

# REPORT ON BOILERS.

No. 10953

Received at London Office 2 NOV 1926

Date of writing Report 29 Oct 1926 When handed in at Local Office 31 Oct 1926 Port of

Göteborg

No. in Survey held at

Göteborg

Date, First Survey

Last Survey

19

343 on the "FRATERNITAS"

(Number of Visits)

Gross 8179

Net 5066

Built at Belfast

By whom built Harland & Wolff

Yard No.

When built 1905

Engines made at Belfast

By whom made Harland & Wolff

Engine No.

When made 1905

Boilers made at

By whom made

Boiler No.

When made

Indicated Horse Power 658

Owners Fraternitas Kompagniet

Port belonging to Copenhagen

3 Hartman Boilers (Old onboard.)

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Total Heating Surface of Boilers

Is forced draught fitted

(Letter for Record)

Coal or Oil fired

No. and Description of Boilers

Working Pressure 60 lbs/sq. in.

Tested by hydraulic pressure to

Date of test

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 1 spring loaded

Area of each set of valves per boiler

per Rule as fitted 850 sq. in.

Pressure to which they are adjusted 43 lbs/sq. in. Are they fitted with easing gear No

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

Largest internal dia. of boilers 1600 in.

Length 5300 in.

Shell plates: Material L. & L. Steel Tensile strength 44 kg/cm<sup>2</sup>

Thickness 10 in.

Are the shell plates welded or flanged No

Description of riveting: circ. seams end Lap Single butt shop.

Long. seams Lap SR

Diameter of rivet holes in

circ. seams 20 in.

Pitch of rivets 53 = 62 in.

Percentage of strength of circ. end seams

plate 67 % rivets 42 %

Percentage of strength of circ. intermediate seam

plate 62 % rivets 48.5 %

Percentage of strength of longitudinal joint

plate 65.5 % rivets 81.6 % combined

Working pressure of shell by Rules 105 lbs/sq. in.

Thickness of butt straps

No. and Description of Furnaces in each Boiler

Material

Tensile strength

Smallest outside diameter

Length of plain part

top bottom

Thickness of plates

coron bottom

Description of longitudinal joint

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

Working pressure of furnace by Rules

End plates in steam space: Material one cast steel

Tensile strength 41 kg/cm<sup>2</sup>

Thickness 10-20 in. Pitch of stays

How are stays secured

Working pressure by Rules

End plates: Material

front back

Tensile strength

Thickness

Can 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

Each

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

Gage

At body of stay, or Over threads

No. of threads per inch

Area supported by each stay

Working pressure by Rules

Screw stays: Material

Tensile strength

Gage

At turned off part, or Over threads

No. of threads per inch

Area supported by each stay

W133-0126

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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 ☒

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 rivets ☒

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 ☒

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 - - ☒ 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 ☒

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.)

For the above calculation the tensile strength has been assumed as above.

Survey Fee ... £ : : When applied for, 19

Travelling Expenses (if any) £ : : When received, 19

P.O. Logan  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute FRI. 4 DEC 1936

Assigned See Other Log. Rpt.  
10953