

## REPORT ON BOILERS.

No. 19477

Received at London Office 18 AUG 1930

Date of writing Report 8/8/30

192

When handed in at Local Office

192

Port of Hamburg

No. in  
Reg. Book

Survey held at

Hamburg

Date, First Survey

7<sup>th</sup> Febr, 1930

Last Survey

31<sup>st</sup> July

1930

(Number of Visits #13)

Gross 7336.19

Tons

Net 4366.86

on the steel S. VIGRID

(oil Eng)

Master Einar Höiföad.

Built at Hamburg

By whom built Deutsche Werft A.G.

Yard No. 141

When built 1930

Engines made at Augsburg

By whom made Maschf. Augsburg-Nürnberg A.G.

Engine No. 330410

When made 1930

Boilers made at Hamburg

By whom made Deutsche Werft A.G.

Boiler No. 389/40

When made 1930

Nominal Horse Power 980

Owner's Skibsaktieselskabet "Vigrid"

Bruun &amp; von der Lippe.

Port belonging to Tønsberg

MULTITUBULAR BOILERS ~~STEAM, AUXILIARY, OR~~ DONKEY.

Steel: Klocknerwerke, Georgsmarienhütte, Rivets: LMöhlring, Schwanau.

Manufacturers of Steel Plates: Gutehoffnungshütte, Bielefeld. Furnaces: Berzigwerk at Berzigwerk.

(Letter for Record 18/11/29)

Total Heating Surface of Boilers  $2 \times 110 = 220 \text{ m}^2$ 

Is forced draught fitted yes

Coal or Oil fired oil fired

No. and Description of Boilers 2 multitubular cyl. Donkey Boilers

Working Pressure 120 lbs

Tested by hydraulic pressure to 305 lbs

Date of test 16/8/30

No. of Certificate 512/13

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 - 2 springs loaded

Area of each set of valves per boiler

per Rule  $6400 \text{ mm}^2$   
as fitted  $7677 \text{ mm}^2$ 

Pressure to which they are adjusted 120 lbs

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 between deck = 500 mm

Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 3200 mm

Length 3124 mm

Shell plates: Material S.M. Steel

Tensile strength  $47 + 53 \text{ kg/mm}^2$ 

Thickness 21 mm

Are the shell plates welded or flanged flanged

Description of riveting: circ. seams end double

Long. seams double butt strap, double riv. Diameter of rivet holes in

circ. seams 30 mm

Pitch of rivets 102 mm

Percentage of strength of circ. end seams

plate 20.5

rivets 42.3

Percentage of strength of circ. intermediate seam

plate

rivets

Percentage of strength of longitudinal joint

plate 82

rivets 135

combined 157

Working pressure of shell by Rules 12.3 kg/cm<sup>2</sup>

Thickness of butt straps

outer 21 mm

inner 21 mm

No. and Description of Furnaces in each Boiler 2 Morrison

Material Siemens Martin Steel

Tensile strength  $41 + 47 \text{ kg/mm}^2$ 

Smallest outside diameter 923 mm

Length of plain part

top 120 mm

bottom 220 mm

Thickness of plates

crown 11.5 mm

bottom 11.5 mm

Description of longitudinal joint welded

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

Working pressure of furnace by Rules 12.5 kg/cm<sup>2</sup>

End plates in steam space: Material S.M. Steel

Tensile strength  $41 + 47 \text{ kg/mm}^2$ 

Thickness 22 mm

Pitch of stays 4500 mm

How are stays secured double nuts &amp; washers

Working pressure by Rules 15 kg/cm<sup>2</sup>

End plates: Material

front Siemens Martin

back steel

Tensile strength

 $41 + 47 \text{ kg/mm}^2$ 

Thickness

22 mm

Pitch of stay tubes in nests 208 mm

Pitch across wide water spaces 380 mm

Working pressure

front 12.5 kg/cm<sup>2</sup>back 24.2 kg/cm<sup>2</sup>

Orders to combustion chamber tops: Material Siem. Martin Steel

Tensile strength  $47 + 53 \text{ kg/mm}^2$ 

Depth and thickness of girder

centre 180 x (2 x 13) mm

Length as per Rule 610 mm

Distance apart 180 mm

No. and pitch of stays

each 2 x 180

Working pressure by Rules 19.5 kg/cm<sup>2</sup>

Combustion chamber plates: Material Siem. Mart. Steel

Tensile strength  $41 + 47 \text{ kg/mm}^2$ 

Thickness: Sides 16 mm

Back 18.5 mm

Top 16 mm

Bottom 22 mm

Pitch of stays to ditto: Sides 180 mm

Back 200 mm

Top 180 mm

Are stays fitted with nuts or riveted over otherwise fitted w. nuts.

Working pressure by Rules 12.5 kg/cm<sup>2</sup>Front plate at bottom: Material Siem. Mart. Steel Tensile strength  $41 + 47 \text{ kg/mm}^2$ 

Thickness 22 mm

Lower back plate: Material S.M. Steel

Tensile strength  $41 + 47 \text{ kg/mm}^2$ 

Thickness 22 mm

Pitch of stays at wide water space 4500 mm

Are stays fitted with nuts or riveted over fitted with nuts

Working Pressure 13.7 kg/cm<sup>2</sup>Main stays: Material Siemens Martin Steel Tensile strength  $41 + 47 \text{ kg/mm}^2$ Working pressure by Rules 15.7 kg/cm<sup>2</sup>

No. of threads per inch 6

Area supported by each stay max. 180.000 mm<sup>2</sup>Working pressure by Rules 15.7 kg/cm<sup>2</sup>

Screw stays: Material Siem. Mart. Steel

Tensile strength  $41 + 47 \text{ kg/mm}^2$ 

At turned off part, 35.38 mm

No. of threads per inch 9

Area supported by each stay 40.000 mm<sup>2</sup>

Over threads 39 mm



Working pressure by Rules  $15 \text{ kg/cm}^2$ . Are the stays drilled at the outer ends *no* Margin stays: Diameter { At turned off part,  $44.88 \text{ mm}$  or Over threads  $48 \text{ mm}$

No. of threads per inch *9* Area supported by each stay  $65.000 \text{ mm}^2$  Working pressure by Rules  $15.2 \text{ kg/cm}^2$

Tubes: Material *Siem. Mark. Steel* External diameter { Plain  $76 \text{ mm}$  Stay  $76 \text{ mm}$  Thickness {  $3.48 \text{ mm}$   $8 \text{ mm}$  No. of threads per inch *9*

Pitch of tubes  $104 \text{ mm}$  Working pressure by Rules  $13.5 \text{ kg/cm}^2$  Manhole compensation: Size of opening in shell plate  $300 \times 400 \text{ mm}$  Section of compensating ring  $225 \times 21 \text{ mm}$  No. of rivets and diameter of rivet holes  $32 \times 30 \text{ mm}$

Outer row rivet pitch at ends  $200$  Depth of flange if manhole flanged *not flanged* Steam Dome: Material *Siem. Mark. Steel*

Tensile strength  $41-47 \text{ kg/mm}^2$  Thickness of shell  $14 \text{ mm}$  Description of longitudinal joint *welded, fitted with butt strap*

Diameter of rivet holes  $23 \text{ mm}$  Pitch of rivets  $74 \text{ mm}$  Percentage of strength of joint { Plate *not applicable* Rivets *-*

Internal diameter  $800 \text{ mm}$  Working pressure by Rules Thickness of crown  $17 \text{ mm}$  No. and diameter of stays *-* Inner radius of crown  $800 \times 110 \text{ mm}$  Working pressure by Rules  $12.9 \text{ kg/cm}^2$

How connected to shell *pitched, single row* Size of doubling plate under dome *none* Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell  $\phi 30 \text{ mm}, 200 \text{ mm}$

#### 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 - - }  $22, 13/3, 10/4, 24/4, 2/5, 10/5, 15/5/30$  Are the approved plans of boiler and superheater forwarded herewith *yes, 18/11/29.*  
(If not state date of approval.)

while building { During erection on board vessel - - }  $24/6, 10/7, 16/7, 30/7, 31/7, 1930$  Total No. of visits  $13$

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

Material and workmanship of these boilers are of good quality. The material used in the construction is made at works recognised by the Committee and tested by the Society's Surveyors in conformity with the requirements of the Rules and the Boilers are constructed in compliance with the requirements of the Rules and the approved plans. They have been submitted to hydraulic pressure of 300 lbs with satisfactory result. Under steam they were found tight and adjusted their safety valves to 170 lb pressure. Distance of washers of safety valves:

	port	star.	
Port Boiler:	33.5	34.-	$\text{mm}$
Star Boiler:	24.-	28.5	$\text{mm}$

The Boilers have been stamped for identification  
No.  $512/513$  LORDS TEST 300 LBS K.P. 170 LBS  
P.K. 15.5.30.

These Donkey Boilers are eligible in my opinion to be classed in the Society's Rg. Book with notation of 170 lb.

Survey Fee ... £ See: *machy* When applied for, 192

Travelling Expenses (if any) £ : *Rpt.* When received, 192

Committee's Minute

TUE, 20 AUG 1930

Assigned

See *F.E. Rpt.*

*P.A. Knight*  
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation