pressure of shell by Rules 192 lbs.

Thickness of butt straps { outer 1 1/16" inner 1 1/8" No. and Description of Furnaces in each Boiler 2 Morrison's furnaces

Material S.M. steel Tensile strength 23-34 tons Smallest outside diameter 40"

Length of plain part { top ✓ bottom ✓ Thickness of plates { crown 3 5/8" bottom 3 5/8" Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 210 lbs.

End plates in steam space: Material S.M. steel Tensile strength 26-30 tons Thickness 1 3/4" Pitch of stays 19" x 10"

How are stays secured Screwed in plates and outside nuts Working pressure by Rules 240 lbs.

Tube plates: Material { front S.M. steel back S.M. steel Tensile strength { 26-30 tons Thickness { 1 3/16"

Mean pitch of stay tubes in nests 10.70" Pitch across wide water spaces 15 1/2" Working pressure { front 203 lbs. back 203 lbs.

Girders to combustion chamber tops: Material S.M. steel Tensile strength 20-32 tons Depth and thickness of girder

at centre 8 3/4" x 7/8" x 2 Length as per Rule 31" Distance apart 8 3/4" No. and pitch of stays

in each 3 x 7 7/8" Working pressure by Rules 220 lbs. Combustion chamber plates: Material S.M. steel

Tensile strength 26-30 tons Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 7/8"

Pitch of stays to ditto: Sides 7 7/8" x 8" Back 7 3/4" x 7 3/4" Top 8 3/4" x 7 7/8" Are stays fitted with nuts or riveted over margin rivets

Working pressure by Rules 192 lbs. Front plate at bottom: Material S.M. steel Tensile strength 26-30 tons

Thickness 3/4" Lower back plate: Material S.M. steel Tensile strength 26-30 tons Thickness 3/4"

Pitch of stays at wide water space 15" x 7 3/4" Are stays fitted with nuts or riveted over nuts

Working Pressure 240 lbs. Main stays: Material S.M. steel Tensile strength 20-32 tons

Diameter { At body of stay, 2 3/4" No. of threads per inch 7 Area supported by each stay 330 in²

Over threads 3" - 3 1/4" Working pressure by Rules 103 lbs. Screw stays: Material S.M. steel Tensile strength 26-30 tons

Diameter { At turned off part, 1 1/2" No. of threads per inch 10 Area supported by each stay 63 in² sides

Over threads 1 1/2" Working pressure by Rules 103 lbs. Area supported by each stay 60 in² back

Area supported by each stay 68.9 in² top

Working pressure by Rules 193 Are the stays drilled at the outer ends Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. \frac{19}{4}$
 No. of threads per inch 10 Area supported by each stay 80.157 Working pressure by Rules 212 lbs
Tubes: Material S.M. steel External diameter $\left\{ \begin{array}{l} \text{Plain } 3\frac{1}{2} \\ \text{Stay } 3 \end{array} \right.$ Thickness $\left\{ \begin{array}{l} 1/8 \\ 5/16 \end{array} \right.$ No. of threads per inch 9
 Pitch of tubes 9 3/8" x 11 3/4" Working pressure by Rules 216 lbs **Manhole compensation:** Size of opening in shell plate 12" x 16" Section of compensating ring 34 1/2" x 30" x 1 1/8" No. of rivets and diameter of rivet holes 36 x 1 3/16"
 Outer row rivet pitch at ends 5 3/4" Depth of flange if manhole flanged 3 3/4" **Steam Dome:** Material
 Tensile strength Thickness of shell Description of longitudinal joint
 Diameter of rivet holes Pitch of rivets Percentage of strength of joint $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. \left. \begin{array}{l} \text{✓} \\ \text{✓} \end{array} \right.$
 Internal diameter Working pressure by Rules Thickness of crown No. and diameter of stays
 How connected to shell Inner radius of crown Working pressure by Rules
 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 23 inclusive for boilers been complied with Yes.
 The foregoing is a correct description,
J. W. Bennett Manufacturer.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops} \\ \text{while building} \end{array} \right. \left\{ \begin{array}{l} \text{During erection on board vessel} \end{array} \right.$
 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) 17-5-18.
 Total No. of visits 21.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been made under special survey in accordance with the approved plan, Secretary's letters and the Society's Rules, tested by hydraulic pressure and found sound and tight.

Survey Fee £ Please see machinery report. When applied for, ... 192
 Travelling Expenses (if any) £ ... When received, ... 192

T. V. Bennett
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 8 APR 1927.
 Assigned See P.C. attached

