

REPORT ON BOILERS.

No. 9708

Received at London Office

-3 APR 1934

Date of writing Report 28th March 1934 When handed in at Local Office 21st March 1934 Port of Gothenburg

No. in Survey held at
Reg. Book

Gothenburg

Date, First Survey 15th November 1932 Last Survey 21st March 1934

34786 on the M/S "SENATOR"

(Number of Visits 14) Gross 6588.55
Tons Net 4001.25

Master Built at Gothenburg By whom built Mr. Götarsken Yard No. 461 When built 1934

Engines made at Gothenburg By whom made Mr. Götarsken Engine No. 1003/1004 When made 1934

Boilers made at Gothenburg By whom made Mr. Götarsken Boiler No. 184/1842 When made 1934

Nominal Horse Power 543 Owners Stavanger Tankrederi A/S Port belonging to Stavanger.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Withowitzer Bergbau & Eisenhütten Gew. Witkowitz. (Letter for Record S. ✓)

Total Heating Surface of Boilers $2 \times 120 \text{ m}^2 = 240 \text{ m}^2$ Is forced draught fitted Yes Coal or Oil fired Oil or
exhaust gases p.m. eng.
No. and Description of Boilers 2 S.B. ✓ 2582 ϕ Working Pressure 150 lbs 10.5 kg/cm² ✓

Tested by hydraulic pressure to 275 lbs. Date of test 24.3.33 No. of Certificate 2552256 Can each boiler be worked separately Yes.

Area of Firegrate in each Boiler ✓ No. and Description of safety valves to each boiler Doubly spring loaded. ✓

Area of each set of valves per boiler { per Rule 7610 mm² Pressure to which they are adjusted 150 lbs. Are they fitted with easing gear Yes. ✓
as fitted 8440 mm²

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No main boilers. ✓

Smallest distance between boilers or uptakes and bunkers or woodwork ✓ Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating Boilers fitted on a platform Is the bottom of the boiler insulated Yes. ✓

Largest internal dia. of boilers 3420 mm Length 3370 mm. Shell plates: Material S.H. Steel Tensile strength 44-50 kg/mm² ✓
Thickness 20 mm ✓ Are the shell plates welded or flanged No. Description of riveting: circ. seams end O.R. overlap
long. seams T.R.O.B.S. ✓ Diameter of rivet holes in { circ. seams 26 mm Pitch of rivets { 160 mm
long. seams 25 & 26 mm ✓ 225 mm. ✓

Percentage of strength of circ. end seams { plate 67.5% Percentage of strength of circ. intermediate seam { plate -
rivets 43% rivets -

Percentage of strength of longitudinal joint { plate 90.5% Working pressure of shell by Rules 11 kg/cm² ✓
rivets 101%
combined 91%

Thickness of butt straps { outer 20 mm No. and Description of Furnaces in each Boiler 2 monism corrugated furnaces. ✓
inner 20 mm

Material S.H. Steel. Tensile strength 41.5-41.7 kg/mm² Smallest outside diameter 1074 mm. ✓

Length of plain part { top Thickness of plates { crown 18 mm Description of longitudinal joint Welded. ✓
bottom

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 11.25 kg/cm² ✓

End plates in steam space: Material S.H. Steel Tensile strength 42.5-46 kg/mm² Thickness 20 mm. Pitch of stays 405 x 330 mm. ✓

How are stays secured Double nuts & outside washers. Working pressure by Rules 11.2 kg/cm² ✓

Tube plates: Material { front S.H. Steel Tensile strength 42.5-46 kg/mm² Thickness 20 mm ✓
back S.H. Steel Tensile strength 42-44.8 kg/mm² Thickness 19 mm ✓

Mean pitch of stay tubes in nests 275 mm. Pitch across wide water spaces 330 x 120 mm. Working pressure { front 12.6 kg/cm² ✓
back 14.65 kg/cm² ✓

Girders to combustion chamber tops: Material S.H. Steel. Tensile strength 44-50 kg/mm² Depth and thickness of girder

at centre 185 mm. Length as per Rule 707 mm Distance apart 210 mm. No. and pitch of stays

in each 2. Working pressure by Rules 12.1 kg/cm² Combustion chamber plates: Material S.H. Steel. ✓

Tensile strength 42.5-44.8 kg/mm² Thickness: Sides 19 mm Back 19 mm Top 19 mm Bottom 19 mm. ✓

Pitch of stays to ditto: Sides 210 x 217 mm Back 218 x 252 mm Top 210 x 207 mm Are stays fitted with nuts or riveted over Riveted over. ✓

Working pressure by Rules 10.75 kg/cm² Front plate at bottom: Material S.H. Steel. Tensile strength 43.2-45.9 kg/mm² ✓

Thickness 20 mm. Lower back plate: Material S.H. Steel Tensile strength 42.5-46.0 kg/mm² Thickness 20 mm. ✓

Pitch of stays at wide water space 330 x 218 mm. Are stays fitted with nuts or riveted over Riveted with nuts. ✓

Working Pressure 14.65 kg/cm² Main stays: Material S.H. Steel. Tensile strength as per Rule... ✓

Diameter { At body of stay, No. of threads per inch 6 Area supported by each stay 154000 mm² ✓
or Over threads 6.35 mm

Working pressure by Rules 13 kg/cm² Screw stays: Material S.H. Steel Tensile strength as per Rule... ✓

Diameter { At turned off part, No. of threads per inch 9 Area supported by each stay 65500/55000 ✓
or Over threads 41.3 & 38.1 mm

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Working pressure by Rules 10.34 kg/cm^2 Are the stays drilled at the outer ends *No.* Margin stays: Diameter $\begin{cases} \text{At turned off part.} \\ \text{or} \\ \text{Over threads} \end{cases} 41.3 \text{ mm.}$
 No. of threads per inch *9.* Area supported by each stay 6.25 cm^2 Working pressure by Rules 10.25 kg/cm^2
 Tubes: Material *S. 4. Steel* External diameter $\begin{cases} \text{Plain} \\ \text{Stay} \end{cases} 2\frac{1}{2}''$ Thickness $\begin{cases} 2.25 \text{ mm} \\ 7.94 \text{ mm} \end{cases}$ No. of threads per inch *9.*
 Pitch of tubes $89 \times 95 \text{ mm.}$ Working pressure by Rules 12.5 kg/cm^2 Manhole compensation: Size of opening in
 shell plate 202×400 Section of compensating ring *Flanged.* No. of rivets and diameter of rivet holes $36 \text{ à } 26 \text{ mm.}$
 Outer row rivet pitch at ends 115 mm. Depth of flange if manhole flanged 80 mm. Steam Dome: Material *✓*
 Tensile strength *✓* Thickness of shell *✓* Description of longitudinal joint *✓*
 Diameter of rivet holes *✓* Pitch of rivets *✓* Percentage of strength of joint $\begin{cases} \text{Plate} \\ \text{Rivets} \end{cases}$
 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 *None* Manufacturers of $\begin{cases} \text{Tubes} \\ \text{Steel castings} \end{cases}$
 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,
ARTIFABOLAGET GOTABERKEN
H. G. H. Allmar Manufacturer.

Dates of Survey $\begin{cases} \text{During progress of} \\ \text{work in shops} \end{cases} 1932 \text{ } 15.12.28/11 \text{ } 3/12 \text{ } 1933 \text{ } 13.24/11 \text{ } 3.9.16.24/3$ Are the approved plans of boiler and superheater forwarded herewith $27.8.31$
 while building $\begin{cases} \text{During erection on} \\ \text{board vessel} \end{cases} 1932 \text{ } 4/3 \text{ } 1934 \text{ } 3/2 \text{ } 14.2/3$ (If not state date of approval.)
 Total No. of visits *14.*

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

*These boilers have been built under special survey
 in accordance with Rules & approved plans.
 The material as per test sheets attached.
 The workmanship is good.
 The boilers have been fitted as donkey boilers
 on board this vessel under my inspection and to my
 satisfaction.*

Survey Fee ... *26.* : $313 : 46$ When applied for, $31/3$ 1934.
 Travelling Expenses (if any) £ : : When received, $9-4$ 192 *34*

E. Bernclius
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE 10 APR 1934*

Assigned

*See other J.E. Rpt
 Set. 9708*



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