

REPORT ON BOILERS.

No. 18195

Received at London Office

26 SEP 1941

Date of writing Report 25/9/1941 When handed in at Local Office 25/9/1941 Port of W. Hartlepool

No. in Survey held at
Reg. Book.Hartlepool, Haveron Hill Date, First Survey 11th November, 1940, Last Survey 23rd September 1941

36312 in the STEEL "EMPIRE EMERALD" (Number of Visits 82) Gross 8032.20 Tons Net 4673.62

Built at Haveron Hill By whom built Furness Shipbuilding Co. Ltd. Yard No. 334 When built 1941

Engines made at Hartlepool By whom made Richardson Westgarth Co. Engine No. 2405 When made 1941

Boilers made at " By whom made " " " Boiler No. 2405 When made 1941

Nominal Horse Power 674 Owners Ministry of War Transport Belonging to Middlesbrough

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Steel Co. of Scotland & Colvilles Ltd. (Letter for Record S)
Total Heating Surface of Boilers 10020 Is forced draught fitted Yes Coal or Oil fired oil

No. and Description of Boilers 3 S.E. Multitubular Working Pressure 220 lbf/sq. in.

Tested by hydraulic pressure to 380 lbf/sq. in. Date of test 30/8/41 No. of Certificate 3941 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler ✓ No. and Description of safety valves to each boiler 2-2½" Spring loaded high lift
Area of each set of valves per boiler { per Rule 8.65 sq. in. 8.88
as fitted 9.8 sq. in. Pressure to which they are adjusted 220 lbf/sq. in. Are they fitted with casing gear Yes

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 3'-9" Is oil fuel carried in the double bottom under boilers Yes

Smallest distance between shell of boiler and tank top plating 2'-6" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 16'-2 31/32" Length 12'-6" Shell plates: Material steel Tensile strength 30/34 tons/sq. in.

Thickness 1 33/64" Are the shell plates welded or flanged No Description of riveting: circ. seams { end D.R.L.
inter. nonelong. seams T.R.D.B.S. Diameter of rivet holes in { circ. seams 1 1/2"
long. seams 1 9/16" Pitch of rivets { 4"
10 1/2"Percentage of strength of circ. end seams { plate 62.5
rivets 44.7 Percentage of strength of circ. intermediate seam { plate
rivetsPercentage of strength of longitudinal joint { plate 85.1
rivets 86.7
combined 87.5Thickness of butt straps { outer 1 5/32"
inner 1 9/32" No. and Description of Furnaces in each Boiler 3 Deighton (four lay necks)

Material steel Tensile strength 26/30 tons/sq. in. Smallest outside diameter 3'-11 23/32"

Length of plain part { top
bottom Thickness of plates { crown 4 7/16"
bottom 4 1/4" 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 tons/sq. in. Thickness 1 13/32" Pitch of stays 22 1/4" x 18 1/2"

How are stays secured double nuts

Tube plates: Material { front steel
back " Tensile strength 26/30 tons/sq. in. Thickness 15 1/16"
4 7/8"

Mean pitch of stay tubes in nests 9 5/8" Pitch across wide water spaces 14 1/2" x 4 1/4"

Girders to combustion chamber tops: Material steel Tensile strength 29/33 tons/sq. in. Depth and thickness of girder

at centre 2 @ 11 3/4" x 1" Length as per Rule 3'-10 1/2" Distance apart 9" No. and pitch of stays

in each 3 @ 11 1/8"

Combustion chamber plates: Material steel

Tensile strength 26/30 tons/sq. in. Thickness: Sides 13/16" Back 23/32" Top 13/16" Bottom 29/32"

Pitch of stays to ditto: Sides 9" x 11 1/8" Back 9" x 8" Top 9" x 11 1/8" Are stays fitted with nuts or riveted over nuts

Front plate at bottom: Material steel Tensile strength 26/30 tons/sq. in.

Thickness 15/16" Lower back plate: Material steel Tensile strength 26/30 tons/sq. in. Thickness 15/16"

Pitch of stays at wide water space 15 3/8" x 8" Are stays fitted with nuts or riveted over nuts

Main stays: Material steel Tensile strength 28/32 tons/sq. in.

Diameter { At body of stay, 3 1/2"
Over threads 4 No. of threads per inch 6

Screw stays: Material steel Tensile strength 26/30 tons/sq. in.

Diameter { At turned off part, 2" & 1 3/4"
Over threads 2 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, 2" + 1/4"
Over threads

No. of threads per inch 9

Tubes: Material Steel External diameter { Plain } 2 1/2" Thickness { 8 L.S.G.
Stay } 5 3/8", 4" No. of threads per inch 9

Pitch of tubes 4" x 3 5/8" Manhole compensation: Size of opening in
shell plate 16 1/2" x 20 1/2" Section of compensating ring 18 3/4" x 1 3/4" No. of rivets and diameter of rivet holes 34 - 1 9/16"

Outer row rivet pitch at ends 10 1/2" Depth of flange if manhole flanged 3 1/4" 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 Combustion Chamber Type Supplied Manufacturers of { Tubes Stewart & Lloyd
Steel forgings "
Steel castings "

Number of elements 36 Material of tubes S.D. Steel Internal diameter and thickness of tubes 1.243" x 7/16"

Material of headers S.D. Steel Tensile strength 26/28 lbs/sq in Thickness 1" Can the superheater be shut off and
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 3.146 sq in Are the safety valves fitted with easing gear Yes

Pressure to which the safety valves are adjusted 220 lbs/sq in Hydraulic test pressure:
tubes 1500 lbs/sq in Headers 660 lbs/sq in forgings and castings 660 lbs/sq in and after assembly in place 660 lbs/sq in 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,
H. E. Morgan Manufacturer.

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

Are the approved plans of boiler and superheater forwarded herewith 16/10/39
(If not state date of approval.)

Total No. of visits 1

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. RW 2704

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

The boilers have been constructed under Special Survey & in accordance with
the approved plans for a working pressure of 220 lbs/sq in.

The materials & workmanship have been found good.

Upon completion the boilers were tested in the presence of the undersigned
with hydraulic pressure of 380 lbs/sq in & found sound & tight.

These boilers have been forwarded to Haverlin Hall.

The boilers securely fitted on board, & found in order.
Safety valves adjusted under steam to 220 lbs/sq in, on
completion, found in order, with the Rule Requirements
R/E.

Survey Fee ... £ See Rpt 4
Travelling Expenses (if any) £ :

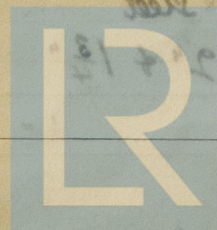
When applied for, 19
When received, 19

Clive Bell
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

See Mab. 26 17128



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