

# REPORT ON BOILERS.

Received at London Office 12 AUG 1935

Date of writing Report 7th August 1935 When handed in at Local Office 8th Aug. 1935 Port of Gothenburg

No. in Reg. Book. 35025 Survey held at Gothenburg Date, First Survey 7th November 1934 Last Survey 29th July 1935

35025 on the Twin 4/5 "THORILD" (Number of Visits 16) Gross 10,316.28 Tons Net 6,242.76

Master [Signature] Built at Gothenburg By whom built MS. Götaverken Yard No. 490 When built 1935

Engines made at Gothenburg By whom made MS. Götaverken Engine No. 1111 When made 1935

Boilers made at Gothenburg By whom made MS. Götaverken Boiler No. 1912/1913 When made 1935

Nominal Horse Power \_\_\_\_\_ Owners Timmerhølds Tankrederi 4/5 Port belonging to Grimstad

## MULTITUBULAR BOILERS ~~MAIN, AUXILIARY, OR~~ DONKEY.

Manufacturers of Steel Batzell Steel Works, Motherwell, Glasgow; Skövde Jernverk, MS. Segerfors (Letter for Record S ✓)

Total Heating Surface of Boilers 2 x 142 = 284 sq. m. [3057 sq. ft.] Is forced draught fitted Yes Coal or Oil fired Oil fired

No. and Description of Boilers Two cylindrical multitubular Working Pressure 150 lbs/sq. in. (10.55 kgs/cm<sup>2</sup>) ✓

Tested by hydraulic pressure to 275 lbs. Date of test 22.3.35 No. of Certificate 2692270 Can each boiler be worked separately Yes

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

Area of each set of valves per boiler {per Rule 9060 mm<sup>2</sup> as fitted 10300 mm<sup>2</sup> Pressure to which they are adjusted 150 lbs Are they fitted with easing gear Yes ✓

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

Smallest distance between boilers back end plate 2 ft. 0 in. bulkhead (oil) or plates and bunkers or woodwork 600 mm Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating \_\_\_\_\_ Is the bottom of the boiler insulated Yes ✓

Largest internal dia. of boilers 3658 mm Length 3450 mm Shell plates: Material S. H. Steel Tensile strength 44.2-48.5 kgs/mm<sup>2</sup>

Thickness 21 mm Are the shell plates welded or flanged No Description of riveting: circ. seams {end Double riveted long. seams Double butt straps Diameter of rivet holes in {circ. seams 27 mm long. seams 23 & 27 mm Pitch of rivets { 95 mm 93 & 139.5 mm, 279 mm ✓

Percentage of strength of circ. end seams {plate 71.5 rivets 46.8 Percentage of strength of circ. intermediate seam {plate ✓ rivets ✓

Percentage of strength of longitudinal joint {plate 90.4 rivets 101.5 combined 91.9 Working pressure of shell by Rules 11.03 kgs/cm<sup>2</sup>

Thickness of butt straps {outer 21 mm inner 21 mm No. and Description of Furnaces in each Boiler Two Harrison ✓

Material S. H. Steel Tensile strength As per Rule Smallest outside diameter 1124 mm ✓

Length of plain part {top \_\_\_\_\_ bottom \_\_\_\_\_ Thickness of plates {crown 12 mm bottom 12 mm Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom \_\_\_\_\_ Working pressure of furnace by Rules 10.96 kgs/cm<sup>2</sup>

End plates in steam space: Material S. H. Steel Tensile strength 41.0-45.7 kgs/mm<sup>2</sup> Thickness 22 mm Pitch of stays 405 x 330 mm

How are stays secured Double nuts & outside washers Working pressure by Rules 13.6 kgs/cm<sup>2</sup>

Tube plates: Material {front S. H. Steel back S. H. Steel Tensile strength { 41.0-45.7 kgs/mm<sup>2</sup> 41.0 46.8 - - Thickness { 22 mm 19 mm ✓

Mean pitch of stay tubes in nests 257 mm Pitch across wide water spaces 330 mm Working pressure {front 11.95 kgs/cm<sup>2</sup> back 10.55 kgs/cm<sup>2</sup>

Girders to combustion chamber tops: Material S. H. Steel Tensile strength 47.0-47.5 kgs/mm<sup>2</sup> Depth and thickness of girder at centre 185 x 42 mm Length as per Rule 759 mm Distance apart 207 mm No. and pitch of stays in each 2 - 210 mm Working pressure by Rules 14.8 kgs/cm<sup>2</sup> Combustion chamber plates: Material S. H. Steel

Tensile strength 41.0-45.7 kgs/cm<sup>2</sup> Thickness: Sides 18 mm Back 19 mm Top 18 mm Bottom 18 mm

Pitch of stays to ditto: Sides 210 x 195 mm Back 215 x 215 mm Top 210 x 207 mm Are stays fitted with nuts or riveted over Riveted over ✓

Working pressure by Rules 12.2 kgs/cm<sup>2</sup> Front plate at bottom: Material S. H. Steel Tensile strength 41.0-45.7 kgs/cm<sup>2</sup>

Thickness 22 mm Lower back plate: Material S. H. Steel Tensile strength 41.0-45.7 kgs/cm<sup>2</sup> Thickness 22 mm ✓

Pitch of stays at wide water space 340 x 215 mm Are stays fitted with nuts or riveted over Riveted over

Working Pressure 11.4 kgs/cm<sup>2</sup> Main stays: Material S. H. Steel Tensile strength 44.0-51.0 kgs/mm<sup>2</sup>

Diameter {At body of stay, \_\_\_\_\_ or \_\_\_\_\_ Over threads 62.5 mm No. of threads per inch 6 Area supported by each stay 405 x 330 mm

Working pressure by Rules 14.95 kgs/cm<sup>2</sup> Screw stays: Material S. H. Steel Tensile strength 44.0-51.0 kgs/mm<sup>2</sup>

Diameter {At turned off part, \_\_\_\_\_ or \_\_\_\_\_ Over threads 35 mm 38 mm No. of threads per inch 9 Area supported by each stay 215 x 215 mm



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Working pressure by Rules  $12.1 \frac{kg}{cm^2}$  Are the stays drilled at the outer ends *No* Margin stays: Diameter  $\left\{ \begin{array}{l} \text{At turned off part, } 41 \text{ mm} \\ \text{or} \\ \text{Over threads } 44.5 \text{ mm} \end{array} \right. \checkmark$

No. of threads per inch *9* Area supported by each stay  $277.5 \times 2.15 \text{ mm}$  Working pressure by Rules  $13.7 \frac{kg}{cm^2}$

Tubes: Material *2.4. Steel* External diameter  $\left\{ \begin{array}{l} \text{Plain } 2\frac{1}{2}'' \\ \text{Stay } 2\frac{1}{2}'' \end{array} \right. \checkmark$  Thickness  $\left\{ \begin{array}{l} 5.25 \text{ mm} \\ 5\frac{1}{16}'' \end{array} \right. \checkmark$  No. of threads per inch *9*  $\checkmark$

Pitch of tubes  $96 \times 89 \text{ mm}$  Working pressure by Rules  $12.5 \frac{kg}{cm^2}$  Manhole compensation: Size of opening in shell plate  $400 \times 500 \text{ mm}$  Section of compensating ring  $21 \text{ mm}$  flanged No. of rivets and diameter of rivet holes  $38; 27 \text{ mm}$   $\checkmark$

Outer row rivet pitch at ends  $200 \text{ mm}$  Depth of flange if manhole flanged  $85 \text{ mm}$  Steam Dome: Material  $\checkmark$

Tensile strength  $\checkmark$  Thickness of shell  $\checkmark$  Description of longitudinal joint  $\checkmark$

Diameter of rivet holes  $\checkmark$  Pitch of rivets  $\checkmark$  Percentage of strength of joint  $\left\{ \begin{array}{l} \text{Plate } \checkmark \\ \text{Rivets } \checkmark \end{array} \right.$

Internal diameter  $\checkmark$  Working pressure by Rules  $\checkmark$  Thickness of crown  $\checkmark$  No. and diameter of stays  $\checkmark$

How connected to shell  $\checkmark$  Inner radius of crown  $\checkmark$  Working pressure by Rules  $\checkmark$

Size of doubling plate under dome  $\checkmark$  Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell  $\checkmark$

Type of Superheater  $\checkmark$  Manufacturers of  $\left\{ \begin{array}{l} \text{Tubes } \checkmark \\ \text{Steel castings } \checkmark \end{array} \right.$

Number of elements  $\checkmark$  Material of tubes  $\checkmark$  Internal diameter and thickness of tubes  $\checkmark$

Material of headers  $\checkmark$  Tensile strength  $\checkmark$  Thickness  $\checkmark$  Can the superheater be shut off and the boiler be worked separately  $\checkmark$

Is a safety valve fitted to every part of the superheater which can be shut off from the boiler  $\checkmark$

Area of each safety valve  $\checkmark$  Are the safety valves fitted with easing gear  $\checkmark$  Working pressure as per Rules  $\checkmark$

Pressure to which the safety valves are adjusted  $\checkmark$  Hydraulic test pressure: tubes  $\checkmark$ , castings  $\checkmark$  and after assembly in place  $\checkmark$  Are drain cocks or valves fitted to free the superheater from water where necessary  $\checkmark$

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with *Yes*.

The foregoing is a correct description,  
**AKTIEBOLAGET GOTÄVERKEN**  
*Knut S. Hedqvist* Manufacturer.

Dates of Survey  $\left\{ \begin{array}{l} \text{During progress of work in shops - - - } 1934 \text{ Nov. 7, 1935 Jan. 17, 21, 23, 26 Feb. 7, 19, 23, 25} \\ \text{while building } \left\{ \begin{array}{l} \text{During erection on board vessel - - - } 1935 \text{ June 25 July 10, 11, 25, 29} \end{array} \right. \end{array} \right.$  Are the approved plans of boiler and superheater forwarded herewith *6.7.34*  
 (If not state date of approval.)

Total No. of visits *16*

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

*These donkey boilers have been built under Special Survey in accordance with the Society's Rules and approved plans.*

*The material as per test sheets attached.*

*The workmanship is good*

*The boilers have been fitted on board under our inspection and to our satisfaction and the safety valves adjusted under steam as above.*

Survey Fee ... *Sh.* : *371:28* When applied for, *8th Aug. 1935*

Travelling Expenses (if any) £ : : When received, *15-8 1935*

*E. Bernelius T. O. Sjögren*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. 20 AUG 1935*

Assigned *See other rph*  
*Lot. 10365*