

# REPORT ON BOILERS.

No. 4754

Received at London Office 13 JUL 1936

Date of writing Report 7/7/36 When handed in at Local Office 7/7/36 Port of Oslo

Survey held at Oslo Date, First Survey 7/5 Last Survey 3/7/1936

on the whale oil factory S/S "FRATERNITAS" (Number of Visits 3) Gross 8179 Tons 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 Fraternitaskompaniet Port belonging to Copenhagen

*whale oil extractors*

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

Manufacturers of Steel Vitlance Hvide Staal & Iron Works Cop., Colville's, Copenhagen; Strømmens Verksted (Letter for Record E. 22/12/34)

Heating Surface of Boilers  Is forced draught fitted  Coal or Oil fired

Description of Boilers Two vertical whale oil extractors Working Pressure 60 lb/in<sup>2</sup>

Tested by hydraulic pressure to 120 lb/in<sup>2</sup> Date of test 3/7/36 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 2.24 in<sup>2</sup> 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 2250 mm Length 3400 mm Shell plates: Material S.M. steel Tensile strength 44-55 lb/mm<sup>2</sup>

Thickness 10 mm Are the shell plates welded or flanged \_\_\_\_\_ Description of riveting: circ. seams  end S.R. lap inter. 52.2 mm

Long. seams D.R. lap Diameter of rivet holes in  circ. seams 20 mm Pitch of rivets  66.7 mm  long. seams 20 mm

Percentage of strength of circ. end seams  plate 61.6 rivets 41.4 Percentage of strength of circ. intermediate seam  plate \_\_\_\_\_ rivets \_\_\_\_\_

Percentage of strength of longitudinal joint  plate 70 rivets 69.5 Working pressure of shell by Rules 5.6 lb/cm<sup>2</sup>

~~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 \_\_\_\_\_~~

~~Stays in steam space: Material S.M. steel Tensile strength 41-47 lb/mm<sup>2</sup> Thickness top 20 mm bottom 17 mm Pitch of stays dished ends~~

~~How are stays secured Radius of dished ends 3300 mm Working pressure by Rules 4.3 lb/cm<sup>2</sup>~~

~~End plates: Material  front \_\_\_\_\_  back \_\_\_\_\_ Tensile strength \_\_\_\_\_ Thickness \_\_\_\_\_~~

~~Span pitch of stay tubes in nests \_\_\_\_\_ Pitch across wide water spaces \_\_\_\_\_ Working pressure  front \_\_\_\_\_  back \_\_\_\_\_~~

~~Orders 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, \_\_\_\_\_  Over threads \_\_\_\_\_ No. of threads per inch \_\_\_\_\_ Area supported by each stay \_\_\_\_\_~~

~~Working pressure by Rules \_\_\_\_\_ Screw stays: Material \_\_\_\_\_ Tensile strength \_\_\_\_\_~~

~~Diameter  At turned off part, \_\_\_\_\_  Over threads \_\_\_\_\_ No. of threads per inch \_\_\_\_\_ Area supported by each stay \_\_\_\_\_~~

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 \_\_\_\_\_ Stay \_\_\_\_\_ Thickness { \_\_\_\_\_ No. of threads per inch \_\_\_\_\_

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 \_\_\_\_\_

Area of each safety valve \_\_\_\_\_ Is a safety valve fitted to every part of the superheater which can be shut off from the boiler \_\_\_\_\_

Rules \_\_\_\_\_ Are the safety valves fitted with easing gear \_\_\_\_\_ Working pressure as per \_\_\_\_\_

tubes \_\_\_\_\_, castings \_\_\_\_\_ and after assembly in place \_\_\_\_\_ Hydraulic test pressure: \_\_\_\_\_

to free the superheater from water where necessary \_\_\_\_\_ Are drain cocks or valves fitted \_\_\_\_\_

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with \_\_\_\_\_

The foregoing is a correct description, \_\_\_\_\_  
*J. W. Deane* Manufacturer.

Dates of Survey { During progress of work in shops - - } 7/5, 29/6, 3/7/1936  
 while building { During erection on board vessel - - } ✓  
 Are the approved plans of boiler and superheater forwarded herewith E. 22/12/36 (If not state date of approval.)  
 Total No. of visits *Three*

Is this Boiler a duplicate of a previous case *Yes*. If so, state Vessel's name and Report No. *Torje Viggen, 4743*

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

These boilers were examined during construction and on completion were tested by hydraulic pressure to 120 lbs. per sq. inch.

The boilers were constructed in accordance with the approved plan. The steel materials employed in the construction were made at approved works and were tested by the Society's Surveyors. The workmanship is good.

The boilers will be fitted onboard at Löttingburg. A copy of our Lpt. 10 (attached herewith) has been forwarded to the Löttingburg Surveyors.

The boilers (extractors) were marked  
*R. Tank 120 lbs.  
 NP. 60 lbs.  
 23.7.36. P.E.*

Survey Fee ... *kr. 80.-* When applied for, *7/7/1936*  
 Travelling Expenses (if any) *9.-* When received, *28.7.1936*

*Prude*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 4 DEC 1936**  
 Assigned *See Joh. Rpt. 10953*



to await for copy