

REPORT ON BOILERS.

No. 22634

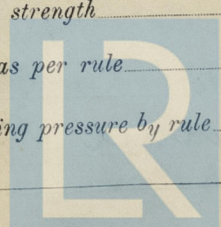
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Date of writing Report 28.12.37 19 When handed in at Local Office 19 Port of **HAMBURG**
 No. in Survey held at **Kiel** Date, First Survey 14.6.37 Last Survey 8.1.38 19
 Reg. Book on the **Steel Twin Se. "China"** (Number of Visits 2) Tons Gross 10781 Net 6545
 Built at **Kiel** By whom built **Fried. Krupp Germania-Werft A.G.** Yard No. 569 When built 1938
 Engines made at **Kiel** By whom made **do.** Engine No. 5629-34 5635-40 When made 1938
 Boilers made at **Kiel** By whom made **do.** Boiler No. 3988-89 When made 1938
 Owner's **Balboa Transport Corporation** Port belonging to **Panama R.P.**

VERTICAL DONKEY BOILER.

Made at **Kiel** By whom made **F. Krupp Germania-Werft** Boiler No. 3988-89 When made 1938 Where fixed **upper part of Stockholm**
 Manufacturers of Steel **Ruhrstahl A.G. Henrichshütte, Hattingen/Ruhr.**
 Total Heating Surface of Boiler $2 \times 62 = 124 m^2$ Is forced draught fitted **no** Coal or Oil fired **Waste heat**
 No. and Description of Boilers **2 multitubular vertical Waste Heat Donkey Boilers** Working pressure **100 lb**
 Tested by hydraulic pressure to **200 lb** Date of test **13.8.37** No. of Certificate **672-73**
 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 $\left\{ \begin{array}{l} \text{per rule } 4680 m^2 \\ \text{as fitted } 6630 \end{array} \right.$ Pressure to which they are adjusted **100 lb** Are they fitted with easing gear **yes**
 State whether steam from main boilers can enter the donkey boiler **no** Smallest distance between boiler or uptake and bunkers or woodwork **✓**
 Is oil fuel carried in the double bottom under boiler **✓** Smallest distance between base of boiler and tank top plating **✓**
 Is the base of the boiler insulated **✓** Largest internal dia. of boiler **1700 mm** Height of shell **2922 mm**
 Shell plates: Material **O.H. Steel** Tensile strength **44-50 kg/mm²** Thickness **13 mm**
 Are the shell plates welded or flanged **flanged** Description of riveting: circ. seams **end Cap. S.R. inter. Cap. S.R.** long. seams **Cap. S.R.**
 Dia. of rivet holes in $\left\{ \begin{array}{l} \text{circ. seams } 26 mm \\ \text{long. seams } 23 mm \end{array} \right.$ Pitch of rivets $\left\{ \begin{array}{l} 67 mm \\ 72 mm \end{array} \right.$ Percentage of strength of circ. seams $\left\{ \begin{array}{l} \text{plate } 61.2 \\ \text{rivets } 46.1 \end{array} \right.$ of Longitudinal joint $\left\{ \begin{array}{l} \text{plate } 68.1 \\ \text{rivets } 66.3 \\ \text{combined } 69.4 \end{array} \right.$
 Working pressure of shell by rules **9.62 kg/mm²** Thickness of butt straps $\left\{ \begin{array}{l} \text{outer } \checkmark \\ \text{inner } \checkmark \end{array} \right.$
 Shell Crown: Whether complete hemisphere, dished partial spherical, or flat **flat = Tube plate** Material **✓**
 Tensile strength **✓** Thickness **✓** Radius **✓** Working pressure by rules **✓**
 Description of Furnace: Plain, spherical, or dished crown **✓** Material **✓** Tensile strength **✓**
 Thickness **✓** External diameter $\left\{ \begin{array}{l} \text{top } \checkmark \\ \text{bottom } \checkmark \end{array} \right.$ Length as per rule **✓** Working pressure by rules **✓**
 Pitch of support stays circumferentially **✓** and vertically **✓** Are stays fitted with nuts or riveted over **✓**
 Diameter of stays over thread **✓** Radius of spherical or dished furnace crown **✓** Working pressure by rule **✓**
 Thickness of Ogee Ring **✓** Diameter as per rule $\left\{ \begin{array}{l} D \checkmark \\ d \checkmark \end{array} \right.$ Working pressure by rule **✓**
 Combustion Chamber: Material **Unobtainable system of tubes** Tensile strength **✓** Thickness of top plate **✓**
 Radius if dished **✓** Working pressure by rule **✓** Thickness of back plate **✓** Diameter if circular **✓**
 Length as per rule **✓** Pitch of stays **✓** Are stays fitted with nuts or riveted over **✓**
 Diameter of stays over thread **✓** Working pressure of back plate by rules **✓**
 Tube Plates: Material $\left\{ \begin{array}{l} \text{top } \checkmark \\ \text{middle } \checkmark \\ \text{bottom } \checkmark \end{array} \right.$ **O.H. Steel** Tensile strength **41-47 kg/mm²** Thickness $\left\{ \begin{array}{l} 24 mm \\ 24 mm \end{array} \right.$ Mean pitch of stay tubes in nests **357.5 x 427.4 mm**
 If comprising shell, Dia. as per rule $\left\{ \begin{array}{l} \text{front } \checkmark \\ \text{back } \checkmark \end{array} \right.$ Pitch in outer vertical rows $\left\{ \begin{array}{l} \checkmark \\ \checkmark \end{array} \right.$ Dia. of tube holes FRONT $\left\{ \begin{array}{l} \text{stay } 48.2 \\ \text{plain } 47.5 \end{array} \right.$ BACK $\left\{ \begin{array}{l} \text{stay } 48.4 \\ \text{plain } 49.2 \end{array} \right.$
 Is each alternate tube in outer vertical rows a stay tube **no** Working pressure by rules $\left\{ \begin{array}{l} \text{front } 6.45 kg/mm^2 \\ \text{back } C = 3740 \end{array} \right.$
 Girders to combustion chamber tops: Material **✓** Tensile strength **✓**
 Depth and thickness of girder at centre **✓** Length as per rule **✓**
 Distance apart **✓** No. and pitch of stays in each **✓** Working pressure by rule **✓**



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Crown stays: Material ☒ Tensile strength ☒ Diameter { at body of stay, ☒ or over threads ☒

No. of threads per inch ☒ Area supported by each stay ☒ Working pressure by rules ☒

Screw stays: Material ☒ Tensile strength ☒ Diameter { at turned off part, ☒ or over threads ☒ No. of threads per inch ☒

Area supported by each stay ☒ Working pressure by rules ☒ Are the stays drilled at the outer ends ☒

Tubes: Material O.H. Steel External diameter { plain 47.62 / stay 47.52 Thickness { 3 - 4 mm

No. of threads per inch 9 Pitch of tubes 71.5 x 61.842 Working pressure by rules above 11.5 by rule

Manhole Compensation: Size of opening in shell plate 380 x 280 mm Section of compensating ring 24 x 540 x 440 mm No. of rivets and diameter of rivet holes 16, φ 26 mm Outer row rivet pitch at ends 80 mm Depth of flange if manhole flanged ☒

Uptake: External diameter ☒ Thickness of uptake plate ☒

Cross Tubes: No. ☒ External diameters { ☒ Thickness of plates ☒

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

The foregoing is a correct description,
FRIED. KRUPP
GERMANIAWERKE
Aktiengesellschaft, Manufacturer.
H. Hiltner

1937:-
Dates of Survey { During progress of work in shops - Jun: 14, 15, Jul: 16 Aug: 13, 20 Is the approved plan of boiler forwarded herewith yes, 21.12.36
while building { During erection on board vessel - Sept - Oct 25 Dec: 20 1938 Jan: 8 (If not state date of approval.)
Total No. of visits 8

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

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
These donkey boilers are built under Special Survey in accordance with the approved plan and instructions thereto and in compliance with the Society's Rules. The materials used in the construction are made at works recognised by the Committee. They are of good quality and the workmanship is satisfactory. They satisfactorily withstood the hydraulic tests with 200 lb. Under pressure they were found tight and their safety valves were adjusted to 100 lb. In my opinion they are eligible to be placed in the Society's Register Book with notation of
2 D.B HP 100 lb.

Safety valves' weights:-	port	starb.
Port Boiler	<u>20 - mm</u>	<u>24 - mm</u>
Star Boiler	<u>18.5 mm</u>	<u>19.5 mm</u>

Please note:
These boilers are fitted in the upper part of the Slope Hold.

Survey Fee ... RM 2 & 168.- : When applied for, 22.1.1938
Travelling Expenses (if any) £ : : When received, 17/2 1938

Committee's Minute FRI 4 FEB 1938
Assigned See other F.E. report

