

REPORT ON BOILERS.

No. 29813.

Received at London Office 11 AUG 1928

Date of writing Report

102

When handed in at Local Office

10 AUG 1928

Port of Sunderland

No. in Survey held at

Sunderland

Date, First Survey

Last Survey

Aug 8 1928

eg. Book.

10103 on the

S. S. "FAIRWATER"

(Number of Visits

Gross 4108

Net 2605

Master

Built at

Sunderland

By whom built

R. Thompson & Sons Ltd

Yard No.

331

When built

1928

Engines made at

Sunderland

By whom made

North Eastern Marine Eng Co. Ltd

Engine No.

2654

When made

1928

Boilers made at

Sunderland

By whom made

North Eastern Marine Eng Co. Ltd

Boiler No.

2654

When made

1928

Nominal Horse Power

376

Owners

Fairwater Shipping Co. Ltd

Port belonging to

Cardiff

MULTITUBULAR BOILERS—MAIN, ~~AUXILIARY OR DONKEY~~

Manufacturers of Steel

Messrs David Colville & Sons Ltd

(Letter for Record (S))

Total Heating Surface of Boilers

6174 sq ft

Is forced draught fitted

No

Coal or Oil fired

Coal

No. and Description of Boilers

Three-Single Ended-Marine Type-Corrugated Furnaces Working Pressure 180 lbs sq

Tested by hydraulic pressure to

320 lbs sq

Date of test

25.5.28

No. of Certificate

3994

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 loaded

Area of each set of valves per boiler

per Rule 13.19 sq

as fitted 14.13 sq

Pressure to which they are adjusted

185 lbs sq

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 boiler uptakes and bunkers

on woodwork

21"

Is oil fuel carried in the double bottom under boilers

Yes

Smallest distance between shell of boiler and tank top plating

2' 10 1/2"

Is the bottom of the boiler insulated

No

Largest internal dia. of boilers

15' 3 1/2"

Length

10' 9" (FULL)

Shell plates: Material

Steel

Tensile strength

28 to 32 tons sq

Thickness

1 1/4"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end D. R. Lap

Long. seams

I. R. D. B. S.

Diameter of rivet holes in

circ. seams 1 3/32"

long. seams 1 3/32"

Pitch of rivets

3 3/4" 9 1/8"

Percentage of strength of circ. end seams

plate 65.8

rivets 45.2

Percentage of strength of circ. intermediate seam

plate 85.95

rivets 87.3

Percentage of strength of longitudinal joint

plate 85.95

rivets 87.3

combined 89.4

Working pressure of shell by Rules

181.2 lbs sq

Thickness of butt straps

outer 1"

inner 1 1/8"

No. and Description of Furnaces in each Boiler

Three-Corrugated-Deighton Type

Material

Steel

Tensile strength

26 to 30 tons sq

Smallest outside diameter

3' 8 3/8"

Length of plain part

top 9"

bottom 9"

Thickness of plates

crown 9/16"

bottom 9/16"

Description of longitudinal joint

Welded

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

Yes

Working pressure of furnace by Rules

183.6 lbs sq

End plates in steam space: Material

Steel

Tensile strength

26 to 30 tons sq

Thickness

1 5/16"

Pitch of stays

21 1/2" x 20 1/2"

How are stays secured

Double Nuts

Working pressure by Rules

182.8 lbs sq

Tube plates: Material

front Steel

back Steel

Tensile strength

26 to 30 tons sq

Thickness

7/8" 25 3/32"

Mean pitch of stay tubes in nests

10.7"

Pitch across wide water spaces

14 1/2"

Working pressure

front 193 lbs sq (W.W. space)

back 185 lbs sq

Girders to combustion chamber tops: Material

Steel

Tensile strength

28 to 32 tons sq

Depth and thickness of girder

at centre

8 1/2" x 1 1/2"

Length as per Rule

30 1/2"

Distance apart

10 5/8"

No. and pitch of stays

in each

2 @ 9 1/2"

Working pressure by Rules

187 lbs sq

Combustion chamber plates: Material

Steel

Tensile strength

26 to 30 tons sq

Thickness: Sides 3/4"

Back 25/32"

Top 3/4"

Bottom 3/4"

Pitch of stays to ditto: Sides

10" x 10"

Back

11 1/4" x 10 1/2"

Top

10 5/8" x 9 1/2"

Are stays fitted with nuts or riveted over

Fitted with Nuts

Working pressure by Rules

Sides 198 lbs sq

Back 199 lbs sq

Top 194 lbs sq

Front plate at bottom: Material

Steel

Tensile strength

26 to 30 tons sq

Thickness

7/8"

Lower back plate: Material

Steel

Tensile strength

26 to 30 tons sq

Thickness

29 3/32"

Pitch of stays at wide water space

14 1/2" x 10 1/2"

Are stays fitted with nuts or riveted over

Fitted with Nuts

Working Pressure

181 lbs sq

Main stays: Material

Wrought Iron

Tensile strength

22 1/2 tons sq (min)

Diameter

At body of stay, 3 1/2"

Over threads

No. of threads per inch

6

Area supported by each stay

440.75 sq

Working pressure by Rules

197 lbs sq

Screw stays: Material

Wrought Iron

Tensile strength

21 1/2 tons sq (min)

Diameter

At turned off part, 1 3/4"

Over threads

1 7/8"

No. of threads per inch

9

Area supported by each stay

Sides 100 sq

Back 106 sq

Top 101.6 sq

Sides 181.5 lbs
C. Backs 199.9 lbs
W. Backs 180 lbs
Top 181 lbs

Working pressure by Rules 182 lbs
Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, 2" or Over threads }
No. of threads per inch 9 Area supported by each stay 135.19 sq" Working pressure by Rules 182 lbs
Tubes: Material Wrought Iron External diameter { Plain 3 1/4" Stay 3 1/4" Thickness { 8 W.G. 5/16" No. of threads per inch 9
Pitch of tubes 4 1/2" x 4 3/4" Working pressure by Rules Plain 230 lbs Stay 194 Manhole compensation: Size of opening in
END shell plate 16" x 12" Section of compensating ring No. of rivets and diameter of rivet holes
Outer row rivet pitch at ends Depth of flange if manhole flanged 4" Steam Dome: Material
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 23 inclusive for boilers been complied with

Yes

The foregoing is a correct description,

THE NORTH EASTERN MARINE ENGINEERING CO. LTD. Manufacturer.

Archd. Berry

Dates of Survey { During progress of work in shops - - - Please see Mach. Rpt. Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)
while building { During erection on board vessel - - - Total No. of visits

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

The Materials and Workmanship are good.
The Boilers have been constructed under Special Survey, and satisfactorily fitted in the vessel.
For notation see Machinery Report.

Survey Fee ... £ ... When applied for, 192
Travelling Expenses (if any) £ ... When received, 192

A. T. Griffiths.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 17 AUG 1928

Assigned

See Rpt attached



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