

## REPORT ON BOILERS.

No. 22126

Received at London Office 21 DEC 1936

Date of writing Report 8<sup>th</sup> DEC. 1936 When handed in at Local Office

Port of HAMBURG

No. in Reg. Book.

Survey held at HAMBURG.

Date, First Survey 4<sup>th</sup> MayLast Survey 25<sup>th</sup> Nov. 1936

on the

STEEL S.S. "RIGEL"

(Number of Visits 9)

Gross 1016

Net 611.

Master Built at HAMBURG By whom built DEUTSCHE WERFT. A.G. Yard No. 176 When built 1936

Engines made at AUGSBURG By whom made M.SCHFF. AUGSBURG-NÜRNBERG Engine No. 580140 When made 1936

Boilers made at HAMBURG By whom made DEUTSCHE WERFT. A.G. Boiler No. 573 When made 1936

Nominal Horse Power 161. Owners TRELLEBORG'S ANQFARTYGS NYA. Port belonging to TRELLEBORG AKTIEBOLAG.

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Klöckner Werke A.G. Hagen.  
Deutsche Rohren Werke A.G. Hagen - Mühlheim  
Futtschaffnungsbüro A.G. Oberhausen.

(Letter for Record S.)

Total Heating Surface of Boilers

50 sq. m.

Is forced draught fitted

yes

Coal or Oil fired Oil fired

No. and Description of Boilers

A single ended multitubular

Working Pressure

7 kg/cm<sup>2</sup> 100/16

Tested by hydraulic pressure to

14 kg/cm<sup>2</sup>

Date of test 25/5/36

No. of Certificate 621

Can each boiler be worked separately

Area of Firegrate in each Boiler

No. and Description of safety valves to each boiler

2 spring loaded

Area of each set of valves per boiler

per Rule 3720 sq. cm.

as fitted 3927 sq. cm.

Pressure to which they are adjusted

7 kg/cm<sup>2</sup>

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

400 mm

Is oil fuel carried in the double bottom under boilers

Smallest distance between shell of boiler and tank top plating

400 mm

Is the bottom of the boiler insulated

yes

Largest internal dia. of boilers

2150 mm

Length

2106 mm

Shell plates: Material

S.M. Steel

Tensile strength

44-50 kg/cm<sup>2</sup>

Thickness

12.5 mm

Are the shell plates welded or flanged

flanged

Description of riveting: circ. seams

end double lap.

long. seams

treble lap

Diameter of rivet holes in

circ. seams 23 mm  
long. seams 23 mm

Pitch of rivets

81 mm  
83 mm

Percentage of strength of circ. end seams

plate 71.6 %  
rivets 67.2 %

Percentage of strength of circ. intermediate seam

plate 72.1 %  
rivets 98.4 %

Percentage of strength of longitudinal joint

plate 72.1 %  
rivets 98.4 %  
combined 77.3 %

Working pressure of shell by Rules

8.12 kg/cm<sup>2</sup>

Thickness of butt straps

outer  
inner

No. and Description of Furnaces in each Boiler

1 - main.

Material

S.M. Steel

Tensile strength

41-47 kg/cm<sup>2</sup>

Smallest outside diameter

870 mm

Length of plain part

top 115 mm  
bottom

Thickness of plates

crown 10 mm  
bottom

Description of longitudinal joint

welded

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

Working pressure of furnace by Rules

10.45 kg/cm<sup>2</sup>

End plates in steam space: Material

S.M. Steel

Tensile strength

41-47 kg/cm<sup>2</sup>

Thickness

18 mm

Pitch of stays 250x400x350 mm

How are stays secured

double nut and washers

Working pressure by Rules

10.45 kg/cm<sup>2</sup>

Tube plates: Material

front S.M. Steel  
back

Tensile strength

41-47 kg/cm<sup>2</sup>

Thickness

18 mm

Mean pitch of stay tubes in nests

194 mm

Pitch across wide water spaces

264 mm

Working pressure

front 14 kg/cm<sup>2</sup>  
back

Girders to combustion chamber tops: Material

Tensile strength

Depth and thickness of girder

at centre

Length as per Rule

Distance apart

No. and pitch of stays

in 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

S.M. Steel

Tensile strength

41-47 kg/cm<sup>2</sup>

Thickness

18 mm

Lower back plate: Material

S.M. Steel

Tensile strength

41-47 kg/cm<sup>2</sup>

Thickness

18 mm

Pitch of stays at wide water space

Are stays fitted with nuts or riveted over

Working Pressure

8.7 kg/cm<sup>2</sup>

Main stays: Material

S.M. Steel

Tensile strength

41-47 kg/cm<sup>2</sup>

Diameter

At body of stay, 60 mm  
or  
Over threads, 60 mm

No. of threads per inch

6

Area supported by each stay  $d^2 = 500^2$  mm<sup>2</sup>

Working pressure by Rules

8.6 kg/cm<sup>2</sup>

Screw stays: Material

S.M. Steel

Tensile strength

41-47 kg/cm<sup>2</sup>

Diameter

At turned off part, or  
Over threads

No. of threads per inch

6

Area supported by each stay

2021



Working pressure by Rules Are the stays drilled at the outer ends. Margin stays: Diameter { At turned off part, or Over threads. 3.25 in.  
No. of threads per inch 2 Area supported by each stay 70 in. Working pressure by Rules 10 kg./cm<sup>2</sup>  
Tubes: Material EN. Steel External diameter { Plain 70 in. Thickness { 3.25 in. No. of threads per inch 2  
Pitch of tubes 27 in. Working pressure by Rules 10 kg./cm<sup>2</sup> Manhole compensation: Size of opening 28 - 23 in.  
shell plate 300 x 400 in. Section of compensating ring 600 x 700 x 12.5 in. No. of rivets and diameter of rivet holes 28 - 23 in.  
Outer row rivet pitch at ends 125 in. Depth of flange if manhole flanged 18 in. Steam Dome: Material Steel Casting  
Tensile strength 43.7 kg./in.<sup>2</sup> Thickness of shell 18 in. Description of longitudinal joint Plate  
Diameter of rivet holes 250 in. Pitch of rivets approved Percentage of strength of joint { Rivets approved  
Internal diameter 250 in. Working pressure by Rules approved Thickness of crown 25 in. No. and diameter of rivets approved  
stays approved Inner radius of crown approved Working pressure by Rules approved  
How connected to shell riveted Size of doubling plate under dome 880 in. diam x 12.5 in. Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell 23 in. - 90 in.

Type of Superheater Manufacturers of Tubes { Steel forgings Steel castings  
Number of elements Material of tubes Internal diameter and thickness of tubes Can the superheater be shut off and the boiler be worked separately  
Material of headers Tensile strength Thickness Working pressure as per Rules  
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 Hydraulic test pressure Pressure to which the safety valves are adjusted  
Rules and after assembly in place Are drain cocks fitted to free the superheater from water where necessary yes  
tubes jorgings and castings  
Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with yes

The foregoing is a correct description, AKTIENGESellschaft Manufacture yes  
Dates of Survey { During progress of work in shops - - 1936 - May 4, 8, 11, 22, 25 Are the approved plans of boiler and superheater forwarded herewith yes  
while building { During erection on board vessel - - - Oct. 1, 5, 20, 25 Total No. of visits 9

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 this Donkey Boiler are of good quality. The materials used in the construction are made at works recognized by the Committee and tested by the Society's Surveyors in accordance with the requirements of the Rules. This Donkey Boiler having been made under Special Survey in conformity with the approved plan, the Society's Letter and otherwise in compliance with the requirements of the Rules is eligible in my opinion to be classed in the Society's Reg. No. Donkey Boiler pressure 100 lb per sq. inch.

THICKNESS OF ADJ. WASHERS:

PORT: 8.7 in. STB: 10 in.

Survey Fee £ 84.- When applied for, 15/XII/1936  
Travelling Expenses (if any) £ - When received, 22.1 1937

Friedrich Hill  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute THE 29 DEC 1936  
Assigned See Ham. 7E 22126