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# REPORT ON BOILERS.

No. 16473

Received at London Office 30 MAR 1927

Date of writing Report 29 March 1927 When handed in at Local Office 29 March 1927 Port of WEST HARTLEPOOL

No. in Survey held at Hartlepool Date, First Survey 13<sup>th</sup> May 1926 Last Survey 22<sup>nd</sup> March 1926

9194 on the S.S. GYPSUM KING. (Number of Visits 3842 Gross Tons 1938 Net Tons)

Master Built at Middlesbrough By whom built Furness S.B. Co. Yard No. 108 When built 1924

Engines made at Hartlepool By whom made Richardson Westgarth & Co. Engine No. 2656 When made 1924

Boilers made at Hartlepool By whom made Richardson Westgarth & Co. Boiler No. 2656 When made 1924

Nominal Horse Power \_\_\_\_\_ Owners \_\_\_\_\_ Port belonging to Middlesbrough

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

Manufacturers of Steel David Colville & Sons Ltd (Letter for Record S.)

Total Heating Surface of Boilers 5412  $\text{sq ft}$  Is forced draught fitted Yes Coal or Oil fired Coal

No. and Description of Boilers Two Single Ended Working Pressure 190  $\text{lb per sq in}$

Tested by hydraulic pressure to 335 Date of test 26-2-27 No. of Certificate 3693 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 69.45  $\text{sq ft}$  No. and Description of safety valves to each boiler 2 direct opening

Area of each set of valves per boiler 17.4  $\text{sq in}$  Pressure to which they are adjusted 195 Are they fitted with easing gear Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No donkey boiler

Smallest distance between boilers or uptakes and bunkers or woodwork No side bunkers Oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating \_\_\_\_\_ Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 15-9 3/8 Length 11-9  $\text{int}$  Shell plates: Material Steel Tensile strength 29/33

Thickness 1 1/16 Are the shell plates welded or flanged No Description of riveting: circ. seams Double

Seams Triple Double Butt Strap Diameter of rivet holes in 1 1/4  $\text{circ. seams}$  Pitch of rivets 3 1/2

Percentage of strength of circ. end seams 64.2  $\text{plate}$  68.3  $\text{of end rivets}$  Percentage of strength of circ. intermediate seam 85.32  $\text{plate}$  85.8  $\text{rivets}$  84.6  $\text{combined}$  Working pressure of shell by Rules 190

Thickness of butt straps 1  $\text{outer}$  1 1/8  $\text{inner}$  No. and Description of Furnaces in each Boiler 3 Morrison

Material Steel Tensile strength 26/30 Smallest outside diameter 47 13/16

Length of plain part 21 1/32 Thickness of plates 21 1/32 Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.c. bottom \_\_\_\_\_ Working pressure of furnace by Rules 191

Plates in steam space: Material Steel Tensile strength 26/30 Thickness 1 7/32 Pitch of stays 14 3/4 x 22 1/2

Are stays secured Double Nuts Working pressure by Rules 191

End plates: Material Steel Tensile strength 26/30 Thickness 27/32 3/4

Pitch of stay tubes in nests 11 1/4 x 7 1/2 Pitch across wide water spaces 13 1/2 Working pressure 205 209

Boilers to combustion chamber tops: Material Steel Tensile strength 29/32 Depth and thickness of girder

Centre 8 1/2 x 1 3/4 Length as per Rule 2-9 3/8 Distance apart 9 No. and pitch of stays

Each 3 7 1/2 Working pressure by Rules 191 Combustion chamber plates: Material Steel

Tensile strength 26/30 Thickness: Sides 3/4 Back 5/8 Top 5/8 Bottom 3/4

No. of stays to ditto: Sides 7 1/2 x 8 1/2 Back 8 1/4 x 8 1/2 Top 4 1/2 x 9 Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules 211 Front plate at bottom: Material Steel Tensile strength 26/30

Thickness 27/32 Lower back plate: Material Steel Tensile strength 26/30 Thickness 1 1/16

No. of stays at wide water space 13 1/2 x 8 1/2 Are stays fitted with nuts or riveted over Nuts

Working Pressure 216 Main stays: Material Steel Tensile strength 28/32

Area supported by each stay 22 1/2 x 15 1/2 x 22 1/2 x 15 1/2

At body of stay, No. of threads per inch 6 Area supported by each stay 26/30

Over threads 3 x 2 7/8 Screw stays: Material Steel Tensile strength 26/30

Working pressure by Rules 192 No. of threads per inch 9 Area supported by each stay 8 1/4 x 8 1/2

At end of stay, No. of threads per inch 9 Area supported by each stay 8 1/4 x 8 1/2

Over threads 1 5/8

Working pressure by Rules **214** Are the stays drilled at the outer ends **No** ✓ Margin stays: Diameter <sup>At turned off part</sup> **1 3/4"** ✓  
 No. of threads per inch **9** ✓ Area supported by each stay **10 1/16" x 8 1/8"** Working pressure by Rules **210**  
 Tubes: Material **Iron** ✓ External diameter <sup>Plain</sup> **2 1/2"** ✓ <sup>Stay</sup> **2 1/2"** ✓ Thickness <sup>9 wa</sup> **5/16, 3/8, 1/2"** ✓ No. of threads per inch **9** ✓  
 Pitch of tubes **3 3/4" x 3 3/4"** ✓ Working pressure by Rules **230** Manhole compensation: Size of opening  
 shell plate **13' x 16 1/2"** ✓ Section of compensating ring **13 3/8" x 1 9/16"** ✓ No. of rivets and diameter of rivet holes **32 1 5/16"** ✓  
 Outer row rivet pitch at ends **8 15/16"** ✓ Depth of flange if manhole flanged ✓ 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 <sup>Plate</sup> ✓  
 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 pi  
 of rivets in outer row in dome connection to shell ✓

Type of Superheater **None** ✓ Manufacturers of <sup>Tubes</sup> **None** ✓  
 Number of elements Material of tubes <sup>Steel castings</sup> Internal diameter and thickness of tubes  
 Material of headers Tensile strength Thickness 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 Are the safety valves fitted with easing gear Working pressure as  
 Rules Pressure to which the safety valves are adjusted Hydraulic test pressu  
 tubes castings and after assembly in place Are drain cocks or valves fi  
 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,  
**For RICHARDSONS, WESTGARTH & CO., LIMITED,**  
*S. D. Wright* Director and General Manager

Dates of Survey <sup>During progress of work in shops - -</sup> **See Machinery Report** Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) **Yes.**  
<sup>During erection on board vessel - - -</sup> Total No. of visits **1**

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.)  
*See accompanying machinery report* ✓

Survey Fee ... £ : ✓ : When applied for, 192  
 Travelling Expenses (if any) £ ✓ : : When received, 192  
**R. D. Shilston & Robert Rae,**  
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute **FRI. 8 APR 1927,**  
 Assigned *See Rpt attached*  
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