

REPORT ON BOILERS.

No. 9340.

Received at London Office 10 DEC 1942

Date of writing Report 30th Nov. 1942. When handed in at Local Office 3rd Dec. 1942. Port of Dundee

No. in Reg. Book. Survey held at Dundee Date, First Survey 23rd Oct. Last Survey 30th Nov. 1942

48302 on the s/s "MARISO" ex "Bitterfeld" (Number of Visits 11) Tons {Gross 4659, Net 4482}

Master Built at Kiel By whom built Fkd. Krupp AG & Co. Guard No. 504. When built 1930

Engines made at Hamburg By whom made Blohm & Voss Engine No. When made 1923

Boilers made at Kiel By whom made Fkd. Krupp, Germaniawerft Boiler No. refitted 1930 When made 1930

Nominal Horse Power See Mach^y Report Owners Netherland Government Port belonging to Willemstad

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel (Letter for Record (S))

Total Heating Surface of Boilers 2820 ft² per boiler Is forced draught fitted yes Coal or Oil fired Coal

No. and Description of Boilers Two Single-Ended Multitubular Working Pressure 213 lbs/sq"

Tested by hydraulic pressure to 275 lbs Date of test 17-11-42 Port No. of Certificate 10-11-42 Star^d Can each boiler be worked separately yes

Area of Firegrate in each Boiler 64.5 ft² No. and Description of safety valves to each boiler Double Ordinary Spring Loaded

Area of each set of valves per boiler {per Rule 15.46 sq", as fitted 26.73 sq"} Pressure to which they are adjusted 215 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 12" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 1'-9" Is the bottom of the boiler insulated No

Largest internal dia. of boilers 4660 mm Length 3720 mm Shell plates: Material Steel Tensile strength Assumed 28/32

Thickness 38 mm Are the shell plates welded or flanged No Description of riveting: circ. seams {end D.R. Lap, inter.}

Long. seams T.L. Double Butt Strap Diameter of rivet holes in {circ. seams 38 mm, long. seams 38 mm} Pitch of rivets {115 mm, 254 mm}

Percentage of strength of circ. end seams {plate 64.2%, rivets 42.48%} Percentage of strength of circ. intermediate seam {plate 85.04%, rivets 90.3%}

Percentage of strength of longitudinal joint {plate 85.04%, rivets 90.3%, combined 88.2%} Working pressure of shell by Rules 216 lbs/sq"

Thickness of butt straps {outer 30 mm, inner 34 mm} No. and Description of Furnaces in each Boiler Three - Morrison Section

Material Steel Tensile strength Assumed 26/30 tons Smallest outside diameter 1160 mm

Length of plain part {top, bottom} Thickness of plates {crown 18 mm, bottom} Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 230 lbs/sq"

End plates in steam space: Material Steel Tensile strength Assumed 26/30 tons Thickness 28 mm Pitch of stays 380 mm x 350 mm

How are stays secured Double Nuts Riveted Washers 22 mm thick x 240 mm diam. Working pressure by Rules 288 lbs/sq"

Tube plates: Material {front, back} Steel Tensile strength Assumed 26/30 tons Thickness {28 mm, 25 mm}

Lean pitch of stay tubes in nests 220 mm x 220 mm Pitch across wide water spaces 360 mm Working pressure {front 221 lbs/sq", back 265 lbs/sq"}

Ribbers to combustion chamber tops: Material Steel Tensile strength Assumed 28/32 tons Depth and thickness of girder

Centre 260 mm x 25 mm x 2 Length as per Rule 837 mm Distance apart 190 mm No. and pitch of stays

each 3 - 206 mm Working pressure by Rules 396 lbs/sq" Combustion chamber plates: Material Steel

Tensile strength Assumed 26/30 tons Thickness: Sides 20 mm Back 20 mm Top 20 mm Bottom 25 mm

Pitch of stays to ditto: Sides 203 mm x 190 mm Back 200 mm x 190 mm Top 206 mm x 190 mm Are stays fitted with nuts or riveted over Nuts to back + sides Riveted over on top

Working pressure by Rules 239 lbs/sq" Front plate at bottom: Material Steel Tensile strength Assumed 26/30 tons

Thickness 25 mm Lower back plate: Material Steel Tensile strength Assumed 26/30 tons Thickness 25 mm

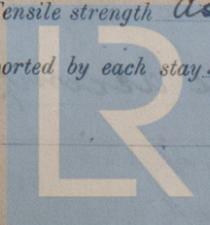
Pitch of stays at wide water space 390 mm x 190 mm Are stays fitted with nuts or riveted over Nuts

Working Pressure 346 lbs/sq" Main stays: Material Steel Tensile strength Assumed 28/32 tons

Diameter {At body of stay, 40 mm, Over threads, 2 1/2" B.S.T.H.P.} No. of threads per inch 11 Area supported by each stay 380 mm x 380 mm

Working pressure by Rules 293 lbs/sq" Screw stays: Material Steel Tensile strength Assumed 26/30 tons

Diameter {At turned off part, Over threads, 1.25" B.S.P.T.H.P.} No. of threads per inch 11 Area supported by each stay 200 mm x 190 mm



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Working pressure by Rules 282 $\frac{\text{lbs}}{\text{sq. in.}}$ Are the stays drilled at the outer ends *No* Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part} \\ \text{Over threads} \end{array} \right. \frac{1\frac{3}{4}}{\text{in.}}$ BSP T+D.

No. of threads per inch 11 Area supported by each stay $295 \frac{\text{sq. in.}}{\text{in.}} \times 190 \frac{\text{sq. in.}}{\text{in.}}$ Working pressure by Rules 324 $\frac{\text{lbs}}{\text{sq. in.}}$

Tubes: Material *✓* External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \frac{83}{\text{mm}}$ Thickness $\left\{ \begin{array}{l} 4 \frac{\text{mm}}{\text{mm}} \\ 9 \frac{\text{mm}}{\text{mm}} \end{array} \right.$ No. of threads per inch 11

Pitch of tubes $110 \frac{\text{mm}}{\text{mm}}$ Working pressure by Rules $245 \frac{\text{lbs}}{\text{sq. in.}}$ Manhole compensation: Size of opening in shell plate $21 \times 16 \frac{1}{2} \text{ in.}$ Section of compensating ring $25 \times 38 \frac{\text{mm}}{\text{mm}}$ No. of rivets and diameter of rivet holes $48 - 38 \frac{\text{mm}}{\text{mm}}$

Outer row rivet pitch at ends $6 \frac{5}{8} \text{ in.}$ Depth of flange if manhole flanged $95 \frac{\text{mm}}{\text{mm}}$ Steam Dome: Material *None*

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

How connected to shell Inner radius of crown Working pressure by Rules

of rivets in outer row in dome connection to shell Size of doubling plate under dome Diameter of rivet holes and pitch

Type of Superheater *Schmidt Smoke-box type* Manufacturers of $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel forgings} \\ \text{Steel castings} \end{array} \right. \checkmark$

Number of elements *One to each tube* Material of tubes *Steel* Internal diameter and thickness of tubes \checkmark

Material of headers *Steel* Tensile strength \checkmark Thickness \checkmark 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 7.64 sq. in. Are the safety valves fitted with easing gear *Hand lever only* Working pressure as per Rules \checkmark Pressure to which the safety valves are adjusted 215 lbs Hydraulic test pressure: tubes \checkmark forgings and castings \checkmark and after assembly in place 275 lbs Are drain cocks or valves fitted to free the superheater from water where necessary *Yes*

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with \checkmark

The foregoing is a correct description, \checkmark Manufacturer.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops} \\ \text{while building} \end{array} \right. \left\{ \begin{array}{l} \checkmark \\ \checkmark \end{array} \right.$ Are the approved plans of boiler and superheater forwarded herewith *See under* (If not state date of approval.)

Total No. of visits *See Mach. Report. N° 9359.*

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

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

No plan of the boilers was available on board, but the dimensions & scantlings were taken from the boilers themselves. A plan was then drawn from which a blue print was obtained, & this print is forwarded herewith.

The Boilers were examined throughout, & were hydraulically tested to 245 lbs per sq. inch, & they were found tight & sound at that pressure.

For particulars of repairs carried out see Rpt 9 - Dundee Report N° 9342, also for recommendation for Class.

Survey Fee ... £ *£ 10* When applied for, 19

Travelling Expenses (if any) £ : : When received, 19

John Houston
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW** - 8 DEC 1942

Assigned *See accompanying machy. rpt.*