

# REPORT ON BOILERS.

No. 16892

Received at London Office

SEP -2 1940

to of writing Report

25/8/40

When handed in at Local Office

22/8/40

Port of

MIDDLESBROUGH

No. in Survey held at

Middlesbrough S. Bank

Date, First Survey

18.6.40

Last Survey

15/8/1940

500 on the

SS. "EMPIRE ENDURANCE" ex "ALSTER"

(Number of Visits 28)

Gross 570.41

Net 5354.04

Master

Built at Hamburg

By whom built Deutsche Schiff

W. Vulcan

Yard No.

When built 1928

Engines made at

Hamburg

By whom made

Deutsche Schiff u. Mach

W. Vulcan

Engine No.

When made 1928

Boilers made at

do.

By whom made

do.

Boiler No.

When made 1928

nominal Horse Power

Owners

The Ministry of Shipping

Port belonging to

Middlesbrough

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

Manufacturers of Steel

(Letter for Record)

total Heating Surface of Boilers

1500 M<sup>2</sup>

Is forced draught fitted

yes

Coal or Oil fired

Coal

No. and Description of Boilers

5 - Single Ended

Working Pressure

14.5 Kg/cm<sup>2</sup>

tested by hydraulic pressure to

Date of test

No. of Certificate

Can each boiler be worked separately

yes

area of Firegrate in each Boiler

32.75 M<sup>2</sup>

No. and Description of safety valves to each boiler

Triple Spring Loaded

area of each set of valves per boiler

per Rule 142.00 cm<sup>2</sup>  
as fitted 235.62 cm<sup>2</sup>

Pressure to which they are adjusted

14.5 Kg/cm<sup>2</sup>

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 boiler or uptakes and bunkers or woodwork

10 cm

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

48 cm

Is the bottom of the boiler insulated

yes

Largest internal dia. of boilers

4 m 950

Length

3 m 700

Shell plates: Material

Steel

Tensile strength

end D.R.

Thickness

36.5 m/m

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end D.R.

Working. seams T.R.D.B.S.

Diameter of rivet holes in

circ. seams 36 m/m  
long. seams 39 m/m

Pitch of rivets

101 m/m  
253 m/m

Percentage of strength of circ. end seams

plate 64.35  
rivets 60.52

Percentage of strength of circ. intermediate seam

plate  
rivets ✓

Percentage of strength of longitudinal joint

plate 84.58  
rivets 102.00  
combined 91.00

Working pressure of shell by Rules

14.5 Kg/cm<sup>2</sup>

Thickness of butt straps

outer 33 m/m  
inner

No. and Description of Furnaces in each Boiler

3 - Corrugated (Fox)

Material

Steel

Tensile strength

Smallest outside diameter

1 m 235

Length of plain part

top  
bottom ✓

Thickness of plates

crow 17.5 m/m  
bottom

Description of longitudinal joint

Weld

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

Working pressure of furnace by Rules

14.6 K

End plates in steam space: Material

Steel

Tensile strength

Thickness

27.5 m/m

Pitch of stays 415 x 370

How are stays secured

S. Nuts & washers

Working pressure by Rules

17.3 K

Tube plates: Material

front Steel  
back

Tensile strength

41-47.

Thickness

23 m/m

Mean pitch of stay tubes in nests

222 m/m

Pitch across wide water spaces

360 m/m

Working pressure

front 17 K  
back 27 K

Girders to combustion chamber tops: Material

Steel

Tensile strength

Depth and thickness of girder

at centre

260 m/m = 2 @ 17.5 m/m

Length as per Rule

870 m/m

Distance apart

215 m/m

No. and pitch of stays

in each

3 - 200 m/m

Working pressure by Rules

15.8 K

Combustion chamber plates: Material

Steel

Tensile strength

Thickness: Sides

17.5 m/m

Back

17 m/m

Top

17.5 m/m

Bottom 23 m/m

Pitch of stays to ditto: Sides

220 x 180

Back

191 x 195

Top

200 x 215

Are stays fitted with nuts or riveted over

Nuts.

Working pressure by Rules

17.2 K

Front plate at bottom: Material

Steel

Tensile strength

Thickness

29 m/m

Lower back plate: Material

Steel

Tensile strength

Thickness 26 m/m

Pitch of stays at wide water space

350 x 191

Are stays fitted with nuts or riveted over

Nuts.

Working Pressure

20 K

Main stays: Material

Steel

Tensile strength

34-41 K

Diameter

At body of stay,  
or  
Over threads

71 m/m

No. of threads per inch

6

Area supported by each stay

1540 cm<sup>2</sup>

Working pressure by Rules

16.5 K

Screw stays: Material

Steel

Tensile strength

34-41 K

Diameter

At turned off part,  
or  
Over threads

43 m/m

No. of threads per inch

9

Area supported by each stay

429 cm<sup>2</sup>



Working pressure by Rules 16.5K Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, 49 m/m Over threads }  
No. of threads per inch 9 Area supported by each stay 7050 cm Working pressure by Rules 14.75K  
Tubes: Material --- External diameter { Plain 76 m/m Stay 83 m/m Thickness 4 m/m No. of threads per inch 9  
Pitch of tubes 110 x 110 m/m Working pressure by Rules P.17.6K S.15K Manhole compensation: Size of opening  
shell plate 460 x 560 m/m Section of compensating ring 295 m/m x 36.5 m/m No. of rivets and diameter of rivet holes 48 - 39 m/m  
Outer row rivet pitch at ends 212 m/m 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 --- Working pressure by Rules --- Thickness of crown --- No. and diameter  
stays --- Inner radius of crown --- Working pressure by Rules ---  
How connected to shell --- Size of doubling plate under dome --- Diameter of rivet holes and  
of rivets in outer row in dome connection to shell ---

Type of Superheater Schmidt-Lange Manufacturers of { Tubes --- Steel castings ---  
Number of elements 98 Material of tubes 50. Steel Internal diameter and thickness of tubes 18 m/m; 2 1/2"  
Material of headers Cast-Steel Tensile strength --- Thickness 30 m/m Can the superheater be shut off  
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 15.90 cm Are the safety valves fitted with easing gear Yes Working pressure as  
Rules --- Pressure to which the safety valves are adjusted 14.5 K/cm<sup>2</sup> Hydraulic test pressure  
tubes ---, castings --- and after assembly in place --- Are drain ~~valves~~ 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, --- Manufacture ---

Dates { During progress of work in shops --- 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 28

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 examined internally & externally together with the superheaters, & safety valves adjusted under steam to 14.5 K/cm<sup>2</sup>.  
The boilers are securely fitted on board.  
See Sec. Letter 12/6/40 S & 4/7/40 E. The scantlings are in accordance with the approved plan, & the workmanship is good.

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

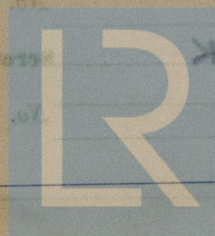
R. J. H. H. H. H. H.  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute

TUE. 10 SEP 1940

Assigned

See other  
Ind. Rpt. 16891



©2021

Lloyd's Register  
Foundation