

REPORT ON BOILERS.

Sl. No. 33067

Mo. No. 16964

Received at London Office

JAN 21 1941

Date of writing Report 10/11/1941 When handed in at Local Office 11/11/1941 Port of MIDDLESBROUGH

No. in Survey held at Stockton-on-Tees Date, First Survey 26 August, 1940 Last Survey 17/11/1941

Reg. Book. on the M/V "EMPIRE MIST" (Number of Visits 9) Gross 7241 Tons Net 5069

Master Built at Sunderland By whom built W. Dargood & Sons Ltd Yard No. 669 When built 1941

Engines made at Sunderland By whom made Wm Dargood & Sons Ltd Engine No. 640 When made 1941

Boilers made at Stockton By whom made Stockton C. Engine & Riley Ltd Boiler No. 6448 When made 1941

Nominal Horse Power 516 Owners Ministry of Shipping Port belonging to Sunderland

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Steel Company of Scotland Ltd (Letter for Record S)

Total Heating Surface of Boilers 1660 sq ft Is forced draught fitted No. Coal or Oil fired oil

No. and Description of Boilers 1-Single Ended Working Pressure 120 lbs

Tested by hydraulic pressure to 230 lbs Date of test 7/1/41 No. of Certificate 7011 Can each boiler be worked separately

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler Two direct Spring

Area of each set of valves per boiler {per Rule 15.4 sq ft as fitted 19.2 sq ft Pressure to which they are adjusted 120 Are they fitted with easing gear No.

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

Smallest distance between boilers or uptakes and bunkers or woodwork Is oil fuel carried in the double bottom under boilers No.

Smallest distance between shell of boiler and tank top plating 2'-9" Is the bottom of the boiler insulated No.

Largest internal dia. of boilers 11'-10 5/8" Length 11'-6" Shell plates: Material Steel Tensile strength 29-33 tons

Thickness 1/16" Are the shell plates welded or flanged No. Description of riveting: circ. seams end D.R. inter

long. seams TR DBS Diameter of rivet holes in {circ. seams 1 1/16" long. seams 1 3/16" Pitch of rivets {3 3/8" 5 3/8"

Percentage of strength of circ. end seams {plate 68.51 rivets 45.45 Percentage of strength of circ. intermediate seam {plate 84.90 rivets 83.40

Percentage of strength of longitudinal joint {plate 84.90 rivets 83.40 combined 89.90 Working pressure of shell by Rules 123 lbs

Thickness of butt straps {outer 9/16" inner 1/16" No. and Description of Furnaces in each Boiler 2-Bornogater (Deiguter)

Material Steel Tensile strength 26-30 tons Smallest outside diameter 3'-8 1/16"

Length of plain part {top bottom Thickness of plates {crown 13/32" bottom Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.e. bottom Working pressure of furnace by Rules 131 lbs

End plates in steam space: Material Steel Tensile strength 26-30 tons Thickness 27/32" Pitch of stays 1 7/8" x 16"

How are stays secured D. Nuts & washers Working pressure by Rules 142 lbs

Tube plates: Material {front Steel Tensile strength 26-30 tons Thickness {13/16" 139 lbs

Mean pitch of stay tubes in nests 9 13/16" Pitch across wide water spaces 14" Working pressure {front 139 lbs back 245 lbs

Girders to combustion chamber tops: Material Steel Tensile strength 28-32 tons Depth and thickness of girder

at centre 7" 20 5/8" (Double) Length as per Rule 29 7/16" Distance apart 9" No. and pitch of stays

in each 209" Working pressure by Rules 134 lbs Combustion chamber plates: Material Steel

Tensile strength 26-30 tons Thickness: Sides 19/32" Back 9/16" Top 19/32" Bottom 7/8"

Pitch of stays to ditto: Sides 9" x 10" Back 8 3/4" x 9 1/2" Top 9" x 9" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules 121 lbs Front plate at bottom: Material Steel Tensile strength 26-30 tons

Thickness 27/32" Lower back plate: Material Steel Tensile strength 26-30 tons Thickness 27/32"

Pitch of stays at wide water space 13 1/2" x 9 1/2" Are stays fitted with nuts or riveted over Nuts

Working Pressure 210 lbs Main stays: Material Steel Tensile strength 28-32 tons

Diameter {body of stay 2 1/4" No. of threads per inch 6 Area supported by each stay 246.5 sq in

Working pressure by Rules 145 lbs Screw stays: Material Steel Tensile strength 26-30 tons

Diameter {at turned off part 1 3/8" No. of threads per inch 9 Area supported by each stay 79.5 sq in

Working pressure by Rules 126 lbs Are the stays drilled at the outer ends No Margin stays: Diameter { ~~Assumed off part,~~ Over threads 15/8"
 No. of threads per inch 9 Area supported by each stay 1020" Working pressure by Rules 149 lbs
 Tubes: Material 6 W Iron External diameter { Plain 2 3/4" Stay 2 3/4" Thickness 5/16" No. of threads per inch 9
 Pitch of tubes 3 3/4" x 3 3/4" Working pressure by Rules P275 lb S265 lb Manhole compensation: Size of opening in
 shell plate 16" x 20" Section of compensating ring 7" x 1" No. of rivets and diameter of rivet holes 44 - 15/16"
 Outer row rivet pitch at ends 6" 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 _____ Working pressure by Rules _____ Thickness of crown _____ No. and diameter of
 stays _____ Inner radius of crown _____ Working pressure by Rules _____
 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 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 _____ 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 22 inclusive for boilers been complied with Yes

For and on behalf of

STOCKTON CHEMICAL ENGINEERS & RILEY BOILERS LTD

The foregoing is a correct description,

Manufacturer.
DIRECTOR.

Dates of Survey { During progress of work in shops - - } Aug. 25. 28. Sept. 9. Oct. 31. Nov. 8. 20. Dec. 11. 20 Are the approved plans of boiler and superheater forwarded herewith 13th March 1940
 while building { During erection on board vessel - - } Jan. 7. (If not state date of approval.)
 Total No. of visits 9.

Is this Boiler a duplicate of a previous case _____ If so, state Vessel's name and Report No. _____

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been constructed under Special Survey, in accordance with the approved plan, & Rule Requirements. The materials & workmanship are good, & on completion the boiler was tested by hydraulic pressure to 230 lbs/sq. inch & found tight & satisfactory. The boiler is being forwarded to Sunderland for installation in Messrs Wm Dacord's No 669.

This boiler has been securely fixed on board the vessel, & examined under Steam & safety valves adjusted under Steam to working pressure in accordance with rule requirements.

In recommendation please incl. Rpt.

J. H. Fraser.

Survey Fee ... £ 11 : 2 : - When applied for, 18-1-1941

Travelling Expenses (if any) £ : : When received, 19

R. J. Easthope.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 22 APR 1941

Assigned

See Sld. L.C. 53067



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Foundation