

REPORT ON BOILERS.

No. 101750

Received at London Office 28 DEC 1943

Date of writing Report 20 DEC 1943 When handed in at Local Office 20 DEC 1943 Port of NEWCASTLE-ON-TYNE

No. in Reg. Book. 37330 on the SS "EMPIRE DUCHESS"

Surrey held at Newcastle Date, First Survey 16 June 1943 Last Survey 29th Novemr, 1943 (Number of Visits 43) Gross Tons Net

Built at Sunderland By whom built Short Bros Ltd Yard No. 478 When built 1943

Engines made at By whom made J. Dickenson & Sons Ltd Engine No. 2047 When made 1943

Boilers made at Wallsend By whom made N.E. Marine Eng Co (1938) Ltd Boiler No. 3061 When made 1943

Nominal Horse Power Owners Ministry of War Transport Port belonging to Sunderland

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Colville's Ltd. (Letter for Record S)

Total Heating Surface of Boilers 7248 Is forced draught fitted yes Coal or Oil fired coal

No. and Description of Boilers 3 S.B. Working Pressure 220

Tested by hydraulic pressure to 380 Date of test 16.8.43 No. of Certificate 1061 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 55 No. and Description of safety valves to each boiler Double improved high lift

Area of each set of valves per boiler {per Rule 6.42 as fitted 7.94 Pressure to which they are adjusted 225 Are they fitted with easing 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 Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating 2'-0" Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 15'-0 1/2" Length 11'-8 1/2" Shell plates: Material S Tensile strength 29-33

Thickness 1 7/32" Are the shell plates welded or flanged no Description of riveting: circ. seams {end DR. inter. 4 1/8" long. seams T.R. D.B.S. Diameter of rivet holes in {circ. seams 1 1/2" long. seams Pitch of rivets {10 3/8"

Percentage of strength of circ. end seams {plate 63.6 rivets 46.2 Percentage of strength of circ. intermediate seam {plate 85.5 rivets 86.2

Percentage of strength of longitudinal joint {plate 85.5 rivets 86.2 combined 88.3

Thickness of butt straps {outer 1 1/8" inner 1 1/4" No. and Description of Furnaces in each Boiler 3 C.F.

Material S Tensile strength 26-30 Smallest outside diameter 3'-9 3/4"

Length of plain part {top Thickness of plates {crown 1 1/16" bottom Description of longitudinal joint weld

Dimensions of stiffening rings on furnace or c.c. bottom

End plates in steam space: Material S Tensile strength 26-30 Thickness 1 7/32" Pitch of stays 19 3/4" x 19 7/8"

How are stays secured Double nuts

Tube plates: Material {front S back Tensile strength {26-30 Thickness {1 7/16" 2 3/32"

Mean pitch of stay tubes in nests 9 7/16" Pitch across wide water spaces 14" x 8 1/4"

Girders to combustion chamber tops: Material S Tensile strength 28-32 Depth and thickness of girder at centre 10 1/2" x 1 1/16" Double Length as per Rule 33 1/32" Distance apart 9 1/4" No. and pitch of stays in each 32 8"

Combustion chamber plates: Material S

Tensile strength 26-30 Thickness: Sides 1 1/16" Back 1 1/16" Top 1 1/16" Bottom 7/8"

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

Front plate at bottom: Material S Tensile strength 26-30

Thickness 1 7/16" Lower back plate: Material S Tensile strength 26-30 Thickness 2 7/32"

Pitch of stays at wide water space 14" x 8" Are stays fitted with nuts or riveted over nuts

Main stays: Material S Tensile strength 28-32

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

Screw stays: Material S Tensile strength 26-30

Diameter {At turned off part, or Over threads 1 3/4" No. of threads per inch 9

Are the stays drilled at the outer ends NO Margin stays: Diameter { At turned off part, 1 1/8" or Over threads 1 1/8" }
No. of threads per inch 9
Tubes: Material LW Steel External diameter { Plain 5" Stay 3" } Thickness { 8 W.G. 3/8" x 7/16" } No. of threads per inch 9
Pitch of tubes 4 1/4" x 4 1/8" Manhole compensation: Size of opening in shell plate none Section of compensating ring _____ No. of rivets and diameter of rivet holes _____
Outer row rivet pitch at ends _____ 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 S. smoke tube Manufacturers of { Tubes Stewart & Lloyd Steel forgings Appleby, Frodingham Steel Co. Steel castings _____ }
Number of elements 177 Material of tubes SD Steel Internal diameter and thickness of tubes 15 7/16" x 2 1/2 7/16"
Material of headers Forged Steel Tensile strength 26-30 Thickness 1 1/8" 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 3.14 sq" Are the safety valves fitted with easing gear yes
Pressure to which the safety valves are adjusted 225 Hydraulic test pressure: tubes 1500 forgings and castings 660 and after assembly in place 440 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 NORTH EASTERN MARINE ENGINEERING CO. (INCORPORATED),
The foregoing is a correct description,

John Neill

Manufacturer.

Similar Boilers 11.10.41

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

See Mely Report

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

Total No. of visits

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

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers & superheaters have been constructed under Special Survey in accordance with the approved Plan, the Requirements of the Rules & the Specification

The materials & workmanship are good. & the boilers proved sound & tight under hydraulic test & satisfactory under steam.

Survey Fee ... £ See Mely Report When applied for, 19
Travelling Expenses (if any) £ : When received, 19

R. C. Moffitt
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 4 JAN 1944

Assigned

see minute on J.E. Rpt.



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