

## REPORT ON BOILERS.

Sl. No. 32937

Mach. No. 16859

25/6/40

Received at London Office

AUG - 6 1940

Date of writing Report 15/6/1940 When handed in at Local Office 17/6/1940 Port of MIDDLESBROUGH

No. in Survey held at Stockton-on-Tees Date, First Survey 13-11-39 Last Survey 13/6/1940

on the M/V "TOWER GRANGE" (Number of Visits 13) Gross 5226 Tons Net 30 1/2.

Master Built at Sunderland By whom built Wm. Daeferd &amp; Sons Ltd. Yard No. 660 When built 1940

Engines made at Sunderland By whom made Wm. Daeferd &amp; Sons Ltd. Engine No. 660 When made 1940

Boilers made at Stockton By whom made Stockton B. Eng. &amp; Riley B. Ltd. Boiler No. 6377 When made 1940

Nominal Horse Power Owners The Tower Steamship Co. Ltd. Port belonging to London.

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Steel Company of Scotland Ltd. (Letter for Record S)

Total Heating Surface of Boilers 1660 sq. ft. Is forced draught fitted No. Coal or Oil fired oil

No. and Description of Boilers 1 - Single Ended Working Pressure 120 lbs

Tested by hydraulic pressure to 230 lbs Date of test 13/6/40 No. of Certificate 6996 Can each boiler be worked separately ✓

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler Two direct Spring

Area of each set of valves per boiler { per Rule 15.3 sq. in. as fitted 19.2 sq. in. Pressure to which they are adjusted 120 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'-6" Is the bottom of the boiler insulated Yes.

Largest internal dia. of boilers 11'-10 5/8" Length 11'-6" Shell plates: Material Steel Tensile strength 29-33 Tons

Thickness 1 1/16" Are the shell plates welded or flanged No. Description of riveting: circ. seams { end 33/8" inter 33/8" }

Long. seams T.R.D.B.S. Diameter of rivet holes in { circ. seams 1 5/16" long. seams 1 3/16" Pitch of rivets { 5 3/8" }

Percentage of strength of circ. end seams { plate 68.51 rivets 45.45 Percentage of strength of circ. intermediate seam { plate 84.90 rivets 83.38 }

Percentage of strength of longitudinal joint { plate 84.90 rivets 83.38 combined 89.90 Working pressure of shell by Rules 123 lbs

Thickness of butt straps { outer 9/16" inner 1 1/16" No. and Description of Furnaces in each Boiler 2 - Corrugated (Deighton)

Material Steel Tensile strength 26-30 tons Smallest outside diameter 3'-8 1/16"

Length of plain part { top 13/32" bottom 13/32" Description of longitudinal joint Welded

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 131 lbs

Diagonal plates in steam space: Material Steel Tensile strength 26-30 tons Thickness 27/32" Pitch of stays 17" x 16"

How are stays secured D. Nuts &amp; washers Working pressure by Rules 142 lbs

Diagonal plates: Material { front Steel back Steel Tensile strength { 26-30 tons Thickness { 27/32" 13/16" }

Pitch of stay tubes in nests 9 7/8" 9.37" Pitch across wide water spaces 14" Working pressure { front 139 lbs back 244 lbs }

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

Centre 7'-5 7/8" Length as per Rule 297 1/16" Distance apart 9" No. and pitch of stays

Each 2 @ 9" Working pressure by Rules 134 lbs Combustion chamber plates: Material Steel

Tensile strength 26-30 tons Thickness: Sides 19/32" Back 9/16" Top 19/22" Bottom 7/8"

Pitch of stays to ditto: Sides 9" x 10" Back 8 3/4" x 9 1/2" Top 9" x 9" Are stays fitted with nuts or riveted over Nuts.

Working pressure by Rules 125 lbs Front plate at bottom: Material Steel Tensile strength 26-30 tons

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

Pitch of stays at wide water space 13 1/2" x 9 1/2" Are stays fitted with nuts or riveted over Nuts.

Working Pressure 200 lbs Main stays: Material Steel Tensile strength 28-32 tons

Diameter { At body of stay, 2 1/4" No. of threads per inch 6 Area supported by each stay 246.5 sq. in. }

Working pressure by Rules 120 lbs Screw stays: Material Steel Tensile strength 26-30 tons

Diameter { At turned off part, 1 3/8" No. of threads per inch 9 Area supported by each stay 179.5 sq. in. }

Working pressure by Rules 120 lbs

Diameter { At turned off part, 1 3/8" No. of threads per inch 9 Area supported by each stay 179.5 sq. in. }

Working pressure by Rules 120 lbs

Diameter { At turned off part, 1 3/8" No. of threads per inch 9 Area supported by each stay 179.5 sq. in. }

Working pressure by Rules 120 lbs



Working pressure by Rules 125 lbs Are the stays drilled at the outer ends No Margin stays: Diameter 1 5/8"  
No. of threads per inch 9 Area supported by each stay 102 sq" Working pressure by Rules 150 lbs  
Tubes: Material L.W. Iron External diameter 2 3/4" Thickness 5/16" No. of threads per inch 9  
Pitch of tubes 3 3/4" x 3 3/4" Working pressure by Rules Plain 160. 5246 lbs Manhole compensation: Size of opening  
shell plate 20" x 16" Section of compensating ring 7" x 1" No. of rivets and diameter of rivet holes 44 - 15/16"  
Outer row rivet pitch at ends 6 1/4" 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  
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 pitch  
of rivets in outer row in dome connection to shell \_\_\_\_\_

Type of Superheater \_\_\_\_\_ Manufacturers of \_\_\_\_\_ Tubes \_\_\_\_\_  
Number of elements \_\_\_\_\_ Material of tubes \_\_\_\_\_ Steel castings \_\_\_\_\_  
Material of headers \_\_\_\_\_ Tensile strength \_\_\_\_\_ Thickness \_\_\_\_\_ Can the superheater be shut off  
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  
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 22 inclusive for boilers been complied with Yes  
For and on behalf of \_\_\_\_\_  
The foregoing is my correct description, \_\_\_\_\_  
Manufactured by \_\_\_\_\_  
Dates of Survey { During progress of work in shops - - - Nov. 13, 1910, Dec. 29, 1910, Jan. 21, 1911, May 9, 1911 Are the approved plans of boiler and superheater forwarded herewith Yes  
while building { During erection on board vessel - - - \_\_\_\_\_ (If not state date of approval.)  
Total No. of visits 13

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

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been constructed under Special Survey, in accordance with the Rule Requirements, & approved plan. The material & workmanship are good, & on completion the boiler was tested by hydraulic pressure to 230 lbs & found satisfactory. This boiler has been forwarded to Sunderland.

This boiler has been securely fixed on board the vessel & rammed under steam & safety valves adjusted to working pressure.

For recommendation please see Mch. Rpt.  
W. H. Rasm.

Survey Fee £ 11 : 2 : - When applied for, 24-6-1910  
Travelling Expenses (if any) £ : When received, 2nd August 1910  
R. J. Eastrope  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute \_\_\_\_\_  
Assigned \_\_\_\_\_  
See Md. J.C. 32937  
TUE. 13 AUG 1910  
© 2019 Lloyd's Register Foundation