

REPORT ON BOILERS.

No. 22444

Received at London Office AUG 11 1937

Date of writing Report 5.8.37. 10 When handed in at Local Office 10 Port of HAMBURG

No. in Survey held at Kiel Date, First Survey 12.12.36 Last Survey 8.7.37 10

4 576 on the Steel Str. "Esso Bolívar" (Number of Visits 13) Gross 10389 Tons Net 6081

Master Built at Kiel By whom built Fr. Krupp Germ. Werft Yard No. 568 When built 1937

Engines made at Kiel By whom made Fr. Krupp Germaniawerft A.G. Engine No. 5523 When made 1937

Boilers made at Kiel By whom made " Boiler No. 3960/1 When made 1937

Nominal Horse Power 912 Owners Panama Transport Co. Port belonging to Panama R.P.

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Deutsche Röhrenwerke A.G. Hark Thyssen, Mülheim/Ruhr. (Letter for Record 5 ✓)

Total Heating Surface of Boilers 510 m² ✓ Is forced draught fitted yes ✓ Coal or Oil fired oil ✓

No. and Description of Boilers 2 mult. Scotch Marine Donkey Boilers Working Pressure 200 lb. ✓

Tested by hydraulic pressure to 350 lb. Date of test 12.3.37 No. of Certificate 659-60 Can each boiler be worked separately yes ✓

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 10,050 mm² as fitted 15,708 mm² } Pressure to which they are adjusted 200 lb. Are they fitted with easing gear yes ✓

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler At sea these Boilers work in connection with the Main Heat Donkey Boiler ✓

Smallest distance between boilers or uptakes and bunkers or woodwork ✓ Is oil fuel carried in the double bottom under boilers no ✓

Smallest distance between shell of boiler and tank top plating 500 mm ✓ Is the bottom of the boiler insulated yes, asbestos mats ✓

Largest internal dia. of boilers 4400 mm ✓ Length 3690 mm ✓ Shell plates: Material O.H. Steel Tensile strength 44-50 kg/cm² ✓

Thickness 34 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 35- mm ✓ long. seams 35- mm ✓ } Pitch of rivets { 105.5 mm ✓ 230- mm ✓ }

Percentage of strength of circ. end seams { plate 66.7 rivets 44.4 } Percentage of strength of circ. intermediate seam { plate ✓ rivets ✓ }

Percentage of strength of longitudinal joint { plate 84.7 rivets 89.1 combined 87.3 } Working pressure of shell by Rules 14.3 kg/cm² ✓

Thickness of butt straps { outer 27 mm ✓ inner 30 mm ✓ } No. and Description of Furnaces in each Boiler 3 Morrison 308 ✓

Material O.H. Steel Tensile strength 41-47 kg/cm² ✓ Smallest outside diameter 1080 mm ✓

Length of plain part { top 259.5 mm ✓ bottom ✓ } Thickness of plates { crown 15- mm ✓ bottom ✓ } Description of longitudinal joint welded ✓

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 14.2 kg/cm² ✓End plates in steam space: Material O.H. Steel Tensile strength 41-47 kg/cm² ✓ Thickness 32- mm ✓ Pitch of stays 480 x 480 mm ✓How are stays secured screwed, nuts outside ✓ Working pressure by Rules 19.6 kg/cm² ✓Tube plates: Material { front O.H. Steel ✓ back O.H. Steel ✓ } Tensile strength { 41-47 kg/cm² ✓ 41-47 kg/cm² ✓ } Thickness { 23 mm ✓ 23 mm ✓ }Mean pitch of stay tubes in nests 220 x 220 mm ✓ Pitch across wide water spaces 367 mm ✓ Working pressure { front 15.5 kg/cm² ✓ back 26- mm ✓ }Girders to combustion chamber tops: Material O.H. Steel Tensile strength 44-50 kg/cm² ✓ Depth and thickness of girder

at centre 250 mm, 2 x 18 mm ✓ Length as per Rule 875 mm ✓ Distance apart 220 mm ✓ No. and pitch of stays

in each 3, 205 mm ✓ Working pressure by Rules 14.5 kg/cm² ✓ Combustion chamber plates: Material O.H. Steel ✓Tensile strength 41-47 kg/cm² ✓ Thickness: Sides 19 mm ✓ Back 19 mm ✓ Top 19 mm ✓ Bottom 23 mm ✓

Pitch of stays to ditto: Sides 205 x 185 mm ✓ Back 190 x 192.5 mm ✓ Top 205 x 220 mm ✓ Are stays fitted with nuts or riveted over with nuts ✓

Working pressure by Rules 15.65, 16.3, 18.2 kg/cm² ✓ Front plate at bottom: Material O.H. Steel Tensile strength 41-47 kg/cm² ✓Thickness 23- mm ✓ Lower back plate: Material O.H. Steel Tensile strength 41-47 kg/cm² ✓ Thickness 22 mm ✓

Pitch of stays at wide water space d = 500 mm ✓ Are stays fitted with nuts or riveted over with nuts ✓

Working Pressure 16.9 kg/cm² ✓ Main stays: Material O.H. Steel Tensile strength 44-50 kg/cm² ✓Diameter { At body of stay, 76 mm ✓ or Over threads 82.47 mm ✓ } No. of threads per inch 6 ✓ Area supported by each stay 115,200 mm² ✓Working pressure by Rules 33.5 kg/cm² ✓ Screw stays: Material O.H. Steel Tensile strength 41-47 kg/cm² ✓Diameter { At turned off part, 35- mm ✓ or Over threads 39- mm ✓ } No. of threads per inch 9 ✓ Area supported by each stay 37,925 mm² ✓

Working pressure by Rules 22.8 kg/cm^2 Are the stays drilled at the outer ends ☒ Margin stays: Diameter { At turned off part, 50.-mm or Over threads 54.-mm
No. of threads per inch 9 Area supported by each stay $69,730 \text{ cm}^2$ Working pressure by Rules 18.5 kg/cm^2
Tubes: Material O.H. Steel External diameter { Plain 83 mm Stay 83 mm Thickness { 4.-mm 8.-mm No. of threads per inch 9
Pitch of tubes 110 * 110 mm Working pressure by Rules 16 kg/cm^2 Manhole compensation: Size of opening
shell plate 460 * 560 mm Section of compensating ring $950 * 1050 * 34 \text{ mm}$ No. of rivets and diameter of rivet holes 46, 35 mm
Outer row rivet pitch at ends 194 mm Depth of flange if manhole flanged 101 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
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 coil system Manufacturers of Tubes Pre-mach Walguerk, Düsseldorf-Riesdorf
Steel forgings Headers d. 110
Steel castings
Number of elements 22 Material of tubes O.H. Steel Internal diameter and thickness of tubes 38 mm, 3 mm
Material of headers O.H. Steel Tensile strength 46.1 kg/mm^2 Thickness 22 mm 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 804.25 cm^2 Are the safety valves fitted with easing gear ☒ Working pressure as
Rules 97 kg/cm^2 Pressure to which the safety valves are adjusted 200 lb. Hydraulic test pressure
tubes 1000 lbs. Headers forgings and castings 600 lb. and after assembly in place 42 kg/cm^2 Are drain cocks
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 ☒

The foregoing is a correct description,

FRIED. KRUPP
GERMANIAWERFT

Dates of Survey { During progress of work in shops - - - Dec: 18 1937 Jan: 6, 12, 22 Feb: 9, 15 Mar: 5, 10, 12
while building { During erection on board vessel - - - May: 7 Jun: 9, 25 Jul: 8
Are the approved plans of boiler and superheater forwarded herewith 9. 3. 36
(If not state date of approval.)
Total No. of visits 13

Is this Boiler a duplicate of a previous case ☒ If so, state Vessel's name and Report No. "Henry Dundas", Ham. Rpt. No. 22296

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

These Donkey Boilers are built under Special Survey in accordance with the approved plans, the German Rules and the Society's Rules. The materials used in the construction and the workmanship are of good quality. They have been satisfactorily fitted on board and their safety valves have been adjusted under steam to a pressure of 200 lb. In my opinion they are eligible for notation in the Register.

Back of 2 DB (app) pressure 200 lb

Safety valves numbers:

	Port Boiler	Starb. Boiler	Superheater
Port Boiler	25.-mm	25.4 mm	12.-mm
Starb. Boiler	24.8 mm	30.-mm	11.9 mm

Survey Fee ... Rmk. & 6.6.-

Travelling Expenses (if any) £

When applied for, 26.7.37

When received, 27.8.37

Committee's Minute TUE. 17 AUG 1937

Assigned See Ham F.E 22444.



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