

REPORT ON BOILERS.

No. 22066

24 OCT 1936

Received at London Office

Date of writing Report 15-10-36 19 When handed in at Local Office 19 Port of Hamburg

No. in Survey held at Kiel Date, First Survey 7-2-36 Last Survey 26-9-36 19

on the Steel Steamer "Congonian" (Number of Visits 10) Gross 4928.50 Tons Net 2853.17

Master Built at Kiel By whom built Howaldtswerke A.G. Yard No. 740 When built 1926

Engines made at Kiel By whom made Howaldtswerke A.G. Engine No. 7 When made 1926

Boilers made at Kiel By whom made Howaldtswerke A.G. Boiler No. 1819 When made 1926

Nominal Horse Power 321 Owners United Africa Co., Ltd., London Port belonging to Liverpool.

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Mannesmannröhren-Werke, Akt. Hirsch Pilsner-Hütte, Hückingen (Letter for Record 5)

Total Heating Surface of Boilers 232.7 m² Is forced draught fitted yes Coal or Oil fired oil

No. and Description of Boilers 1 multitubular Scotch Marine Boiler Working Pressure 180 lb.

Tested by hydraulic pressure to 320 lb Date of test 23-6-36 No. of Certificate 628 Can each boiler be worked separately

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler 1, 2 springs loaded

Area of each set of valves per boiler per Rule 12500 mm² as fitted 19000 mm² Pressure to which they are adjusted 180 lb. 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 Is oil fuel carried in the double bottom under boilers

Smallest distance between shell of boiler and tank top plating 1000 mm Is the bottom of the boiler insulated yes, asbestos mats

Largest internal dia. of boilers 4420 mm Length of shell 3860 mm Shell plates: Material 0.4 steel Tensile strength 47.52 kg/mm²

Thickness 29 mm Are the shell plates welded or flanged flanged Description of riveting: circ. seams end D.R. inter.

Long. seams double butt straps Diameter of rivet holes in circ. seams 31 mm long. seams 31 mm Pitch of rivets 98 mm 326 mm

Percentage of strength of circ. end seams plate 67.5% rivets 42.5% Percentage of strength of circ. intermediate seam plate rivets

Percentage of strength of longitudinal joint plate 92% rivets 109% combined 188% Working pressure of shell by Rules 18.8 kg/cm²

Thickness of butt straps outer 29 mm inner 29 mm No. and Description of Furnaces in each Boiler 3 Morrison

Material 0.4 steel Tensile strength 41-47 kg/mm² Smallest outside diameter 1132 mm

Length of plain part top 200 mm bottom 200 mm Thickness of plates crown 16 mm bottom 16 mm Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom none Working pressure of furnace by Rules 14.45 kg/cm²

End plates in steam space: Material 0.4 steel Tensile strength 41-47 kg/mm² Thickness 26, 24 mm Pitch of stays 390 x 370 mm

How are stays secured secured into plates with nuts inside and outside Working pressure by Rules 16.8 kg/cm², 12.32 kg/cm²

Tube plates: Material front 0.4 steel back 0.4 steel Tensile strength 41-47 kg/mm² Thickness 26 mm 24 mm

Mean pitch of stay tubes in nests 220 x 220 mm Pitch across wide water spaces 385 x 220 mm Working pressure front 14.4 kg/cm² back 13.2

Girders to combustion chamber tops: Material 0.4 steel Tensile strength 44-50 kg/mm² Depth and thickness of girder

at centre 220, (2419) mm Length as per Rule 220 mm Distance apart 193 mm No. and pitch of stays

in each 3 x 190 mm Working pressure by Rules 20.8 kg/cm² Combustion chamber plates: Material 0.4 steel

Tensile strength 41-47 kg/mm² Thickness: Sides 19 mm Back 16 mm Top 19 mm Bottom 24 mm

Pitch of stays to ditto: Sides 200 x 190 mm Back 200 x 195 mm Top 190 x 195 mm Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 15.65 15.35 15.4 kg/cm² Front plate at bottom: Material 0.4 steel Tensile strength 41-47 kg/mm²

Thickness 26 mm Lower back plate: Material 0.4 steel Tensile strength 41-47 kg/mm² Thickness 24 mm

Pitch of stays at wide water space A = 430 mm Are stays fitted with nuts or riveted over with nuts

Working Pressure 19.3 kg/cm² Main stays: Material 0.4 steel Tensile strength 44-50 kg/mm²

Diameter At body of stay 62.6 mm No. of threads per inch 6 Area supported by each stay 390 x 370 = 144,300 mm²

Over threads 68 mm Working pressure by Rules 16.85 kg/cm² Screw stays: Material 0.4 steel Tensile strength 41-47 kg/mm²

Diameter At turned off part 38.38 mm No. of threads per inch 9 Area supported by each stay 39,000 mm²

Over threads 39 mm

Working pressure by Rules $15.4 \frac{lb}{sq. in.}$ Are the stays drilled at the outer ends ☒ Margin stays: Diameter $\begin{cases} \text{At turned off part, } 2.5 \text{ in.} \\ \text{or} \\ \text{Over threads } 4.2 \text{ in.} \end{cases}$
No. of threads per inch 9 Area supported by each stay $200 \times 2.5 \times 2.5 \text{ in.}$ Working pressure by Rules $13.05 \frac{lb}{sq. in.}$
Tubes: Material O.H. Steel External diameter $\begin{cases} \text{Plain } 8.5 \text{ in.} \\ \text{Stay } 8.5 \text{ in.} \end{cases}$ Thickness $\begin{cases} 4 \text{ in.} \\ 8.5 \text{ in.} \end{cases}$ No. of threads per inch 9
Pitch of tubes $110 \times 110 \text{ in.}$ Working pressure by Rules $16 \frac{lb}{sq. in.}$ Manhole compensation: Size of opening
shell plate $420 \times 810 \text{ in.}$ Section of compensating ring $850 \times 950 \times 30 \text{ in.}$ No. of rivets and diameter of rivet holes 46, $2 \frac{1}{2} \text{ in.}$
Outer row rivet pitch at ends 125 in. Depth of flange if manhole flanged 100 in. 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 $\begin{cases} \text{Plate} \\ \text{Rivets} \end{cases}$
Internal diameter Working pressure by Rules Thickness of crown No. and diameter
stays Inner radius of crown Working pressure by Rules
How connected to shell Size of doubling plate under dome Diameter of rivet holes and
of rivets in outer row in dome connection to shell

Type of Superheater Manufacturers of $\begin{cases} \text{Tubes} \\ \text{Steel castings} \end{cases}$
Number of elements Material of tubes Internal diameter and thickness of tubes
Material of headers Tensile strength Thickness Can the superheater be shut off
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
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 ☒

HOWALDTSWERKE A.-G.
KIEL

The foregoing is a correct description,

Manufacture

1936:
Dates of Survey $\begin{cases} \text{During progress of work in shops - } \text{Feb 7, 11, Mar 6, Apr 21, May 24, June 19, 22} \\ \text{while building } \begin{cases} \text{During erection on board vessel - } \text{Aug 24, Sept 18, 26} \end{cases} \end{cases}$ Are the approved plans of boiler and superheater forwarded herewith 26-3-35
(If not state date of approval.)
Total No. of visits 10

Is this Boiler a duplicate of a previous case ☒ If so, state Vessel's name and Report No. "Gadala", Ham. Rpt. No. 21511

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

This Donkey Boiler has been built under special survey in accordance with the approved plans, the Secretary's letters and the Society's Rules. The materials used in the construction and the workmanship are of good quality. The boiler has been satisfactorily fitted on board, the safety valves have been adjusted under steam to 120 lb. In my opinion this boiler is eligible for notation in the Reg. Book of:-

1 DB 120 lb.

Headers of safety valves:
Pt 23-3 mm Sp. 19.5 mm

Survey Fee ... R Mks 2 344- When applied for, 20/10/36 19

Travelling Expenses (if any) £ : : When received, 13-11 19 36 18/11

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 22 DEC 1936

TUE. JAN 12 1937

TUE. JAN 19 1937

Assigned

See Name. J.C.
22066

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Foundation