

## REPORT ON BOILERS.

No. 460 C.

Received at London Office

30 JAN 1931

Date of writing Report 27th Jan 1931 When handed in at Local Office 27th Jan 1931 Port of HELSINGBORG.

No. in Survey held at HELSINGBORG.

Date, First Survey 12th Feb, 1930 Last Survey 20th Jan. 1931.

91182 on the SINGLE SCREW STEEL STEAMER "KALMARSSUND IX" (Number of Visits 30) Gross 1154.16 Tons Net 761.50

Master G. Blom. Built at HELSINGBORG By whom built Hög V. &amp; S. AB Yard No. 53 When built 1931

Engines made at HELSINGBORG. By whom made Höggs Yars- &amp; Sveltnings AB Engine No. 27 When made 1931

Boilers made at HELSINGBORG. By whom made Höggs Yars- &amp; Sveltnings AB Boiler No. 130/131 When made 1931

Nominal Horse Power 117 Owners ÅRGBÄTS AB KALMARSSUND Port belonging to KALMAR.

## MULTITUBULAR BOILERS MAIN, AUXILIARY OR DONKEY.

Tubes: Messrs Stewart & Lloyd's Ltd, Tallcross & Co., Bridge, Hattingen.  
Rivets: " Tubfalter Nieten- & Schraubenwerke, G.m.b.H., Hattingen.  
Main & screw stays: " Vereinigte Stahlwerke AG, Hütte Teubport, Meiderich, Meiderich.  
Manufacturers of: Steel " Mannesmannröhrenwerke AG, Schütz-Knaucht, Hückingen.

(Letter for Record S.)

Total Heating Surface of Boilers  $176.46 \text{ m}^2 = 1899 \text{ sq. ft.}$  Is forced draught fitted No. Coal or Oil fired Coal.No. and Description of Boilers Two multitubular. 2 SB. Working Pressure  $13.5 \text{ kg/cm}^2$ Tested by hydraulic pressure to  $350 \text{ lbs/sq. in.}$  Date of test 19.9.1930 No. of Certificate 13 & 14 Can each boiler be worked separately yes.Area of Firegrate in each Boiler  $2.5 \text{ m}^2$  No. and Description of safety valves to each boiler 2. Direct spring loaded.Area of each set of valves per boiler (per Rule  $3706 \text{ mm}^2$  as fitted  $4926 \text{ mm}^2$ ) Pressure to which they are adjusted  $198 \text{ lbs/sq. in.}$  Are they fitted with easing gear yes.

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

Smallest distance between boilers or uptakes and bunkers  $\text{cyl. shell and bunkers} = 200 \text{ mm}$   $\text{woodwork uptake} = 500 \text{ mm}$  Is oil fuel carried in the double bottom under boilers No.Smallest distance between shell of boiler and tank top plating  $350 \text{ mm}$  Is the bottom of the boiler insulated yes.Largest internal dia. of boilers  $3054 \text{ mm}$  Length of stern  $3100 \text{ mm}$  Shell plates: Material steel Tensile strength  $47.2 - 48.6 \text{ kg/mm}^2$ Thickness  $23.5 \text{ mm}$  Are the shell plates welded or flanged None Description of riveting: circ. seams (end  $219$  inter.  $229$ )long. seams Double butt straps TR Diameter of rivet holes in (circ. seams  $27 \text{ mm}$  (long. seams  $27 \text{ mm}$ ) Pitch of rivets  $80 \text{ mm}$   $176 \text{ mm}$ Percentage of strength of circ. end seams (plate  $62.4\%$  rivets  $46\%$ ) Percentage of strength of circ. intermediate seam (plate  $84.6\%$  rivets  $99\%$ )Percentage of strength of longitudinal joint (plate  $84.6\%$  rivets  $99\%$  combined  $88\%$ ) Working pressure of shell by Rules  $15.8 \text{ kg/cm}^2$ Thickness of butt straps (outer  $18 \text{ mm}$  inner  $21 \text{ mm}$ ) No. and Description of Furnaces in each Boiler Two corrugated furnaces.Material steel Tensile strength  $42.8 - 44.1 \text{ kg/mm}^2$  Smallest outside diameter  $828 \text{ mm}$ Length of plain part (top  $14 \text{ mm}$  bottom  $14 \text{ mm}$ ) Thickness of plates (circ. seams  $14 \text{ mm}$  Description of longitudinal joint welded.Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules  $17.2 \text{ kg/cm}^2$  Front  $24.5 \text{ mm}$ End plates in steam space: Material steel Tensile strength  $43.0 - 45.7 \text{ kg/mm}^2$  Thickness  $21.5 \text{ mm}$  Pitch of stays  $440 \times 280 \text{ mm}$ How are stays secured Passing thr. plates, washers, nuts combined. Working pressure by Rules  $15.4 \text{ kg/cm}^2$   $24.5 \text{ mm}$ Tube plates: Material (front steel back steel) Tensile strength  $43.0 - 45.7 \text{ kg/mm}^2$  Thickness  $20.5 \text{ mm}$ Mean pitch of stay tubes in nests  $327 \text{ mm}$  Pitch across wide water spaces  $370 \text{ mm}$  Working pressure (front  $14.2 \text{ kg/cm}^2$  back  $21. \text{ kg/cm}^2$ )Girders to combustion chamber tops: Material steel Tensile strength  $48.0 \text{ kg/mm}^2$  Depth and thickness of girderat centre  $2 \times 18 \times 165 \text{ mm}$  Length as per Rule  $565 \text{ mm}$  Distance apart  $238 \text{ mm}$  No. and pitch of staysin each  $2 \times 115 \text{ mm}$  Working pressure by Rules  $15.8 \text{ kg/cm}^2$  Combustion chamber plates: Material steelTensile strength  $42.5 - 44.6 \text{ kg/mm}^2$  Thickness: Sides  $10.5 \text{ mm}$  Back  $18 \text{ mm}$  Top  $15.5 \text{ mm}$  Bottom  $16 \text{ mm}$ Pitch of stays to ditto: Sides  $196 \times 188 \text{ mm}$  Back  $194 \times 195 \text{ mm}$  Top  $238 \times 115 \text{ mm}$  Are stays fitted with nuts or riveted over Riveted overWorking pressure by Rules  $14.1 - 14.08 - 18.7 \text{ kg/cm}^2$  Front plate at bottom: Material steel Tensile strength  $43.0 \text{ kg/mm}^2$ Thickness  $24.5 \text{ mm}$  Lower back plate: Material steel Tensile strength  $45.7 \text{ kg/mm}^2$  Thickness  $21.5 \text{ mm}$ Pitch of stays at wide water space  $370 \times 195 \text{ mm}$  Are stays fitted with nuts or riveted over See approved plan.Working Pressure  $15.2 \text{ kg/cm}^2$  Main stays: Material steel Tensile strength  $47.3 - 50.0 \text{ kg/mm}^2$ Diameter (At body of stay, or over threads  $56 \text{ mm}$ ) No. of threads per inch 6 Area supported by each stay  $440 \times 280 \text{ mm}^2$ Working pressure by Rules  $13.6 \text{ kg/cm}^2$  Screw stays: Material steel Tensile strength  $41.6 - 45.6 \text{ kg/mm}^2$ Diameter (At turned off part, or over threads  $38 \text{ mm}$ ) No. of threads per inch 9 Area supported by each stay  $195 \times 194 \text{ mm}^2$



Working pressure by Rules  $14.8 \text{ kg/cm}^2$  Are the stays drilled at the outer ends *No* Margin stays: Diameter  $\begin{cases} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{cases} 50 \text{ mm}$   
 No. of threads per inch *9* Area supported by each stay  $370 \times 195 \text{ mm}^2$  Working pressure by Rules  $14.8 \text{ kg/cm}^2$   
 Tubes: Material *Steel* External diameter  $\begin{cases} \text{Plain} & 83 \text{ mm} \\ \text{Stay} & 83 \text{ mm} \end{cases}$  Thickness  $\begin{cases} 4.1 \text{ mm} \\ 9 \text{ mm} \end{cases}$  No. of threads per inch *9*  
 Pitch of tubes  $109 \times 109 \text{ mm}$  Working pressure by Rules  $15.7 \text{ kg/cm}^2$  Manhole compensation: Size of opening in  
 shell plate *ac. 500 x 390 mm* Section of compensating ring  $23 \times 500 \text{ mm}^2$  No. of rivets and diameter of rivet holes  $42 - 28 \text{ mm}$   
 Outer row rivet pitch at ends  $175 \text{ mm}$  Depth of flange if manhole flanged  $100 - 110 \text{ mm}$  Steam Dome: Material *✓*  
 Tensile strength *✓* Thickness of shell *✓* Description of longitudinal joint *✓*  
 Diameter of rivet holes *✓* Pitch of rivets *✓* Percentage of strength of joint  $\begin{cases} \text{Plate} \\ \text{Rivets} \end{cases} \begin{cases} \text{✓} \\ \text{✓} \end{cases}$   
 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 *Schmidt's* Manufacturers of Tubes *Messrs Tubrwerke der Rheinmetall*  
 Number of elements  $2 \times 42$  Material of tubes *Steel* Steel castings *Messrs F. Schickau G.m.b.H. Elbing*  
 Material of headers *Cast steel* Tensile strength  $48.38 \text{ kg/mm}^2$  Thickness  $20 \text{ mm}$  Internal diameter and thickness of tubes  $17 \text{ mm} / 3 \text{ mm}$   
 Can the superheater be shut off and  
 the boiler be worked separately *yes* Is a safety valve fitted to every part of the superheater which can be shut off from the boiler *yes*  
 Area of each safety valve  $1134 \text{ mm}^2$  Are the safety valves fitted with casing gear *yes* Working pressure as per  
 Rules *Headers = 117 kg/cm<sup>2</sup>* pipes =  $24.5 - "$  ✓ Pressure to which the safety valves are adjusted  $198 \text{ lbs/sq. in.}$  Hydraulic test pressure:  
 tubes  $50 \text{ kg/cm}^2$  castings  $50 \text{ kg/cm}^2$  and after assembly in place  $50 \text{ kg/cm}^2$  Are drain cocks or valves fitted  
 to free the superheater from water where necessary *yes*

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

The foregoing is a correct description,  
*Helsingborgs Varfs- & Svetsnings Aktiebolag* Manufacturer.

Dates of Survey  $\begin{cases} \text{During progress of} & 1930 \text{ March: } 12; \text{ May } 2; \text{ June } 5, 14, \\ \text{work in shops} & - \text{July } 4, 17; \text{ Aug: } 13, 15, 16, 18, 19, \text{ Sept: } 19, 20, 22, 26, 27. \end{cases}$  Are the approved plans of boiler and superheater forwarded herewith *Yes*  
 while building  $\begin{cases} \text{During erection on} & 1930 \text{ Sept: } 22, 25, 26, 29, \text{ Oct } 9; \text{ Nov. } 3, 11. \\ \text{board vessel} & - - 15, 20, \text{ Dec: } 22; 1931 \text{ Jan: } 3, 14, 17, 20. \end{cases}$  (If not state date of approval.) *In separate cover.* Total No. of visits *30*

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) *These boilers have been build under Special Survey in accordance with the approved plans and instructions and all the Rule requirements have been complied with. The scantlings are in accordance with the Soc. Rules for a working pressure of 192 lbs/sq. in. and the workmanship is good. The boilers were tested in my presence on the 19th September, 1930, by hydraulic pressure to 350 lbs per square inch, showed no signs of weakness and were found light and sound in every respect at that pressure. The material are good and have been tested by the Surveyors to Lloyd's Register. opinion as to Class please see Rpt. H.*

Marks on boilers:

*No 13*  
 LLOYD'S TEST  
 350 lbs/sq. in.  
 WP 192 - " -  
 TA. 19.9.30 TA.

*No 14.*  
 LLOYD'S TEST  
 350 lbs/sq. in.  
 WP 192 - " -  
 TA. 19.9.30 TA.

Marks on Superheater headers:

*No 9*  
 LLOYD'S TEST  
 50 kg/cm<sup>2</sup>  
 WP 13.5 - " -  
 TA. 22.9.30. TA.

*No 10*  
 LLOYD'S TEST  
 50 kg/cm<sup>2</sup>  
 WP 13.5 - " -  
 TA. 27.9.30. TA.

Survey Fee ... *See Rpt. H.* When applied for, *✓* 192  
 Travelling Expenses (if any) £ *✓* : *✓* : When received, *✓* 192

*L. Petersen.*

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 17 FEB 1931

Assigned

*See other 2 E. Rpt*



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 Foundation