

## REPORT ON BOILERS.

No. 16427

Date of writing Report 19<sup>th</sup> July 1925 When handed in at Local Office HAMBURG Port of HAMBURG  
 Received at London Office 25 JUL 1925  
 No. in Reg. Book. HAMBURG Date, First Survey 14<sup>th</sup> Nov. 1924 Last Survey 7<sup>th</sup> July 1925  
 on the Steel Sc. Motor V. "DUISBURG" (Number of Visits 11) Gross Tons 6530 Net Tons 3800  
 Master                      Built at HAMBURG By whom built VULCAN-WERKE Yard No. 638 When built 1925  
 Engines made at HAMBURG By whom made VULCAN-WERKE Engine No. 638 When made 1925  
 Boilers made at HAMBURG By whom made VULCAN-WERKE Boiler No. 3299 When made 1925  
 Nominal Horse Power 578 Owners DEUTSCH-ANSTRAL-IMPERSH. GES. Port belonging to HAMBURG

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Früh. Knauts. Heekingen. (Mannermann) (Letter for Record S.)  
 Total Heating Surface of Boilers 4545 45.89 19 m. Is forced draught fitted yes Coal or Oil fired oil  
 No. and Description of Boilers 1 multitubular Donkey boiler Working Pressure 7.5 kg/cm<sup>2</sup> (107 kg)  
 Tested by hydraulic pressure to 214 lb. Date of test 17.1.25 No. of Certificate 368 Can each boiler be worked separately yes  
 Area of Firegrate in each Boiler                      No. and Description of safety valves to each boiler 2 spring loaded  
 Area of each set of valves per boiler {per Rule 3960 19 m. as fitted 5654 19 m. Pressure to which they are adjusted 7.5 kg/cm<sup>2</sup> (107 kg) 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 800 mm Is oil fuel carried in the double bottom under boilers yes  
 Smallest distance between shell of boiler and tank top plating 500 mm Is the bottom of the boiler insulated yes  
 Largest internal dia. of boilers 2100 mm Length 2300 mm Shell plates: Material Steel Tensile strength 47.54 kg/cm<sup>2</sup>  
 Thickness 10.5 mm Are the shell plates welded or flanged flanged Description of riveting: circ. seams {end lap, double riveted} inter. 68 mm  
 Long. seams double butt, double riveted Diameter of rivet holes in {circ. seams 20 mm long. seams 20.7 mm Pitch of rivets { 76 mm  
 Percentage of strength of circ. end seams {plate 70.6 % rivets 67.4 % Percentage of strength of circ. intermediate seam {plate 73.7 % rivets 113 %  
 Percentage of strength of longitudinal joint {plate 73.7 % rivets 113 % combined 104 % Working pressure of shell by Rules 8.13 kg/cm<sup>2</sup>  
 Thickness of butt straps {outer 10.5 mm inner 10.5 mm No. and Description of Furnaces in each Boiler 1 plain  
 Material Steel Tensile strength 41 kg/cm<sup>2</sup> Smallest outside diameter 825 mm  
 Length of plain part {top 1625 mm bottom 1675 mm Thickness of plates {crown 12.5 mm bottom 12.5 mm Description of longitudinal joint welded  
 Dimensions of stiffening rings on furnace or c.c. bottom                      Working pressure of furnace by Rules 7.57 kg/cm<sup>2</sup>  
 End plates in steam space: Material Steel Tensile strength 41-47 kg/cm<sup>2</sup> Thickness 18.5 mm Pitch of stays 350 mm  
 How are stays secured double nut + wash. Working pressure by Rules 8.92 kg/cm<sup>2</sup>  
 Tube plates: Material {front Steel back Steel Tensile strength { 41-47 kg/cm<sup>2</sup> Thickness { 18.5 mm  
 Mean pitch of stay tubes in nests 255 mm Pitch across wide water spaces 300 mm Working pressure {front 9.86 kg/cm<sup>2</sup> back                       
 Girders to combustion chamber tops: Material Steel Tensile strength 41-47 kg/cm<sup>2</sup> Depth and thickness of girder at centre 135 mm - 2 x 10 mm Length as per Rule 483 mm Distance apart 215 mm No. and pitch of stays in each 1 Working pressure by Rules 7.8 kg/cm<sup>2</sup> Combustion chamber plates: Material Steel  
 Tensile strength 41-47 kg/cm<sup>2</sup> Thickness: Sides 13 mm Back 12 mm Top 13 mm Bottom 13 mm  
 Pitch of stays to ditto: Sides 207 mm Back 190 x 200 mm Top 215 mm Are stays fitted with nuts or riveted over yes  
 Working pressure by Rules 8.9 kg/cm<sup>2</sup> Front plate at bottom: Material Steel Tensile strength 41-47 kg/cm<sup>2</sup>  
 Thickness 18.5 mm Lower back plate: Material Steel Tensile strength 41-47 kg/cm<sup>2</sup> Thickness 18.5 mm  
 Pitch of stays at wide water space                      Are stays fitted with nuts or riveted over                       
 Working Pressure                      Main stays: Material Steel Tensile strength 40-47 kg/cm<sup>2</sup>  
 Diameter {At body of stay, 51 mm or Over threads                      No. of threads per inch 6 Area supported by each stay 350 x 350 mm  
 Working pressure by Rules 9.16 kg/cm<sup>2</sup> Screw stays: Material Steel Tensile strength 41-47 kg/cm<sup>2</sup>  
 Diameter {At turned off part, 29.6 mm or Over threads                      No. of threads per inch 9 Area supported by each stay 190 x 200 mm



Working pressure by Rules  $7.97 \text{ kg}$ . Are the stays drilled at the outer ends ☒ Margin stays: Diameter  $\begin{cases} \text{At turned off part, } 34.28 \text{ mm} \\ \text{Over threads, } 34.28 \text{ mm} \end{cases}$

No. of threads per inch  $9$  Area supported by each stay  $190 \times 200 \text{ mm}$  Working pressure by Rules  $11.5 \text{ kg}$ .

Tubes: Material *Mild Steel* External diameter  $\begin{cases} \text{Plain } 63.5 \text{ mm} \\ \text{Stay } 63.5 \text{ mm} \end{cases}$  Thickness  $4$  No. of threads per inch  $9$

Pitch of tubes  $85 \text{ mm}$  Working pressure by Rules  $21 \text{ kg}$  Manhole compensation: Size of opening in shell plate  $300 \times 400 \text{ mm}$  Section of compensating ring  $19 \times 520 \times 630 \text{ mm}$  No. of rivets and diameter of rivet holes  $36 - 20 \text{ mm}$

Outer row rivet pitch at ends  $90 \text{ mm}$  Depth of flange if manhole flanged ☒ Steam Dome: Material *Steel*

Tensile strength  $41-47 \text{ kg}$  Thickness of shell  $10 \text{ mm}$  Description of longitudinal joint *lp. single riv.*

Diameter of rivet holes  $20 \text{ mm}$  Pitch of rivets  $48 \text{ mm}$  Percentage of strength of joint  $\begin{cases} \text{Plate } 58.4 \% \\ \text{Rivets } 57.5 \% \end{cases}$

Internal diameter  $700 \text{ mm}$  Working pressure by Rules  $12.25 \text{ kg}$  Thickness of crown  $14 \text{ mm}$  No. and diameter of stays ☒ Inner radius of crown  $700 \text{ mm}$  Working pressure by Rules  $12.25 \text{ kg}$

How connected to shell *lp. d. riveted* Size of doubling plate under dome ☒ Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell  $20 \text{ mm} - 66 \text{ mm}$

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 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

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 23 inclusive for boilers been complied with *yes*

The foregoing is a correct description,  
Hamburg und Stettin Actien-Gesellschaft

Dates of Survey  $\begin{cases} \text{During progress of work in shops} & 14/4 - 4/12 - 11/12 - 19/12 - 29/12 - 10/1 \\ \text{while building} & 17/1/25 \end{cases}$  Are the approved plans of boiler and superheater forwarded herewith *yes*

$\begin{cases} \text{During erection on board vessel} & 11/4 - 11/5 - 26/6 - 7/7/25 \end{cases}$  Total No. of visits  $11$

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *Material & workmanship of this Donkey Boiler are of good quality, and the materials used in the construction are made at works recognized by the Committee and tested by the Society's Surveyors in accordance with the Rules. The Donkey Boiler has been made under Special Survey in conformity with the approved plan, the Secretary's letter and otherwise in accordance with the requirements of the Rules and is eligible in my opinion for notification*

*∴ N. D. B - 7.25*

MARK ON BOILER.

No 368  
LLOYD'S TEST  
214 265  
W.P. 107 265.  
F.W. 17.1.25

Survey Fee *Please see attached Report* When applied for, 192

Travelling Expenses (if any) *on machinery* When received, 192

*Friedrich Gilt.*  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute **FRI. 31 JUL 1925**

Assigned