

REPORT ON BOILERS.

No. ~~78394~~ 78421

20 OCT 1924

Received at London Office

Date of writing Report 12th Sept 1924 When handed in at Local Office 12th Sept 1924 Port of Newcastle on Tyne

No. in Survey held at Newcastle on Tyne Date, First Survey 30 April 24 Last Survey 8 October 1924

Reg. Book. on the S.S. Middlesbro' (Number of Visits 23) (Gross Tons) (Net Tons)

Master _____ Built at Hebburn on Tyne By whom built R. H. Hawthorn Leslie & Co. Ltd Yard No. 535 When built 1924
Engines made at North Shields By whom made Shields Engineering & D. D. Co. Ltd Engine No. 377 When made 1924
Boilers made at St. Peter's, Newcastle By whom made R. H. Hawthorn Leslie & Co. Ltd Boiler No. 8814 When made 1924
Nominal Horse Power _____ Owner Tyne Sea Steam Shipping Co. Ltd Port belonging to Newcastle

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Blechwaldwerk, Schulz Knandt, Stal Co of Liep & D. Colville, Sons (Letter for Record S)

Total Heating Surface of Boilers 3222 sq ft (3262 for fus) Is forced draught fitted No Coal or Oil fired Coal

No. and Description of Boilers Two, Single Ended Working Pressure 180 lb per sq in

Tested by hydraulic pressure to 320 lb Date of test 6/8/24 No. of Certificate 9841 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 55 sq ft No. and Description of safety valves to each boiler Two, direct spring

Area of each set of valves per boiler { per Rule 10.6 sq ft as fitted 11.88 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 Yes

Smallest distance between boilers 6-0" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating Open floors Is the bottom of the boiler insulated No

Largest internal dia. of boilers 13-6" Length 11-0 1/2" Shell plates: Material Steel Tensile strength 28/32 tons

Thickness 1/8" Are the shell plates welded or flanged No Description of riveting: circ. seams { end 2 R Lap inter. None

long. seams Double straps, 5 rivets Diameter of rivet holes in { circ. seams 1 3/16" long. seams 1 3/16" Pitch of rivets { 3 1/2" 3 3/8"

Percentage of strength of circ. end seams { plate 66.0 rivets 45.9 Percentage of strength of circ. intermediate seam { plate Done rivets Done

Percentage of strength of longitudinal joint { plate 85.8 rivets 89.9 combined 89.5 Working pressure of shell by Rules 183 lb per sq in

Thickness of butt straps { inner 31/32" outer 27/32" No. and Description of Furnaces in each Boiler 3, Mousoni's

Material Steel Tensile strength 26/30 tons Smallest outside diameter 4 1/32"

Length of plain part { top Done bottom Done Thickness of plates { crown 17/32" bottom Done Description of longitudinal joint Welded

Dimensions of stiffening rings on furnace or c.c. bottom None Working pressure of furnace by Rules 186 lb

End plates in steam space: Material Steel Tensile strength 26/30 tons Thickness 1 1/32" Pitch of stays 25 x 17 1/2"

How are stays secured Double nuts & washers Working pressure by Rules 182 lb

Tube plates: Material { front Steel back Steel Tensile strength { 26/30 tons Thickness { 31/32" 3/4"

Mean pitch of stay tubes in nests 9 1/2" Pitch across wide water spaces 14 1/2" Working pressure { front 188 lb back Done

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

at centre 8" x 1 1/2" Length as per Rule 29 5/8" Distance apart 8 1/4" No. and pitch of stays

in each Two, 9" Working pressure by Rules 226 lb Combustion chamber plates: Material Steel

Tensile strength 26/30 tons Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 29/32"

Pitch of stays to ditto: Sides 9 3/4" x 7/8" Back 8 3/4" x 7 3/4" Top 9" x 8 1/4" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules 181 lb Front plate at bottom: Material Steel Tensile strength 26/30 tons

Thickness 31/32" Lower back plate: Material Steel Tensile strength 26/30 tons Thickness 27/32"

Pitch of stays at wide water space 15" Are stays fitted with nuts or riveted over Nuts

Working Pressure 193 lb per sq in Main stays: Material Steel Tensile strength 28/32 tons

Diameter { At body of stay, 3 1/4" or Over threads 3 1/4" No. of threads per inch 6 Area supported by each stay 437 1/2 sq in

Working pressure by Rules 183 lb Screw stays: Material Steel Tensile strength 26/30 tons

Diameter { At turned off part, 1 5/8" or Over threads 1 1/2" No. of threads per inch 9 Area supported by each stay 74 1/4 sq in x 67.8 sq in

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Working pressure by Rules 84 lbs Are the stays drilled at the outer ends No 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 99 1/2 sq" Working pressure by Rules 181 lbs
Tubes: Material Iron External diameter { Plain 3 1/2" Stay 3 1/2" } Thickness { 5 L.W.G. } No. of threads per inch 9
 Pitch of tubes 4 3/4" x 4 3/4" Working pressure by Rules 215 lbs per sq" Manhole compensation: Size of opening in shell plate 17" x 13" Section of compensating ring 19" x 1 7/8" No. of rivets and diameter of rivet holes 15, 1 9/16"
 Outer row rivet pitch at ends 10" Depth of flange if manhole flanged Recessed 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
 How connected to shell Inner radius of crown Working pressure by Rules
 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 None 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
 Area of each safety valve Is a safety valve fitted to every part of the superheater which can be shut off from the boiler
 Rules Are the safety valves fitted with easing gear Working pressure as per tubes Pressure to which the safety valves are adjusted Hydraulic test pressure: 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 23 inclusive for boilers been complied with

The foregoing is a correct description,


1924
 Dates of Survey { During progress of work in shops -- Apr. 30, May 2, 7, 9, 14, 20, 27, 28, June 5 Are the approved plans of boiler and superheater forwarded herewith yes. (If not state date of approval.)
 while building { During erection on board vessel --- July 10, 29, Aug 6, 8, 13, 20, 23, 26, Sept. 2, 3, 15, 23, 24, Oct. 8 }
 Total No. of visits 23

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These main boilers have been constructed under special survey, the materials and workmanship are of good quality, they have been securely fitted on board.
For recommendations as to class please see report on machinery.
Boiler plan & steel invoices now forwarded.

Survey Fee £ 21 : 14 : 0 When applied for, 18 SEP 1924
 Travelling Expenses (if any) £ ✓ : : When received, 20 SEP 1924

George Murdoch
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI, 24 OCT 1924

Assigned _____