

REPORT ON BOILERS.

No. 22902

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19

Port of HAMBURGNo. in Survey held at HAMBURGDate, First Survey 22 FEB. 1937 Last Survey 20 JUL. 1938on the STEEL S.S. "ARTHUR F. CORWIN"(Number of Visits 30)Gross 10516
Tons Net 6077Master D. J. Built at HAMBURG By whom built BLOHM & VOSS Yard No. 512 When built 1938Engines made at KIEL By whom made FRED. KRUPP GERMANY A.W.F. Engine No. 5746 When made 1938Boilers made at HAMBURG By whom made BLOHM & VOSS Boiler No. 1562 When made 1938Nominal Horse Power 912 Owners ORIENTAL TANKERS LTD. Port belonging to LONDON

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Mannesmann-Röhren-Werke, Akt. Schulz-Knaude-Huskingen (Letter for Record S.)Total Heating Surface of Boilers 2 x 255 sq. m. Is forced draught fitted yes Coal or Oil fired oilNo. and Description of Boilers 2 single multitubular Donkey Boilers Working Pressure 200 lbs./sq. in.Tested by hydraulic pressure to 350 lbs. Date of test 22.1.38 No. of Certificate 686-687 Can each boiler be worked separately yesArea of Firegrate in each Boiler 0 No. and Description of safety valves to each boiler 2 spring loadedArea of each set of valves per boiler per Rule 10,050 sq. in. Pressure to which they are adjusted 200 lbs. Are they fitted with easing gear yesIn case of donkey boilers, state whether steam from main boilers can enter the donkey boiler at sea these donkey boilers are working in connection with the main boilers.Smallest distance between boilers or uptakes and bunkers or woodwork 500 mm. Is oil fuel carried in the double bottom under boilers yesSmallest distance between shell of boiler and tank top plating 500 mm. Is the bottom of the boiler insulated yesLargest internal dia. of boilers 4400 mm. Length 3690 mm. Shell plates: Material S.M. Steel Tensile strength 44-50 kg/cm²Thickness 34 mm. Are the shell plates welded or flanged flanged Description of riveting: circ. seams double rivetslong. seams D.B. trouble Diameter of rivet holes in circ. seams 35 mm. Pitch of rivets 105.5 mm.Percentage of strength of circ. end seams plate 66.7% rivets 44.4% Percentage of strength of circ. intermediate seam plate 84.7% rivets 89.7%Percentage of strength of longitudinal joint plate 84.7% rivets 89.7% combined 87.3% Working pressure of shell by Rules 14.3 kg/cm²Thickness of butt straps outer 27 mm. inner 30 mm. No. and Description of Furnaces in each Boiler 3 morisonMaterial S.M. Steel Tensile strength 41-47 kg/cm² Smallest outside diameter 1080 mm.Length of plain part top 260 mm. Thickness of plates crown 15 mm. Description of longitudinal joint weldedDimensions of stiffening rings on furnace or c.c. bottom 0 Working pressure of furnace by Rules 14.2 kg/cm²End plates in steam space: Material S.A. Steel Tensile strength 41-47 kg/cm² Thickness 32 mm. Pitch of stays 420 x 480 mm.How are stays secured screwed, nuts inside Working pressure by Rules 19.6 kg/cm²Tube plates: Material front S.M. Steel back S.M. Steel Tensile strength 41-47 kg/cm² Thickness 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 kg/cm²Girders to combustion chamber tops: Material S.M. Steel Tensile strength 44-50 kg/cm² Depth and thickness of girderat centre 250 x 2 x 18 mm. Length as per Rule 875 mm. Distance apart 220 mm. No. and pitch of staysin each 3 - 205 mm. Working pressure by Rules 14.5 kg/cm² Combustion chamber plates: Material S.M. SteelTensile strength 41-47 kg/cm² Thickness: Sides 19 mm. Back 19 mm. Top 19 mm. Bottom 23 mm.Pitch of stays to ditto: Sides 185 x 205 mm. Back 190 x 192.5 mm. Top 205 x 220 mm. Are stays fitted with nuts or riveted over riveted overWorking pressure by Rules 15.65-16.3-13.2 kg/cm² Front plate at bottom: Material S.M. Steel Tensile strength 41-47 kg/cm²Thickness 23 mm. Lower back plate: Material S.M. 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 screwed, nuts outsideWorking Pressure 16.9 kg/cm² Main stays: Material S.M. Steel Tensile strength 44-50 kg/cm²Diameter At body of stay 76 mm. Over threads F. - 84 mm. A.H. - 76 mm. No. of threads per inch 6 Area supported by each stay 420 x 480 mm.Working pressure by Rules 33.5 kg/cm² Screw stays: Material S.M. Steel Tensile strength 41-47 kg/cm²Diameter At turned off part 35 mm. 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 the stays drilled at the outer ends 40 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 $69,730 \text{ mm}^2$ Working pressure by Rules 18.5 kg/cm^2
Tubes: Material *S.Y. Steel* External diameter { Plain 83 mm Stay 83 mm } Thickness { 4 mm 8 mm } No. of threads per inch 9
Pitch of tubes $110 \times 110 \text{ mm}$ Working pressure by Rules 16 kg/cm^2 Manhole compensation: Size of opening in shell plate $460 \times 560 \text{ mm}$ Section of compensating ring $750 \times 1050 \times 34 \text{ mm}$ No. of rivets and diameter of rivet holes $42 - 35 \text{ mm}$
Outer row rivet pitch at ends 194 mm Depth of flange if manhole flanged 101 mm Steam Dome: Material *✓*
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 Working pressure by Rules
How connected to shell Inner radius of crown Working pressure by Rules
of rivets in outer row in dome connection to shell Size of doubling plate under dome Diameter of rivet holes and pitch

Type of Superheater *Coil system - square headed* manufacturers of { Tubes *Pöschel und Kahlert* Steel forgings *Düireldorf - Reisholz* Steel castings }
Number of elements 22 Material of tubes *S.M. Steel* Internal diameter and thickness of tubes $32 \text{ mm} - 3 \text{ mm}$
Material of headers *S.Y. Steel* Tensile strength $41 - 47 \text{ kg/cm}^2$ Thickness 22 mm 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 804 mm^2 Are the safety valves fitted with easing gear *yes* Working pressure as per Rules 97 kg/cm^2 Pressure to which the safety valves are adjusted $200 \text{ lb. sq. inch} / 14 \text{ kg/cm}^2$ Hydraulic test pressure: tubes 1000 lb. forgings and castings 600 lb. and after assembly in place 600 lb. 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 *yes*

Blohm & Doss
Hamburg.
The foregoing is a correct description,
Letterly Manufacturer.

Dates of Survey { During progress of work in shops - $15/3 - 19/3 - 5/4 - 12/4 - 21/4 - 28/4 - 5/5 - 12/5 - 19/5$ } Are the approved plans of boiler and superheater forwarded herewith *yes*
while building { During erection on board vessel - $7/11/12 - 12/12 - 14/10 - 22/15$ }
Total No. of visits 36

Is this Boiler a duplicate of a previous case *yes*. If so, state Vessel's name and Report No. *'SEMIPOLE' Laut. Rep. 21912.*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *Material and workmanship of these Donkey Boilers are of good quality. The material used in the construction are made at works recognized by the Committee and tested by the Society's Surveyors in accordance with the Rules. These Boilers, having been built under Special Survey in accordance with the approved plans, the Secretary's Letter and otherwise in compliance with the Rules are eligible in my opinion for the notation in the Reg. Bk.*

2. D. B. (api) 200 lb.

THICKNESS OF ADD. WASHERS.

	FOR W.	AFT.	SUPERHEATER.
PORT D.E.	33.6 mm	26.5 mm	10.8 mm
STE. D.E.	28 mm	32.3 mm	11 mm

Survey Fee ... *Rm. 6/6-*

Travelling Expenses (if any) £ *-*

When applied for, *15/2/1938*

When received, *4/10*

Friedrich Hill
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 23 SEP 1938

Assigned

Sec. 7. C. Rpt.



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Foundation