

REPORT ON BOILERS.

No. 23050

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Date of writing Report 12th Feb. 1939. When handed in at Local OfficePort of **HAMBURG**No. in Survey held at **HAMBURG**Date, First Survey 17th Sept. 1938 Last Survey 31st January 1939.1222 on the *Twin Screw* **GERMANIA**

(Number of Visits 16) Gross 9977 Tons Net 5800

Master Built at **HAMBURG** By whom built *Deutsche Werft A.G.* Yard No. 216 When built 1939.Engines made at *Angelsburg* By whom made *Maschinenfabrik Augsburg-Königsberg* Engine No. 68/430/440 When made 1939Boilers made at **HAMBURG** By whom made *Deutsche Werft A.G.* Boiler No. 758 & 759 When made 1939Nominal Horse Power 1170 Owners *The Texas Co. (Norway) A/S* Port belonging to *Oslo*

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel *Mannesmannröhren-Werke, Abt. Heinrich Brinnes-Hütte, Luckingen* (Letter for Record S.)Total Heating Surface of Boilers each boiler 200 sq. metres Is forced draught fitted *yes* Coal or Oil fired *oil fired*No. and Description of Boilers *two single-ended multitubular donkey boilers* Working Pressure 12 kg/cm²Tested by hydraulic pressure to 307 lbs Date of test 12.11.38 No. of Certificate 716 / 717 Can each boiler be worked separately *yes*Area of Firegrate in each Boiler - No. and Description of safety valves to each boiler *two spring-loaded safety valves*Area of each set of valves per boiler { per Rule 9333 mm² as fitted 11349 mm² Pressure to which they are adjusted 12 kg/cm² 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 1200 mm Is oil fuel carried in the double bottom under boilers *boilers in foredeck*Smallest distance between shell of boiler and tank top plating 460 mm Is the bottom of the boiler insulated *yes*Largest internal dia. of boilers 4100 mm Length 2300 mm Shell plates: Material *S-M-Steel* Tensile strength 47-53 kg/mm²Thickness 25.5 mm Are the shell plates welded or flanged *flanged, double butt* Description of riveting: circ. seams { end double-row-riveting inter. -long. seams *treble row, double butt strapped* Diameter of rivet holes in { circ. seams 29 mm Pitch of rivets { 92.7 mm long. seams 29 mm 185 mm

Percentage of strength of circ. end seams { plate 68.7 % rivets 42.8 % Percentage of strength of circ. intermediate seam { plate - rivets -

Percentage of strength of longitudinal joint { plate 84.3 % rivets 100.5 % combined 88.75 % Working pressure of shell by Rules 12.03 kg/cm²Thickness of butt straps { outer 25.5 mm inner 25.5 mm No. and Description of Furnaces in each Boiler *three corrugated furnaces (Morison type)*Material *S-M-Steel* Tensile strength 41-47 kg/mm² Smallest outside diameter 974 mmLength of plain part { top 150 mm bottom 250 mm Thickness of plates { crown 12 mm bottom 12 mm Description of longitudinal joint *water gas lap welded*Dimensions of stiffening rings on furnace or c.c. bottom - Working pressure of furnace by Rules 12.4 kg/cm²End plates in steam space: Material *S-M-Steel* Tensile strength 41-47 kg/mm² Thickness 24 mm Pitch of stays 460 x 400 mmHow are stays secured *washers and strips riveted to shell, nuts inside & outside* Working pressure by Rules 12.3 kg/cm²Tube plates: Material { front *S-M-Steel* back *S-M-Steel* Tensile strength { 41-47 kg/mm² Thickness { 24 mm 22 mmMean pitch of stay tubes in nests 208 x 208 mm Pitch across wide water spaces 360 mm Working pressure { front 13.5 kg/cm² back 14.16 kg/cm²Girders to combustion chamber tops: Material *S-M-Steel* Tensile strength 47-53 kg/mm² Depth and thickness of girder

at centre 200 mm - 2 x 12 mm Length as per Rule 709 mm Distance apart 200 mm No. and pitch of stays

in each *two* - 210 mm Working pressure by Rules 12.0 kg/cm² Combustion chamber plates: Material *S-M-Steel*Tensile strength 41-47 kg/mm² Thickness: Sides 16.5 mm Back 19 mm Top 16.5 mm Bottom 24 mmPitch of stays to ditto: Sides 200 x 210 mm Back Centre 200 x 208 mm Top 210 x 200 mm Are stays fitted with nuts or riveted over *margin stays with nuts*Working pressure by Rules *side plates 15.8 kg/cm² back 14.3 kg/cm² bottom 23.0 kg/cm²* Front plate at bottom: Material *S-M-Steel* Tensile strength 41-47 kg/mm²Thickness 24 mm Lower back plate: Material *S-M-Steel* Tensile strength 41-47 kg/mm² Thickness 24 mmPitch of stays at wide water space *1 main stay, pitch diam. 514 mm* Are stays fitted with nuts or riveted over *double plates riveted to end plates*Working Pressure 19.6 kg/cm² Main stays: Material *S-M-Steel* Tensile strength 41-47 kg/mm²Diameter { At body of stay, 66.58 mm No. of threads per inch 6 Area supported by each stay 460 x 400 mm = 184000 mm²Over threads 72.0 mm Working pressure by Rules 13.6 kg/cm² Screw stays: Material *S-M-Steel* Tensile strength 41-47 kg/mm²Diameter { At turned off part, 35.38 mm No. of threads per inch 9 Area supported by each stay 200 x 208 = 41600 mm²

Over threads 39.0 mm

Working pressure by Rules 14.4 kg/cm^2 Are the stays drilled at the outer ends ☒ Margin stays: Diameter { At turned off part, $38.38 - 47.38$ or Over threads $42.0 - 51.0$ }
No. of threads per inch 9 Area supported by each stay $284 \times 200 \text{ mm} = 56800 \text{ mm}^2$ Working pressure by Rules 12.65 kg/cm^2
Tubes: Material S-TC-Steel External diameter { Plain 76 mm Thickness 3.75 mm } No. of threads per inch 9
Pitch of tubes $104 \times 104 \text{ mm}$ Working pressure by Rules 14.5 kg/cm^2 Manhole compensation: Size of opening
shell plate $320 \times 425 \text{ mm}$ Section of compensating ring $2 \times 2 \frac{1}{2} \times 25.5 \text{ mm}$ No. of rivets and diameter of rivet holes 27 - 29
Outer row rivet pitch at ends $\sim 175 \text{ mm}$ Depth of flange if manhole flanged
Tensile strength $41 - 47 \text{ kg/mm}^2$ Thickness of shell 14 mm Description of longitudinal joint oxy-acetylene welded & reamed by abra
Diameter of rivet holes 26 mm Pitch of rivets 84 mm Percentage of strength of joint { Plate } welding 60%
Internal diameter 900 mm Working pressure by Rules 14.6 kg/cm^2 Thickness of crown 16 mm No. and diameter
stays - Inner radius of crown 720 mm Working pressure by Rules 14.85 kg/cm^2
How connected to shell pressed flange riveted to shell Size of doubling plate under dome
of rivets in outer row in dome connection to shell $29 \text{ mm } \phi - 200 \text{ mm}$ Diameter of rivet holes and pitch

Type of Superheater Manufacturers of { Tubes Steel castings }
Number of elements Material of tubes Internal diameter and thickness of tubes
Material of headers Tensile strength Thickness Can the superheater be shut off and
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 per Rules
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 ☒

The foregoing is a correct description,

Dates of Survey { During progress of work in shops - 1938. Sept. 17, 23, 29 Oct. 1, 8, 12, 20, 26 } Are the approved plans of boiler and superheater forwarded herewith 14th May 1939
while building { During erection on board vessel - 1939. Jan. 11, 18, 20, 31 } (If not state date of approval.)
Total No. of visits 16

Is this Boiler a duplicate of a previous case ☒ If so, state Vessel's name and Report No. NUEVA GRANADA Hambg Rep. No. 2230

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) Material and workmanship of these donkey boilers are of good quality.
The materials used in their construction are made at Works recognized by the Committee and tested by the Society's Surveyors in accordance with the requirements of the Rules.
These donkey boilers having been made under Special Survey in conformity with the approved plan, the Secretary's letter and otherwise in compliance with the requirements of the Rules are eligible in my opinion to be classed with notation in the Register Book:

Two Donkey Boilers - $17.1 \text{ lbs/sq. inch pressure}$

Thickness of safety valves' adjusting washers: Port boiler: port 22.5 mm, starbd 22.1 mm
Starbd boiler: port 22.9 mm, starbd 21.9 mm

Survey Fee ... £ RMC: 537:- When applied for, 10.2. 1939
Travelling Expenses (if any) £ : : When received, see note 1939

H. Röhrs

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 24 FEB 1939

Assigned

See FE marks rpt



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