

REPORT ON BOILERS.

No. 22304

Received at London Office

MAY -1 1937

Date of writing Report 16th April 1937 When handed in at Local Office

Port of

HAMBURG

No. in Survey held at

HAMBURG

Date, First Survey 10th April 1936

Last Survey 15th April 1937

(Number of Visits 11)

Gross 9968

Net 5782

on the

Tonn

Se.

"Hansa Granada"

Master

Built at

Hamburg

By whom built

Deutsche Werft A.G.

Yard No. 181

When built

1933

Engines made at

Augsburg

By whom made

Maschinenfabrik Augsburg-Königsberg

Engine No. 681/140

When made

1937

Boilers made at

Hamburg

By whom made

Deutsche Werft A.G.

Boiler No. 619/630

When made

1937

Indicated Horse Power

1171

Owners

The Texan Company Norway A/S

Port belonging to

Oalo

MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Mannesmannröhren-Werke Akt. Heinrich Heines Straße, Huckingen Rheinland Letter for Record

Total Heating Surface of Boilers

each boiler 200 m²

Is forced draught fitted

yes

Coal or Oil fired

oil fired

No. and Description of Boilers

2 single ended Multitubular Boilers

Working Pressure

12 kg/cm²

Tested by hydraulic pressure to

21.5 kg/cm²

Date of test

9th Dec. 1936

No. of Certificate

644/645

Can each boiler be worked separately

yes

Area of Firegrate in each Boiler

(oil fired)

No. and Description of safety valves to each boiler

2 - two spring loaded

Area of each set of valves per boiler

per Rule 9333 mm²
as fitted 11349 mm²

Pressure to which they are adjusted

12 kg/cm²

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

1120 mm

Is oil fuel carried in the double bottom under boilers

Boilers in

Smallest distance between shell of boiler and tank top plating

460 mm

Is the bottom of the boiler insulated

yes, by spun glass

Largest internal dia. of boilers

4100 mm

Length

2300 mm

Shell plates: Material

S-M-Steel

Tensile strength

47-53 kg/mm²

Thickness

25.5 mm

Are the shell plates welded or flanged

double butt-strapped

Description of riveting: circ. seams

end double row riveting laps

long. seams

double butt-strapped

Diameter of rivet holes in

circ. seams 29 mm

Pitch of rivets

93.7 mm

Percentage of strength of circ. end seams

plate 68.8 %
rivets 42.8 %

Percentage of strength of circ. intermediate seam

plate 84.3 %
rivets 100.5 %

Percentage of strength of longitudinal joint

plate 88.75 %
rivets 100.5 %

Working pressure of shell by Rules

12.03 kg/cm²

Thickness of butt straps

outer 25.5 mm
inner 25.5 mm

No. and Description of Furnaces in each Boiler

Three corrugated furnaces (Manson type)

Material

S-M-Steel

Tensile strength

41-47 kg/mm²

Smallest outside diameter

930 mm

Length of plain part

top 297 mm
bottom 297 mm

Thickness of plates

crown 12 mm
bottom 12 mm

Description of longitudinal joint

watgas lapwelded

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

Working pressure of furnace by Rules

12.4 kg/cm²

End plates in steam space: Material

S-M-Steel

Tensile strength

41-47 kg/mm²

Thickness

24 mm

Pitch of stays

460 x 400 mm

How are stays secured

upper row: washers inside riveted to the endplate
lower row: strips inside riveted to the endplate

Working pressure by Rules

12.3 kg/cm²

Tube plates: Material

front S-M-Steel
back S-M-Steel

Tensile strength

41-47 kg/mm²

Thickness

22 mm

Mean pitch of stay tubes in nests

208 x 208 mm

Pitch across wide water spaces

360 mm

Working pressure

front 13.5 kg/cm²
back 14.16 kg/cm²

Girders to combustion chamber tops: Material

S-M-Steel

Tensile strength

47-53 kg/mm²

Depth and thickness of girder

at centre

200 - 4 x 1/2 mm

Length as per Rule

309 mm

Distance apart

200 mm

No. and pitch of stays

in each

two - 212 mm

Working pressure by Rules

12.0 kg/cm²

Combustion chamber plates: Material

S-M-Steel

Tensile strength

41-47 kg/mm²

Thickness: Sides

16 mm

Back

14 mm

Top

16 mm

Bottom

24 mm

Pitch of stays to ditto: Sides

200 x 210 mm

Back

208 x 200 mm

Top

210 x 200 mm

Are stays fitted with nuts or riveted over margin stays with nuts

in nests riveted over

Working pressure by Rules

back 14.3 kg/cm²
bottom 22.0 kg/cm²

Front plate at bottom: Material

S-M-Steel

Tensile strength

41-47 kg/mm²

Thickness

24 mm

Thickness

24 mm

Lower back plate: Material

S-M-Steel

Tensile strength

41-47 kg/mm²

Thickness

24 mm

Pitch of stays at wide water space

main stay 212 mm circle

Are stays fitted with nuts or riveted over

nuts inside and outside

Working Pressure

19.6 kg/cm²

Main stays: Material

S-M-Steel

Tensile strength

41-47 ordered

Diameter

At body of stay, 66.58 mm
Over threads 52.0 mm

No. of threads per inch

6

Area supported by each stay

60 x 40 = 18400 mm²

Working pressure by Rules

13.6 kg/cm²

Screw stays: Material

S-M-Steel

Tensile strength

41-47 kg/cm²

Diameter

At turned off part, 55.38 mm
Over threads 59.0 mm

No. of threads per inch

9

Area supported by each stay

200 x 208 = 41600 mm²

Working Pressure

19.6 kg/cm²

Main stays: Material

S-M-Steel

Working pressure by Rules $14 \frac{1}{2} \text{ kg/cm}^2$ Are the stays drilled at the outer ends ☒ no Margin stays: Diameter { At turned off part, $38.38 - 47.38$ pt. 5
or Over threads $42.00 - 51.00$
No. of threads per inch 9 Area supported by each stay $284 \times 200 = 56800 \text{ mm}^2$ Working pressure by Rules 12.65 kg/cm^2
Tubes: Material **S-7C-Steel** External diameter { Plain 76 mm Thickness 3.75 mm No. of threads per inch 9
Stay 76 mm Pitch of tubes $104 \times 104 \text{ mm}$ Working pressure by Rules 14.5 kg/cm^2 / Working stress of stay tubes 4.17 kg/cm^2 Manhole compensation: Size of opening in shell plate $320 \times 425 \text{ mm}$ Section of compensating ring 850ϕ $3 \times 212.5 \times 35.8 \text{ mm}$ No. of rivets and diameter of rivet holes $28 - 29 \text{ mm } \phi$
Outer row rivet pitch at ends 175 mm Depth of flange if manhole flanged ☒ no Steam Dome: Material **S-7C-Steel**
Tensile strength $41 - 47 \text{ kg/mm}$ Thickness of shell 14 mm Description of longitudinal joint **oxy-acetylene welded and secured by straps.**
Diameter of rivet holes 26 mm Pitch of rivets 84 mm Percentage of strength of joint { Plate riveted plate 69%
Rivets
Internal diameter 900 mm Working pressure by Rules 16.9 kg/cm^2 Thickness of crown 16 mm No. and diameter of stays ☒ no
Inner radius of crown 720 mm Working pressure by Rules 14.86 kg/cm^2
How connected to shell **pressed flange and initial size of doubling plate under dome** See Manhole Comps. Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell $29 \text{ mm } \phi - 200 \text{ mm}$

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 ☒ yes

The foregoing is a correct description,

DEUTSCHE WERFT

AKTIEGESELLSCHAFT

Manufacturer.

Dates of Survey { During progress of work in shops - - $5^{th} + 10^{th} \text{ Octob. } 21^{st} \text{ Nov. } 3^{rd} + 9^{th} \text{ Dec.}$
while building { During erection on board vessel - - $10^{th} \text{ Dec. } 8^{th} + 12^{th} + 31^{st} \text{ March } 8^{th} + 15^{th} \text{ Apr.}$
Are the approved plans of boiler and superheater forwarded herewith $14^{th} \text{ May } 1937$
(If not state date of approval.)
Total No. of visits 11

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.) Material and workmanship of these donkey boilers are of good quality. The materials used in their construction are made at Works recognised by the Committee and tested by the Society's Surveyors in accordance with the requirements of the Rules.

The donkey boilers having been made under Special Survey in conformity with the approved plan, the Secretary's Letter and otherwise in compliance with the requirements of the Rules are eligible in my opinion to be classed in the Society's Register Book: Donkey boiler pressure $17.1 \text{ lbs/sq. inch}$.

Thickness of adjusting washers:

Port donkey boiler: — Port 25 mm , Stb. 22.5 mm
Stb. donkey boiler: — Port 27 mm , Stb. 25 mm

Survey Fee ... RM: 537: —

Travelling Expenses (if any) £ —

When applied for, 26.4.1937

When received, 27.5.1937

Friedrich H. Röhrs
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 7 MAY 1937

Assigned

See Hans J.E. 22304