

REPORT ON BOILERS.

No. 91707

Received at London Office -3 SEP 1934

Date of writing Report

19

When handed in at Local Office

13. Sept. 1934 Port of

NEWCASTLE-ON-TYNE

No. in Survey held at

Newcastle-on-Tyne

Date, First Survey

4 May

Last Survey

14 Sept

1934

Book.

on the

STEEL SCREW

"HAI YUAN"

(Number of Visits)

Tons

Gross

Net

ster

Built at Newcastle-on-Tyne

By whom built Swan, Hunter & W. Richardson

Yard No. 1456

When built 1934

gines made at

Newcastle-on-Tyne

By whom made Swan, Hunter & W. Richardson

Engine No. 1456

When made 1934

ilers made at

Newcastle-on-Tyne

By whom made Swan, Hunter & W. Richardson

Boiler No. 1456

When made 1934

Original Horse Power

383

Owners

China Merchants Steam Nav. Co.

Port belonging to

Newcastle

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

Manufacturers of Steel Steel Company of Scotland Ltd.

(Letter for Record S.)

Heating Surface of Boilers

5927 sq

Is forced draught fitted

yes

Coal or Oil fired

Coal

Description of Boilers

Two Single Ended

Working Pressure

200 lbs./sq

ed by hydraulic pressure to

350 lbs./sq

Date of test

19.7.34

No. of Certificate

620

Can each boiler be worked separately

yes

of Firegrate in each Boiler

69 sq

No. and Description of safety valves to each boiler

Two Lockburns Improved High Lift

of each set of valves per boiler

per Rule

8.6 sq

Pressure to which they are adjusted

200 lb

Are they fitted with easing gear

yes

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

—

Least distance between boilers on uptakes and bunkers or woodwork

12"

Is oil fuel carried in the double bottom under boilers

no

Least distance between shell of boiler and tank top plating

2'-3"

Is the bottom of the boiler insulated

no

rest internal dia. of boilers

16'-0 3/16"

Length

11'-6"

Shell plates: Material

Steel

Tensile strength

29/33 tons/sq

kness

1 13/32"

Are the shell plates welded or flanged

no

Description of riveting: circ. seams

end

D.R. LAP.

seams

T.R. D.B.S.

Diameter of rivet holes in

circ. seams

1 1/2"

Pitch of rivets

4.678"

Percentage of strength of circ. end seams

plate

67.93

rivets

42.6

Percentage of strength of circ. intermediate seam

plate

—

Percentage of strength of longitudinal joint

plate

85.4

rivets

86.9

Working pressure of shell by Rules

201 lbs./sq

kness of butt straps

outer

1 1/16"

No. and Description of Furnaces in each Boiler

Three Brighton

material

Steel

Tensile strength

26/30 tons/sq

Smallest outside diameter

4'-1 1/8"

th of plain part

top

1 1/16"

Thickness of plates

crown

1 1/16"

Description of longitudinal joint

weld

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

—

Working pressure of furnace by Rules

205 lbs./sq

plates in steam space: Material

Steel

Tensile strength

26/30 tons/sq

Thickness

1 13/32"

Pitch of stays

21 1/2" x 21"

are stays secured

D. nuts

Working pressure by Rules

206 lbs./sq

plates: Material

front

Steel

Tensile strength

26/30 tons/sq

Thickness

1 13/32"

pitch of stay tubes in nests

9 3/16" C. 9 1/4" W.

Pitch across wide water spaces

13 1/2"

Working pressure

front 212 lbs./sq

back 277 lbs./sq

ers to combustion chamber tops: Material

Steel

Tensile strength

25/32 tons/sq

Depth and thickness of girder

ntre

9 3/4" x 2 C 1/16"

Length as per Rule

2'-8 1/2"

Distance apart

10"

No. and pitch of stays

ch

3 C 9"

Working pressure by Rules

203 lbs./sq

Combustion chamber plates: Material

Steel

ile strength

26/30 tons/sq

Thickness: Sides

25"

Back

C 23/32"

Top

25"

Bottom

25"

of stays to ditto: Sides

10" x 9"

Back

C 10" x 9"

Top

10" x 9"

Are stays fitted with nuts or riveted over

nuts

king pressure by Rules

200 lbs./sq

Front plate at bottom: Material

Steel

Tensile strength

26/30 tons/sq

kness

1"

Lower back plate: Material

Steel

Tensile strength

26/30 tons/sq

Thickness

1"

of stays at wide water space

21 1/2" dia

Are stays fitted with nuts or riveted over

nuts

king Pressure

202 lbs./sq

Main stays: Material

Steel

Tensile strength

25/32 tons/sq

meter

At body of stay,

3 1/2"

No. of threads per inch

6

Area supported by each stay

453 sq

king pressure by Rules

208 lbs./sq

Screw stays: Material

Steel

Tensile strength

26/30 tons/sq

meter

At turned off part,

1 3/4"

No. of threads per inch

9

Area supported by each stay

88 sq

Working pressure by Rules $206 \frac{1}{2} \text{ lb./sq. in.}$ Are the stays drilled at the outer ends *no* Margin stays: Diameter $\begin{cases} \text{At turned off part, } 1\frac{7}{8}'' \\ \text{or } \\ \text{Over threads } 1\frac{7}{8}'' \end{cases}$
No. of threads per inch *9* Area supported by each stay 101.25 sq. in. Working pressure by Rules $210 \frac{1}{2} \text{ lb./sq. in.}$
Tubes: Material *Iron* External diameter $\begin{cases} \text{Plain } 2\frac{1}{2}'' \\ \text{Stay } 2\frac{1}{2}'' \end{cases}$ Thickness $\begin{cases} 9 \text{ w.g. } 3\frac{1}{8}'' \\ 5\frac{1}{16}'' \\ 1\frac{1}{4}'' \end{cases}$ No. of threads per inch *9*
Pitch of tubes $3\frac{3}{4}'' \times 3\frac{5}{8}''$ Working pressure by Rules $210 \frac{1}{2} \text{ lb./sq. in.}$ Manhole compensation: Size of opening in
shell plate $20'' \times 16''$ Section of compensating ring $19'' \times 1\frac{1}{2}''$ No. of rivets and diameter of rivet holes $32 - 1\frac{1}{16}''$
Outer row rivet pitch at ends $11''$ 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 $\begin{cases} \text{Plate } — \\ \text{Rivets } — \end{cases}$
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 *Lugdun's Uptake Type* Manufacturers of *The British Mannesman Tube Co. Ltd., London*
Number of elements *116* Material of tubes *40 Steel* Internal diameter and thickness of tubes $1\frac{1}{4}'' \times 10 \text{ w.g.}$
Material of headers *40 Steel* Tensile strength $28.9 \text{ tons/sq. in.}$ Thickness $3\frac{1}{4}''$ 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. in. Are the safety valves fitted with easing gear *yes.* Working pressure as per
Rules $200 \frac{1}{2} \text{ lb./sq. in.}$ Pressure to which the safety valves are adjusted 200 lb. Hydraulic test pressure:
tubes $1000 \frac{1}{2} \text{ lb./sq. in.}$ Headers $600 \frac{1}{2} \text{ lb./sq. in.}$ castings $400 \frac{1}{2} \text{ lb./sq. in.}$ and after assembly in place $600 \frac{1}{2} \text{ lb./sq. in.}$ 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.*

FOR HUNTER & WIGHAM RICHARDSON, LTD.
The foregoing is a correct description,
G. J. Tweedy Manufacturer
DIRECTOR

Dates of Survey $\begin{cases} \text{During progress of} \\ \text{work in shops } - - \end{cases}$
See Inquiry Report
 $\begin{cases} \text{while} \\ \text{building } \end{cases} \begin{cases} \text{During erection on} \\ \text{board vessel } - - \end{cases}$

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

Total No. of visits

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

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

These boilers have been constructed under special survey in accordance with the Rules and approved plan; the materials and workmanship are good.

Survey Fee

Travelling Expenses (if any)

When applied for,

19

When received,

19

A. B. Forster

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FR 7 SEP 1934

Assigned

*See other J.E. Rpt
hwc 91707*



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Foundation