

AUG -2 1938

Received at London Office

9 ✓ of writing Report *July 19 38* When handed in at Local Office *19* Port of *Copenhagen*
 Size of open in Survey held at *Elsinore and Odense* Date, First Survey *7th January* Last Survey *12th July* 19 *38*
 - *28 3/4* Book. on the *Steel Single Screw Motor Tanker BARENDRECHT* (Number of Visits *35*) Tons { Gross *9385*
 Net *5617*
 Built at *Odense* By whom built *Odense Maskarbejdsværk* Yard No. *71* When built *1938*
 and diameters made at *Copenhagen* By whom made *A. B. Bensen & Wain* Engine No. *2796* When made *1938*
 ers made at *Elsinore* By whom made *As Helsingørsk Maskfabrik - og Maskenbyggeri* Boiler No. *932* When made *1938*
 t holes and final Horse Power *for Dec 191.* Owners *Phs. van Ommen* Port belonging to *Rothsdam*

ULTITUBULAR BOILERS ~~MAIN, AUXILIARY, OR~~ DONKEY.

ULTIMATE MAIN, AUXILIARY, OR DONKEY.

PLATES - FURNACES - STAYS - SCREW STAYS - TUBES: *W. & A. Steel and Iron Works Corporation*

be shut off

Manufacturers of Steel *COMBUST. CHAMBER BACK AND SIDE: Société Anonyme d'Angleur -*

tal Heating Surface of Boilers *attein, Givignac (Belgique) RIVETS: Hinge Bros, Copenhagen*

oil fired *77.842 x 835 p 3 x 4 x 190.4542 x 2635 p* Is forced draught fitted *yes*

Coal or Oil fired *oil fired*

and Description of Boiler *One off combined single ended return multitubular and exhaust gas fired*

test pressure *22.5 kg/cm²* Date of test *19.4.1938* No. of Certificate *622* Can each boiler be worked separately *yes*

drain cocks

area of Firegrate in each Boiler *No. and Description of safety valves to each boiler: Two off directly spring loaded*

area of each set of valves per boiler *per Rule 7690 1/4* Pressure to which they are adjusted *180 lb/sq in* Are they fitted with easing gear *yes*

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

smallest distance between boilers or uptakes and bunkers *oil 8'* Is oil fuel carried in the double bottom under boilers *BOILER PLACED ON PLATFORM DECK*

smallest distance between shell of boiler and tank top plating *Is the bottom of the boiler insulated yes*

largest internal dia. of boilers *3850 3/4* Length *3180 3/4* Shell plates: Material *Siemens M. Steel* Tensile strength *45.4 - 48.1 kg/cm²*

Thickness *27 1/4* Are the shell plates welded or flanged *No* Description of riveting: circ. seams *double butt strap* end *lap joint*

ong. seams *double butt strap* Diameter of rivet holes in *circ. seams 29 1/4* Pitch of rivets *88.24 3/4*

Percentage of strength of circ. end seams *plate 67.1 % rivets 45.2 %* Percentage of strength of circ. intermediate seam *plate % rivets %*

Percentage of strength of longitudinal joint *plate 83.9 % rivets 100.5 % combined 87.9 %* Working pressure of shell by Rules *12.68 kg/cm²*

Thickness of butt straps *outer 25 3/4 inner 25 3/4* No. and Description of Furnaces in each Boiler *One off corrugated, Morrisons section*

Material *Siemens Martin Steel* Tensile strength *42.2 kg/cm²* Smallest outside diameter *938 1/4*

Length of plain part *top % bottom %* Thickness of plates *crowns 12 3/4 bottoms %* Description of longitudinal joint *%*

Dimensions of stiffening rings on furnace or c.c. bottom *75 1/4 x 20 3/4* Working pressure of furnace by Rules *12.9 kg/cm²*

End plates in steam space: Material *Siemens M. Steel* Tensile strength *46.5 kg/cm²* Thickness *27 1/4* Pitch of stays *475 x 375 3/4*

How are stays secured *Secured in both plates, nuts in and outside* Working pressure by Rules *12.93 kg/cm²*

Tube plates: Material *front Siemens Martin Steel back Siemens Martin Steel* Tensile strength *43.1 kg/cm² 43.6 kg/cm²* Thickness *25 3/4 (20 3/4 doubling at lower end of longitudinal stays) 22 3/4*

Mean pitch of stay tubes in nests *230 3/4* Pitch across wide water spaces *384 3/4* Working pressure *front 19.03 kg/cm² back 14.23 - 13.4 kg/cm²*

Girders to combustion chamber tops: Material *Siemens M. Steel* Tensile strength *43.5 kg/cm²* Depth and thickness of girder *%*

at centre *75 1/4 - 20 3/4* Length as per Rule *%* Distance apart *%* No. and pitch of stays *%*

in each *%* Working pressure by Rules *%* Combustion chamber plates: Material *Siemens M. Steel*

Tensile strength *41 - 47 kg/cm²* Thickness: Sides *25 1/2 kg/cm² up to 18 3/4 at seams* Back *16 3/4* Top *%* Bottom *%*

Pitch of stays to ditto: Sides *%* Back *200 x 220 3/4* Top *%* Are stays fitted with nuts or riveted over *Nuts in and outside*

Working pressure by Rules *25 3/4 + 25 3/4* SIDE TOP BOILER *12.42 kg/cm²* Front plate at bottom: Material *Siemens M. Steel* Tensile strength *43.1 kg/cm²*

Thickness *doubling plate* Lower back plate: Material *Siemens M. Steel* Tensile strength *43.4 kg/cm²* Thickness *doubling*

Pitch of stays at wide water space *a = 624 3/4* Are stays fitted with nuts or riveted over *Riveted under, nuts in and outside*

Working Pressure *13.4 kg/cm²* Main stays: Material *Siemens Martin Steel* Tensile strength *45.8 - 48.4 kg/cm²*

Diameter *At body of stay, 3 or 3 3/4* No. of threads per inch *6* Area supported by each stay *178/25 3/4 - 190/17 3/4*

Working pressure by Rules *TOP 17.2 kg/cm² BOILER 16 kg/cm²* Screw stays: Material *Siemens M. Steel* Tensile strength *44.0 kg/cm²*

Diameter *At turned off part, 1 3/4 or %* No. of threads per inch *9* Area supported by each stay *44000 1/4*

Working pressure by Rules $18.7 \frac{1}{2} \text{ lb/cm}^2$ Are the stays drilled at the outer ends *No* Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. 1 \frac{7}{8} \text{ in}$

No. of threads per inch *9* Area supported by each stay $66000 \frac{1}{4} \text{ in}^2$ Working pressure by Rules $14.6 \frac{1}{2} \text{ lb/cm}^2$

Tubes: Material *Swedish Steel* External diameter $\left\{ \begin{array}{l} \text{Plain} 64 \frac{1}{2} \text{ in} \\ \text{Stay} 64 \frac{1}{2} \text{ in} \end{array} \right. \text{EXHAUST } 38 \frac{1}{2} \text{ in}$ Thickness $\left\{ \begin{array}{l} \text{SWG-No 9 \& No 7} \\ 9.5 \frac{1}{4} - 8 \frac{1}{4} \end{array} \right.$ No. of threads per inch *9*

Pitch of tubes $92 \frac{1}{4} \text{ in}$ Working pressure by Rules 230 lb/in^2 Manhole compensation: Size of opening $42 \frac{1}{4} - 28 \frac{1}{4} \text{ in}$

shell plate $390 \frac{1}{4} \times 490 \frac{1}{4} \text{ in}$ Section of compensating ring *Flanged* No. of rivets and diameter of rivet holes $42 \frac{1}{4} - 28 \frac{1}{4} \text{ in}$

Outer row rivet pitch at ends $170 \frac{1}{4} \text{ in}$ Depth of flange if manhole flanged *3 in* Steam Dome: Material *Steel*

Tensile strength *✓* Thickness of shell *✓* Description of longitudinal joint *✓*

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

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 of rivets in outer row in dome connection to shell *✓*

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

Number of elements *✓* Material of tubes *✓* Internal diameter and thickness of tubes *✓*

Material of headers *✓* Tensile strength *✓* Thickness *✓* Can the superheater be shut off 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 Rules *✓*

Pressure to which the safety valves are adjusted *✓* Hydraulic test pressure *✓*

tubes *✓* forgings and castings *✓* and after assembly in place *✓* Are drain cocks 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*

AKTIESELSKABET
HELSINGØRS JERNVÆRKS- OG MASKEBYGGERI
The foregoing is a correct description,
Manufactured by

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops} \\ \text{while building} \end{array} \right. \left\{ \begin{array}{l} \text{During erection on board vessel} \end{array} \right.$

1938: 7/1, 12/1, 18/1, 20/1, 21/1, 25/1, 28/1, 2/2, 3/2, 9/2, 14/2, 15/2, 16/2, 18/2, 22/2, 23/2, 4/3, 9/3, 14/3, 18/3, 28/3, 31/3, 1/4, 4/4, 7/4, 9/4, 14/4, 17/4, 19/4, 21/4, 24/4

Are the approved plans of boiler and superheater forwarded herewith *Yes* (If not state date of approval.)

Total No. of visits *35*

Is this Boiler a duplicate of a previous case *✓* If so, state Vessel's name and Report No. *✓*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This donkey boiler has been built by Messrs Helsingør Jernværk- og Maskinbyggeri, Elsinore, and installed on board by the builders Messrs Odense Staalværk and special survey and in accordance with the requirements of the Rules, the approved plan and the Secretary's letters E dated 31.12.1937 and 12.4.1938. The material has been tested as required by the Rules as per certificates produced and the workmanship is good.

Recommend the vessel to have notation of 2DB-180 lb in the Register Book

Survey Fee ... *£ 427.84* When applied for, *1.8.38*

Travelling Expenses (if any) *£ 53.00* When received, *31/8.38*

Christian L. Sørensen
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. 9 AUG 1938*

Assigned *See F.E. memo 2/1*