

REPORT ON BOILERS.

No. 84715

12 SEP 1929

Received at London Office

When handed in at Local Office 2-9-1929 Port of Newcastle-on-Tyne.
No. in Survey held at Newcastle. Date, First Survey 4 March. Last Survey 1 Sept. 1929.
1454 on the Steel Twin Screw Steamer "VIKINGEN." (Number of Visits 1) Gross 12639 Tons Net 8884
Built at Newcastle By whom built Swan Hunter, W. R. & Co. Ltd. No. 1344 When built 1929.
Engines made at Newcastle. By whom made Swan Hunter, Wigham & Co. Ltd. Engine No. 1332 When made 1929.
Boilers made at ~ do ~ By whom made ~ do ~ Boiler No. 1332 When made 1929.
Nominal Horse Power 773. Owners Viking Whaling Co. Ltd. Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Four Main Boilers

Manufacturers of Steel David Colville & Sons
Total Heating Surface of Boilers 11810 sq. ft. Is forced draught fitted Yes
No. and Description of Boilers Four Horiz. Cyl. 4500 lbs. Working Pressure 210 lbs.
Tested by hydraulic pressure to 365 lbs. Date of test 3/6/29 No. of Certificate 364/365 Can each boiler be worked separately Yes.
Area of Firegrate in each Boiler 9.85 sq. ft. No. and Description of safety valves to each boiler Four Springloaded I. H. L.
No. of each set of valves per boiler as fitted 11.86 sq. ft. Pressure to which they are adjusted 210 lbs. Are they fitted with easing gear Yes.
Use of donkey boilers, state whether steam from main boilers can enter the donkey boiler No.
Least distance between boilers or uptakes and bunkers or woodwork 2'-4 1/2" Is oil fuel carried in the double bottom under boilers Yes.
Least distance between shell of boiler and tank top plating 2'-0" Is the bottom of the boiler insulated Yes.
Least internal dia. of boilers 15'-9 3/16" Length 12'-0" Shell plates: Material Steel Tensile strength 30/34 Tons.
Thickness 1 1/32" Are the shell plates welded or flanged No. Description of riveting: circ. seams end E. D. R. inter. 4.536"
Seams S. R. D. B. S. Diameter of rivet holes in circ. seams 1 1/2" long. seams 1-4/16" Pitch of rivets 4.536"
Percentage of strength of circ. end seams plate 66.92% rivets 42.44% Percentage of strength of circ. intermediate seam plate 85.06% rivets 86.18%
Percentage of strength of longitudinal joint rivets 84.36% Working pressure of shell by Rules 210 lbs.
Thickness of butt straps outer 1 1/32" inner 1 1/32" No. and Description of Furnaces in each Boiler Four Reigerian 4 of
Material Steel Tensile strength 26/30 Tons. Smallest outside diameter 38 1/8"
Thickness of plates crown 1 9/32" bottom 1 9/32" Description of longitudinal joint Weld.
Dimensions of stiffening rings on furnace or e.c. bottom - Working pressure of furnace by Rules 222 lbs.
Plates in steam space: Material Steel Tensile strength 26/30 Tons Thickness 1 9/32" Pitch of stays 16 1/2" x 21 3/8"
Are stays secured Double nuts Working pressure by Rules 210 lbs.
Plates: Material front Steel Tensile strength 26/30 Tons Thickness 1 1/32" back 3/16" e. 24 3/32" w. 223 lbs.
Pitch of stay tubes in nests 9 3/8" Pitch across wide water spaces 13 1/2" Working pressure front 223 lbs. back 228 lbs.
Boilers to combustion chamber tops: Material Steel Tensile strength 28/32 Tons Depth and thickness of girder 10 3/8" x 1 1/2" Length as per Rule 35 5/8" Distance apart 9 5/16" No. and pitch of stays 3 @ 8 1/4" Working pressure by Rules 210 lbs.
Tensile strength 26/30 Tons Thickness: Sides 2 3/32" Back 5/8" Top 2 3/32" Bottom 2 3/32" Combustion chamber plates: Material Steel
Pitch of stays to ditto: Sides 9" x 8 1/8" Back 4 1/2" x 8 1/2" Top 8 1/4" x 9 5/16" Are stays fitted with nuts or riveted over Yes.
Working pressure by Rules 210 lbs. Front plate at bottom: Material Steel Tensile strength 26/30 Tons Thickness 1 1/32"
Lower back plate: Material Steel Tensile strength 26/30 Tons Thickness 1 5/16"
Pitch of stays at wide water space 13 1/2" x 4 1/2" Are stays fitted with nuts or riveted over Yes.
Working Pressure 302 lbs. Main stays: Material Steel Tensile strength 28/32 Tons
At body of stay, 3 1/8" No. of threads per inch 6 Area supported by each stay 346 sq. in.
Over threads - Screw stays: Material Steel Tensile strength 26/30 Tons
At turned off part, 1 5/8" No. of threads per inch 9 Area supported by each stay 41.62 sq. in.
Over threads -

Working pressure by Rules **214 lbs** Are the stays drilled at the outer ends **Yes** Margin stays: Diameter ^{At turned off part.} **1 3/4"** or Over threads **1 3/4"**

No. of threads per inch **9** Area supported by each stay **82.8 sq in** Working pressure by Rules **216 lbs**

Tubes: Material **Gun** External diameter ^{Plain} **2 1/2"** ^{Stay} **2 1/2"** Thickness **9 w.g. 5/16" 3/8"** No. of threads per inch **9**

Pitch of tubes **3 3/4" x 3 3/4"** Working pressure by Rules **215 lbs** Manhole compensation: Size of opening **32 @ 1 7/8"**

shell plate **20" x 16"** Section of compensating ring **11" x 1 3/4"** No. of rivets and diameter of rivet holes **32 @ 1 7/8"**

Outer row rivet pitch at ends **11 1/8"** Depth of flange if manhole flanged **-** Steam Dome: Material **Gun.**

Tensile strength **44,000** Thickness of shell **1 1/4"** Description of longitudinal joint **Butt**

Diameter of rivet holes **5/16"** Pitch of rivets **2 1/2"** Percentage of strength of joint **85**

Internal diameter **18 1/2"** Working pressure by Rules **216 lbs** Thickness of crown **1 1/4"** No. and diam. of rivets **32 @ 1 7/8"**

stays **4** Inner radius of crown **18 1/2"** Working pressure by Rules **216 lbs**

How connected to shell **By doubler plate** Size of doubler plate under dome **18 1/2" x 16"** Diameter of rivet holes **5/16"**

of rivets in outer row in dome connection to shell **4**

Type of Superheater **Lugden's Smoke Box** Manufacturers of **SWAN, HUNTER & WIGHAM RICHARDSON, LTD.**

Number of elements **124** Material of tubes **S. D. Steel** Tubes **1 1/4" x 10 w.g.**

Material of headers **Wrought Iron** Tensile strength **44,000** Thickness **3/4"** Can the superheater be shut off from the boiler **Yes**

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 **3.14 sq in** Are the safety valves fitted with easing gear **Yes** Working pressure **216 lbs**

Rules **248 lbs** Pressure to which the safety valves are adjusted **216 lbs** Hydraulic test pressure **248 lbs**

tubes **1000 lbs** castings **630 lbs** and after assembly in place **420 lbs** 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**

The foregoing is a correct description,
FOR
SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

Dates of Survey ^{During progress of work in shops - -}
while building ^{During erection on board vessel - -}

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)
Total No. of visits **2**

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

The boiler has been built under special survey in accordance with the approved Plans & the Rules of the Society, have been securely fitted on board the vessel, tried under full working conditions & found satisfactory. The workmanship & materials are of good quality throughout. The safety valves have been adjusted, under steam, to working pressure.

Survey Fee ... £ : When applied for, 192
Travelling Expenses (if any) £ : When received, 192

Wm. G. Ferguson.
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute **17 SEP 1920**

Assigned **See p. 6 of attached**



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Foundation