

# REPORT ON BOILERS.

No. 4754

Received at London Office 13 JUL 1936

of writing Report 7/7/1936 When handed in at Local Office 9/7/1936 Port of Oslo  
 Survey held at Oslo Date, First Survey 7th May Last Survey 3rd July 1936  
 on the whale oil factory S/S "FRATERNITAS" (Number of Visits 3) Tons {Gross 8179 Net 5066  
 Built at Belfast By whom built Harland & Wolff Ltd Yard No. When built 1905-8  
 Engines made at Belfast By whom made Harland & Wolff Ltd Engine No. When made 1905  
 Boilers made at Belfast By whom made Harland & Wolff Ltd Boiler No. When made 1905  
 Indicated Horse Power 658 Owners Fraternitas Kompagniet Port belonging to Copenhagen

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

Manufacturers of Steel (Letter for Record)  
 Total Heating Surface of Boilers Is forced draught fitted Coal or Oil fired  
 and Description of Boilers Two horizontal boilers with internal rotating drum Working Pressure 60 lb/sq in.  
 Tested by hydraulic pressure to 120 lb/sq in. Date of test 29/6/36 No. of Certificate Can each boiler be worked separately Yes  
 Area of Firegrate in each Boiler No. and Description of safety valves to each boiler one, single spring loaded.  
 Area of each set of valves per boiler {per Rule as fitted 2.24 sq in. Pressure to which they are adjusted 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  
 Smallest distance between shell of boiler and tank top plating Is the bottom of the boiler insulated Yes  
 Largest internal dia. of boilers 2600 mm Length 7015 mm Shell plates: Material S.M. steel Tensile strength 44-55 lb/mm<sup>2</sup>  
 Thickness 13 mm Are the shell plates welded or flanged Description of riveting: circ. seams {end S.R. lap inter S.R. single strap  
 g. seams S.R. single strap Diameter of rivet holes in {circ. seams 23.5 mm long. seams 23.5 mm Pitch of rivets {61 mm 75.2 mm  
 Percentage of strength of circ. end seams {plate 61.0 rivets 41.5 Percentage of strength of circ. intermediate seam {plate 61.0 rivets 41.5  
 Percentage of strength of longitudinal joint {plate 68.6 rivets 66.4 combined Working pressure of shell by Rules 6.3 kg/cm<sup>2</sup>  
 Thickness of butt straps {outer 15 mm inner  
 No. and Description of Furnaces in each Boiler  
 Material Tensile strength Smallest outside diameter  
 Length of plain part {top bottom Thickness of plates {crown bottom Description of longitudinal joint  
 Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules  
 Plates in steam space: Material S.M. steel Tensile strength 41-47 lb/mm<sup>2</sup> Thickness 25-30 mm Pitch of stays 330 mm  
 How are stays secured Radius of disked ends 330 mm Working pressure by Rules 6.43 kg/cm<sup>2</sup>  
 Front plates: Material {front back Tensile strength Thickness  
 Pitch of stay tubes in nests Pitch across wide water spaces Working pressure {front back  
 Girders to combustion chamber tops: Material Tensile strength Depth and thickness of girder  
 Centre Length as per Rule Distance apart No. and pitch of stays  
 Working pressure by Rules Combustion chamber plates: Material  
 Tensile strength Thickness: Sides Back Top Bottom  
 Pitch of stays to ditto: Sides Back Top Are stays fitted with nuts or riveted over  
 Working pressure by Rules Front plate at bottom: Material Tensile strength  
 Thickness Lower back plate: Material Tensile strength Thickness  
 Pitch of stays at wide water space Are stays fitted with nuts or riveted over  
 Working Pressure Main stays: Material Tensile strength  
 Diameter {At body of stay, No. of threads per inch Area supported by each stay  
 Over threads  
 Working pressure by Rules Screw stays: Material Tensile strength  
 Diameter {At turned off part, No. of threads per inch Area supported by each stay  
 Over threads



Working pressure by Rules \_\_\_\_\_ Are the stays drilled at the outer ends \_\_\_\_\_ Margin stays: Diameter { At turned off part, \_\_\_\_\_  
or \_\_\_\_\_  
Over threads \_\_\_\_\_  
No. of threads per inch \_\_\_\_\_ Area supported by each stay \_\_\_\_\_ Working pressure by Rules \_\_\_\_\_  
Tubes: Material \_\_\_\_\_ External diameter { Plain \_\_\_\_\_ Thickness { \_\_\_\_\_ No. of threads per inch \_\_\_\_\_  
Stay \_\_\_\_\_  
Pitch of tubes \_\_\_\_\_ Working pressure by Rules \_\_\_\_\_ Manhole compensation: Size of opening in  
shell plate \_\_\_\_\_ Section of compensating ring \_\_\_\_\_ No. of rivets and diameter of rivet holes \_\_\_\_\_  
Outer row rivet pitch at ends \_\_\_\_\_ Depth of flange if manhole flanged \_\_\_\_\_ 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 22 inclusive for boilers been complied with \_\_\_\_\_

The foregoing is a correct description, \_\_\_\_\_

Dates of Survey { During progress of work in shops - - - 7/5, 11/5, 29/6, 3/7/1936 Are the approved plans of boiler and superheater forwarded here with E. 22/12/36  
while building { During erection on board vessel - - - ✓ Total No. of visits four Sec. Rpts (O/L 450) N.T. Nelson

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. "Torge Viken" 4743

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

These boilers were constructed in accordance with the approved plan. The boilers were examined during construction and on completion were tested by hydraulic pressure to 20 lb./in<sup>2</sup>, and were found tight and sound. The steel materials used were made at approved works and have been tested by the Society's Surveyors.

The boilers will be fitted on board the vessel at Gothenburg; a copy of our Rpt. 10 (attached herewith) has been forwarded to the Gothenburg Surveyors. The examination of the apparatus under steam will be done at Gothenburg.

The boilers were marked: -

R Lloyd's Test 120 lbs.

N.P. 60 lbs

29.6.36. P.E.

Survey Fee ... .. £1.80 -

Travelling Expenses (if any) 9 -

When applied for, 7/9/1936

When received, 28.7.1936

30/17

Phude

Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute FRI. 4 DEC 1936

Assigned

See Lot. Rpt. 10953



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