

REPORT ON BOILERS.

MOB. 17765

No. 17706

11 SEP 1944

Received at London Office

RECEIVED
3 SEP 1944

Date of writing Report *14th Sept 1944* When handed in at Local Office *8th Sept. 1944* Port of *Middlesbrough.*
No. in Survey held at *Stockton-on-Tees.* Date, First Survey *19th November, 1944* Last Survey *1st September, 1944*
By Book. *7* (Number of Visits *22*) Gross *8196*
on the *S/S "WAVE EMPEROR"* Tons Net *4566*
Built at *Howarth, Wm. & Sons* By whom built *Furness Shipbuilding Co. Ltd.* Yard No. *361* When built *1944-12*
Engines made at *West Hartlepool.* By whom made *Richardsons Westgarth.* Engine No. *2748* When made *1944*
Boilers made at *Stockton-on-Tees.* By whom made *Stockton Chem. Eng. & Ryky Boilers Ltd.* Boiler No. *6826* When made *1944*
Nominal Horse Power Owners *Admiralty* Port belonging to *London.*

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel *The Steel Co. of Scotland* (Letter for Record *S.* ✓)
Total Heating Surface of Boilers *2080 sq ft* Is forced draught fitted *Yes* Oil fired *Yes*
No. and Description of Boilers *1 SE. Marine* Working Pressure *180 lb/sq in*
Tested by hydraulic pressure to *320 lb.* Date of test *1/9/44* No. of Certificate *7121* Can each boiler be worked separately *Yes.*
Area of Firegrate in each Boiler *No. and Description of safety valves to each boiler* *2 1/4" Double Spring-High lift.* ✓
Area of each set of valves per boiler {per Rule *6.67 sq ft* ✓ as fitted *7.95 sq ft* ✓ Pressure to which they are adjusted *185 lb.* Are they fitted with easing gear *Yes.* ✓
In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler *No.*
Smallest distance between boilers or uptakes and bunkers or woodwork *3'-6"* Is oil fuel carried in the double bottom under boilers *Yes.* ✓
Smallest distance between shell of boiler and tank top plating *18"* Is the bottom of the boiler insulated *Yes.* ✓
Largest internal dia. of boilers *13'-3 1/16"* Length *11'-6"* ✓ Shell plates: Material *Steel* ✓ Tensile strength *29-33.* ✓
Thickness *1 3/32"* ✓ Are the shell plates welded or flanged *No.* ✓ Description of riveting: circ. seams {end *DR.* ✓ inter. *3.59"* ✓
Long. seams *TR. - D.B.S.* ✓ Diameter of rivet holes in {circ. seams *1 3/16"* ✓ long. seams *1 3/16"* ✓ Pitch of rivets {plate *3.59"* ✓ rivets *8 3/16"* ✓
Percentage of strength of circ. end seams {plate *66.9%* ✓ rivets *44.7%* ✓ Percentage of strength of circ. intermediate seam {plate *85.5%* ✓ rivets *91.85%* ✓ combined *87.36%* ✓
Percentage of strength of longitudinal joint {plate *7/8"* ✓ rivets *1"* ✓
Thickness of butt straps {outer *7/8"* ✓ inner *1"* ✓ No. and Description of Furnaces in each Boiler *3 Dimple Corrugated.* ✓
Material *Steel* ✓ Tensile strength *26-30* ✓ Smallest outside diameter *3'-1 1/4"* ✓
Length of plain part {top *1"* ✓ bottom *1"* ✓ Thickness of plates {crown *1/2"* ✓ bottom *1/2"* ✓ Description of longitudinal joint *Welded.* ✓
Dimensions of stiffening rings on furnace or c.c. bottom *✓*
End plates in steam space: Material *Steel* ✓ Tensile strength *26-30* ✓ Thickness *1 5/32"* ✓ Pitch of stays *19" x 17 1/2"* ✓
How are stays secured *Stays secured into back end. Stunned front end. Double into 4 corners.* ✓
Tube plates: Material {front *Steel* ✓ back *Steel* ✓ Tensile strength *26-30* ✓ Thickness {*1 3/16"* ✓ *1 1/16"* ✓
Mean pitch of stay tubes in nests *9 3/8"* ✓ Pitch across wide water spaces *13 1/2"* ✓
Girders to combustion chamber tops: Material *Steel* ✓ Tensile strength *28-32* ✓ Depth and thickness of girder *✓*
at centre *8 3/8" - 2 @ 13 1/16"* ✓ Length as per Rule *2'-8"* ✓ Distance apart *10"* ✓ No. and pitch of stays *✓*
in each *2 - 10"* ✓ Combustion chamber plates: Material *Steel* ✓
Tensile strength *26-30* ✓ Thickness: Sides *2 1/32"* ✓ Back *1 1/16"* ✓ Top *2 3/32"* ✓ Bottom *2 1/32"* ✓
Pitch of stays to ditto: Sides *10" x 8"* ✓ Back *10 1/2" x 7 1/2"* ✓ Top *10" x 10"* ✓ Are stays fitted with nuts or riveted over *Other " " cc's only.* ✓
Front plate at bottom: Material *Steel* ✓ Tensile strength *26-30* ✓ Thickness *27/32"* ✓
Thickness *1 3/16"* ✓ Lower back plate: Material *Steel* ✓ Tensile strength *26-30* ✓ Thickness *27/32"* ✓
Pitch of stays at wide water space *15"* ✓ Are stays fitted with nuts or riveted over *Into.* ✓
Main stays: Material *Steel* ✓ Tensile strength *28-32* ✓
Diameter {At body of stay, *2 7/8"* ✓ or over threads *2 7/8"* ✓ No. of threads per inch *6* ✓
Screw stays: Material *Steel* ✓ Tensile strength *26-30* ✓
Diameter {At turned off part, *1 3/4"* ✓ or over threads *1 3/4"* ✓ No. of threads per inch *9* ✓



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Are the stays drilled at the outer ends No. ✓ Margin stays: Diameter { At turned off part, 17/8" or Over threads 17/8" ✓
No. of threads per inch 9 ✓
Tubes: Material Seamless Steel External diameter { Plain 2 1/2" Stay 2 1/2" Thickness { 9 w.g. 3/8" - 5/16" No. of threads per inch 9 ✓
Pitch of tubes 3 3/4" x 3 3/4" Manhole compensation: Size of opening in shell plate 20 1/2" x 16 1/2" Section of compensating ring 6 3/4" x 1 1/8" No. of rivets and diameter of rivet holes 36 - 1 3/16" ✓
Outer row rivet pitch at ends 8 3/4" 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 { Plate _____ Rivets _____
Internal diameter _____ Thickness of crown _____ No. and diameter of stays _____ Inner radius of crown _____
How connected to shell _____ Size of doubling plate under dome _____ Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell _____

Type of Superheater _____ Manufacturers of { Tubes _____ Steel forgings _____ Steel castings _____
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 _____
Pressure to which the safety valves are adjusted _____ Hydraulic test pressure: _____
tubes _____ forgings and 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 22 inclusive for boilers been complied with For and on behalf of STOCKTON CHEMICAL ENGINEERS & RILEY BOILERS LTD.
The foregoing is a correct description,
E. H. Riley Manufacturer.

Dates of Survey { During progress of work in shops - - - 1945 Nov. 19, Dec. 1, 9, 30, 1944 Jan. 27, March 28, April 19, May 4, 10, 22,
while building { During erection on board vessel - - - June 6, 12, 20, 28, July 3, 12, 20, Aug. 2, 9, 16, 30, Sep. 1
Are the approved plans of boiler and superheater forwarded herewith 4/1/44
(If not state date of approval.)
Total No. of visits 22

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. Hi'dels Report N° 17562

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

This boiler has been constructed under Special Survey & in accordance with the Rule Requirements & approved plan.

The materials & workmanship are good & on completion the boiler was hydraulically tested to 320 lbs/sq. & found satisfactory.

This boiler is being dispatched to the Furness Shipbuilding Co's yard at Harrogate Hill for Richardson Westgarth's Contract N° 2748.

This boiler has now been securely fitted on board & examined under working conditions & found satisfactory.

On completion the S.V.'s were adjusted under steam to 15 lbs/sq.

MOB. 8-1-45.
Survey Fee ... £ 13 : 18 : 0 } When applied for, 8-9-1944
SUPERVISION FEE }
Travelling Expenses (if any) £ 3 : 9 : 6 } When received, 19

L. Norman Stuart
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 26 JAN 1945

Assigned Sue F.E. machy, rpt.



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