

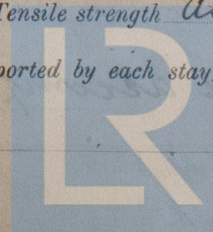
REPORT ON BOILERS.

No. 9340.

Date of writing Report 30th Nov. 1942. When handed in at Local Office 3rd Dec. 1942. Port of Dundee
 Received at London Office 10 DEC 1942
 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) Gross 4659 Tons Net 4482
 Master Built at Kiel By whom built F. Krupp AG, Essen 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 F. Krupp, Germaniawerft Boiler No. refitted 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/ft²
 Tested by hydraulic pressure to 275 lbs Date of test 10-11-42 Port No. of Certificate 17-11-42 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 ft² as fitted 26.73 ft² 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 Pitch of rivets { 115 mm
 { long. seams 38 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/ft²
 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 ✓ Thickness of plates { crown 18 mm Description of longitudinal joint Weld
 { bottom ✓ Working pressure of furnace by Rules 230 lbs/ft²
 Dimensions of stiffening rings on furnace or c.c. bottom ✓
 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 dia. Working pressure by Rules 288 lbs/ft²
 Tube plates: Material { front Steel Tensile strength Assumed 26/30 tons Thickness { 28 mm
 { back 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/ft² back 265 lbs/ft²
 Girders 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/ft² 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/ft² 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/ft² Main stays: Material Steel Tensile strength Assumed 28/32 tons
 Diameter { At body of stay, 40 mm No. of threads per inch 11 Area supported by each stay 380 mm x 380 mm
 { Over threads 2 1/2" B.S.T.H.D.
 Working pressure by Rules 293 lbs/ft² Screw stays: Material Steel Tensile strength Assumed 26/30 tons
 Diameter { At turned off part, 1.25" B.S.P.T.H.D. No. of threads per inch 11 Area supported by each stay 200 mm x 190 mm
 { Over threads 1.25" B.S.P.T.H.D.



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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 { At turned off part, *✓*
Over threads $1\frac{3}{4}"$ B S P T + D.
No. of threads per inch *11* Area supported by each stay $295 \frac{\text{sq. in.}}{\text{sq. in.}} \times 190 \frac{\text{sq. in.}}{\text{sq. in.}}$ Working pressure by Rules $324 \frac{\text{lbs}}{\text{sq. in.}}$
Tubes: Material *✓* External diameter { Plain $83 \frac{\text{mm}}{\text{mm}}$ Thickness { $4 \frac{\text{mm}}{\text{mm}}$ No. of threads per inch *11*
Stay $83 \frac{\text{mm}}{\text{mm}}$ $9 \frac{\text{mm}}{\text{mm}}$
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 $21" \times 16\frac{1}{2}"$ 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 $6\frac{5}{8}"$ 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 { Plate
Rivets
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 smoke-box type* Manufacturers of { Tubes
Steel forgings *✓*
Steel castings
Number of elements *One to each tube* Material of tubes *Steel* Internal diameter and thickness of tubes *✓*
Material of headers *Steel* Tensile strength *✓* Thickness *✓* 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 *✓* Pressure to which the safety valves are adjusted 215 lbs Hydraulic test pressure:
tubes *✓* forgings and castings *✓* 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 *✓*
The foregoing is a correct description, *✓* Manufacturer.

Dates { During progress of *✓* Are the approved plans of boiler and superheater forwarded herewith *See under*
of Survey { work in shops - - (If not state date of approval.)
while { During erection on *✓* Total No. of visits *See Mach. Report N° 9359*
building { board vessel - - -

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.)
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 £ *Small amt* } When applied for, 19
Travelling Expenses (if any) £ : : } When received, 19

Committee's Minute *GLASGOW* 8 DEC 1942
Assigned *See accompanying machy. rpt.*
John Houston
Engineer Surveyor to Lloyd's Register of Shipping.