

# REPORT ON BOILERS.

No. 18649

Received at London Office 29 JUL 1929

Date of writing Report 19-7-29 When handed in at Local Office 1929 Port of Rotterdam.

No. in Survey held at Rotterdam Date, First Survey 1 Dec. 1927 Last Survey 18 July 1929

on the M. 4 "Belgian Gulf" (Number of Visits 24.) Gross 8299. Tons Net 4704.

Master Built at Rotterdam By whom built Messrs Burgerhout Yard No. 115 When built 1929.

Engines made at Rotterdam By whom made Messrs Burgerhout Engine No. 424/425 When made 1929.

Boilers made at Rotterdam By whom made Messrs Burgerhout Boiler No. 698/699 When made 1929.

Nominal Horse Power 905 Owners S. A. Unon: d'Armement Port belonging to S. A. Unon: d'Industrie & de Commerce

## MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Mannesmannröhrenwerke, Abt. Schulz Kraudt & Hücking, Wetter for Record 2. n.)

Total Heating Surface of Boilers 358  $\text{cm}^2$  Is forced draught fitted No Coal or Oil fired Oil.

No. and Description of Boilers 2 Single ended Marine Boilers Working Pressure 16.5 k.g. - 18 k.g.

Tested by hydraulic pressure to 320  $\text{kg/cm}^2$ . Date of test 30 July 28 No. of Certificate 007. 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 Diam: 70  $\text{mm}$  as fitted 3848  $\text{mm}^2$ ) Pressure to which they are adjusted 180  $\text{kg/cm}^2$ . Are they fitted with easing gear Yes.

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler Can't enter.

Smallest distance between boilers or uptakes and bunkers or woodwork over 2 feet Is oil fuel carried in the double bottom under boilers

Smallest distance between shell of boiler and tank top plating Boilers fitted on tank deck Is the bottom of the boiler insulated Yes.

Largest internal dia. of boilers 4200  $\text{mm}$ . Length 3350  $\text{mm}$ . Shell plates: Material S. M. Steel. Tensile strength 45-51  $\text{k.g.}$  (3270)  $\text{kg/cm}^2$ .

Thickness 29  $\text{mm}$ . Are the shell plates welded or flanged Description of riveting: circ. seams (end inter.)

long. seams Double butt 3 x riv. Diameter of rivet holes in (circ. seams 31.7  $\text{mm}$  long. seams 31.7  $\text{mm}$  Pitch of rivets (94  $\text{mm}$  210  $\text{mm}$  plate rivets)

Percentage of strength of circ. end seams (plate 66.2 % rivets 45.78 % Percentage of strength of circ. intermediate seam (plate 84.9 % rivets 99.2 % combined 89.6 % Working pressure of shell by Rules 13.7 k.g.

Percentage of strength of longitudinal joint (plate 84.9 % rivets 99.2 % combined 89.6 % Working pressure of shell by Rules 13.7 k.g.

Thickness of butt straps (outer 26  $\text{mm}$  inner 26  $\text{mm}$  No. and Description of Furnaces in each Boiler 3 Morison. 3 c.f.

Material S. M. Steel. Tensile strength 35-41 k.g. Smallest outside diameter 1030  $\text{mm}$ .

Length of plain part (top bottom) Thickness of plates (crown 15  $\text{mm}$  bottom 15  $\text{mm}$  Description of longitudinal joint Welded.

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 14.8 k.g.

End plates in steam space: Material S. M. Steel Tensile strength 41-47 k.g. Thickness 30  $\text{mm}$ . Pitch of stays 600 x 430  $\text{mm}$  600 x 340  $\text{mm}$ .

How are stays secured screwed in both plates, nuts inside, washers and nuts outside Working pressure by Rules 13.1 k.g.

Tube plates: Material (front S. M. Steel back S. M. Steel) Tensile strength 41-47 k.g. Thickness (23  $\text{mm}$  21  $\text{mm}$  Working pressure (front 19 k.g. back 19 k.g.

Mean pitch of stay tubes in nests 339 x 220  $\text{mm}$ . Pitch across wide water spaces 393  $\text{mm}$ .

Girders to combustion chamber tops: Material S. M. Steel Tensile strength 41-47 k.g. Depth and thickness of girder at centre 210 x 2 x 22  $\text{mm}$ . Length as per Rule 020  $\text{mm}$ . Distance apart 210  $\text{mm}$ . No. and pitch of stays in each 3 x 200  $\text{mm}$ . Working pressure by Rules 15.9 k.g. Combustion chamber plates: Material S. M. Steel.

Tensile strength 41-47 k.g. Thickness: Sides 16  $\text{mm}$ . Back 16  $\text{mm}$ . Top 16  $\text{mm}$ . Bottom 22  $\text{mm}$ . Are stays fitted with nuts or riveted over partly fitted with nuts partly worked over.

Pitch of stays to ditto: Sides 200 x 200  $\text{mm}$ . Back 186 x 200  $\text{mm}$ . Top 200 x 210  $\text{mm}$ .

Working pressure by Rules 15.5 k.g. Front plate at bottom: Material S. M. Steel Tensile strength 41-47 k.g. Thickness 23  $\text{mm}$ . Lower back plate: Material S. M. Steel Tensile strength 41-47 k.g. Thickness 20  $\text{mm}$ .

Pitch of stays at wide water space 367  $\text{mm}$ . Are stays fitted with nuts or riveted over fitted with nuts.

Working Pressure 16.5 k.g. Main stays: Material S. M. Steel Tensile strength 44-50 k.g.

Diameter (At body of stay, or Over threads) 3" 3 1/4" No. of threads per inch 9 Area supported by each stay 204000  $\text{mm}^2$  250000  $\text{mm}^2$

Working pressure by Rules 13.2 k.g. Screw stays: Material iron Tensile strength 34 k.g.

Diameter (At turned off part, or Over threads) 2" - 1 3/4" - 1 1/2" No. of threads per inch 9 Area supported by each stay 40000  $\text{mm}^2$

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Working pressure by Rules 14 k.g. Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, or Over threads 1 3/4" - 2"  
 No. of threads per inch 9 Area supported by each stay 56700 mm<sup>2</sup> Working pressure by Rules 15 k.g.  
 Tubes: Material Steel-iron External diameter { Plain 3 1/4" Thickness 3.65 mm No. of threads per inch 9  
 Stay 3 1/4" Pitch of tubes 110 x 113 mm Working pressure by Rules 13.5 k.g. Manhole compensation: Size of opening  
 shell plate 440 x 540 mm Section of compensating ring 600 x 700 mm No. of rivets and diameter of rivet holes 38 x 1 5/16"  
 Outer row rivet pitch at ends 810 mm Depth of flange if manhole flanged 80 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  
 stays — Inner radius of crown — Working pressure by Rules —  
 How connected to shell — Size of doubling plate under dome — Diameter of rivet holes and  
 of rivets in outer row in dome connection to shell —

Type of Superheater  
 Number of elements Material of tubes Manufacturers of { Tubes  
 Steel castings  
 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,  
BURGERHOUT'S MACHINEFABRIEK & SCHEEPSWERF, N.V. Manufacture  
B. Burgerhout

Dates of Survey { During progress of 1917 Dec: 1-14-20-28 Are the approved plans of boiler and superheater forwarded herewith 23/9/17  
 while work in shops - 1918 Jan: 17-31 Feb: 20 (If not state date of approval.)  
 building { During erection on March 2-19-29 April 16-23 Total No. of visits 24  
 board vessel May 9-16-19-31 June 28 July 5-16-30 1919 June 4 July 9-16-18

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been made under Special Survey in accordance with the approved plans. Society's Rules and Secretary's letter Material tested as required and workmanship good.

Survey Fee ... .. £ 304.20 When applied for, 24/4 1929  
 Travelling Expenses (if any) £ 12.00 When received, 13.8 1929

M. Thuyt  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 2 AUG 1929  
 Assigned See 2.6.21. attached