

REPORT ON BOILERS.

No. 10785

-8 JUL 1936

Received at London Office

Date of writing Report 6th July 1936 When handed in at Local Office 7th July 1936 Port of Gothenburg

Opening No. in Survey held at Gothenburg Date, First Survey 8th January Last Survey 20th June 1936

on the GM (Number of Visits 12) Tons } Gross } Net

Master GM Built at LANDSKRONA By whom built ÖRESUNDSVARVET AB and No. 42 When built

Engines made at By whom made Engine No. When made

Boilers made at Gothenburg By whom made A.B. LINDHOLMEN-MOTALA Boiler No. 13578 13579 When made 1936

and nominal Horse Power Owners Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Plates: Witkowski Bengtson & Eisenhütten Gesellschaft (Ostrava 10)

Stays: Witkovic Nires Steel & Ironworks Corp, Kitevice.

Tubes: Wadholm Metall, Motala, Sweden.

Rivets: Gab. Frings of Motala (Widst.)

(Letter for Record S ✓)

Total Heating Surface of Boilers 2 x 116.6 = 333.2 sqm (3580 sqft) Is forced draught fitted Coal or Oil fired

No. and Description of Boilers Two cylindrical multitubular. Working Pressure 14 kg/cm² (200 lb) ✓

Tested by hydraulic pressure to 24.5 kg/cm² Date of test 20.6.36 No. of Certificate 2819282 Can each boiler be worked separately

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler
Area of each set of valves per boiler { per Rule } as fitted Pressure to which they are adjusted Are they fitted with casing gear

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 Is the bottom of the boiler insulated

Largest internal dia. of boilers 3352 mm Length 3430 mm Shell plates: Material S.M. Steel Tensile strength As per Rule. ✓

Thickness 25.5 mm ✓ Are the shell plates welded or flanged No ✓ Description of riveting: circ. seams { end } Double riv. lap ✓

Long. seams Double butt straps ✓ Diameter of rivet holes in { circ. seams } 30% ✓ { long. seams } 30 & 33% ✓ Pitch of rivets { end } 85 mm ✓ { inter. } 115 & 230 mm ✓

Percentage of strength of circ. end seams { plate } 59.6 ✓ { rivets } 53.2 ✓ Percentage of strength of circ. intermediate seam { plate } ✓ { rivets } ✓

Percentage of strength of longitudinal joint { plate } 85.7 ✓ { rivets } 85.8 ✓ { combined } 85.9 ✓ Working pressure of shell by Rules 14.0 kg/cm² ✓

Thickness of butt straps { outer } 20 mm ✓ { inner } 23 mm ✓ No. and Description of Furnaces in each Boiler Two Morrison ✓

Material S.M. Steel Tensile strength As per Rule ✓ Smallest outside diameter 978 mm ✓

Length of plain part { top } ✓ { bottom } ✓ Thickness of plates { crown } 14 mm ✓ { bottom } ✓ Description of longitudinal joint welded. ✓

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 14.6 kg/cm² ✓

End plates in steam space: Material S.M. Steel Tensile strength As per Rule Thickness Front 25.5 mm ✓ Back 23.5 mm ✓ Pitch of stays 495 x 400 mm ✓

How are stays secured Butts inside, riveted washers & nuts outside ✓ Working pressure by Rules 14.3 kg/cm² ✓

Side plates: Material { front } S.M. Steel Tensile strength As per Rule ✓ { back } - ✓ Thickness { } 25.5 mm ✓ { } 20 mm ✓

Mean pitch of stay tubes in nests 262 mm ✓ Pitch across wide water spaces 390 mm ✓ Working pressure { front } 16.5 kg/cm² ✓ { back } 14.7 ✓

Orders to combustion chamber tops: Material S.M. Steel Tensile strength As per Rule ✓ Depth and thickness of girder

centre 175 x 2 x 25 mm Length as per Rule 728 mm ✓ Distance apart 210 mm ✓ No. and pitch of stays

each Three, 180 mm ✓ Working pressure by Rules 15.2 kg/cm² ✓ Combustion chamber plates: Material S.M. Steel ✓

Tensile strength As per Rule Thickness: Sides 16 mm ✓ Back 16 mm ✓ Top 16 mm ✓ Bottom 17 mm ✓

Pitch of stays to ditto: Sides 180 x 160 mm ✓ Back 165 x 165 mm ✓ Top 180 x 210 mm ✓ Are stays fitted with nuts or riveted over? Remaining stays riveted over. ✓

Working pressure by Rules 14.3 kg/cm² ✓ Front plate at bottom: Material S.M. Steel Tensile strength As per Rule ✓

Thickness 25.5 mm ✓ Lower back plate: Material S.M. Steel Tensile strength As per Rule Thickness 23.5 mm ✓

Pitch of stays at wide water space 380 mm ✓ Are stays fitted with nuts or riveted over? Fitted with nuts. ✓

Working Pressure 18.3 kg/cm² ✓ Main stays: Material S.M. Steel Tensile strength As per Rule. ✓

Diameter { At body of stay, } 70 mm ✓ { or } { Over threads } 3" ✓ No. of threads per inch 6 ✓ Area supported by each stay 170000 mm² ✓

Working pressure by Rules 17.6 kg/cm² ✓ Screw stays: Material S.M. Steel Tensile strength As per Rule ✓

Diameter { At turned off part, } 31 mm ✓ { or } { Over threads } 1 3/8" & 1 1/2" (guides) ✓ No. of threads per inch 9 ✓ Area supported by each stay 160 x 180 mm & 180 x 210 mm ✓



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Working pressure by Rules $16.0 \frac{\text{kg}}{\text{cm}^2}$ Are the stays drilled at the outer ends *No* ✓ Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part, } 4 \frac{1}{2} \text{ in.} \\ \text{or} \\ \text{Over threads } 1 \frac{3}{4} \text{ in.} \end{array} \right.$ ✓

No. of threads per inch 9 ✓ Area supported by each stay 45000 mm^2 ✓ Working pressure by Rules $18.3 \frac{\text{kg}}{\text{cm}^2}$

Tubes: Material *St. steel* External diameter $\left\{ \begin{array}{l} \text{Plain } 3 \frac{1}{2} \text{ in.} \\ \text{Stay } 3 \text{ in.} \end{array} \right.$ ✓ Thickness $\left\{ \begin{array}{l} 15 \text{ g. } 8 \\ 8.8 \text{ mm} \end{array} \right.$ No. of threads per inch 9 ✓

Pitch of tubes $108 \times 100 \text{ mm}$ ✓ Working pressure by Rules $15.2 \frac{\text{kg}}{\text{cm}^2}$ Manhole compensation: Size of opening in shell plate $400 \times 500 \text{ mm}$ Section of compensating ring $350 \times 25 \text{ mm}$ ✓ No. of rivets and diameter of rivet holes $36 \times 30 \text{ mm}$ ✓

Outer row rivet pitch at ends 130 mm ✓ Depth of flange if manhole flanged 75 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 $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right.$ ✓

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

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 ✓

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 ✓

The foregoing is a correct description,
AKTIEBOLAGET LINDHOLMEN-MOTALA
Walding & Tehen Manufacturer.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops - -} \\ \text{while building } \left\{ \begin{array}{l} \text{During erection on board vessel - -} \end{array} \right. \end{array} \right.$ 1936: Jan 8, 16, 24 Feb 10, 18, 27 March 16 April 9, May 4, 11, June 10, 20

Are the approved plans of boiler and superheater forwarded herewith *Yes* 20/1/35 (If not state date of approval.)

Total No. of visits 12

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

These boilers have been built under special survey in accordance with the Society's Rules and approved plan.

The workmanship is good.

Test sheets of the material for the above boilers as well as two other boilers which are being made by Messrs Lindholmen-Motala for Messrs Ceresdrott AB, Landskrona Sp. 43 are attached.

The boilers have been sent to Landskrona for installation and are marked as below.

No 281 & 282
 LLOYDS TEST 24.5 KG.
 WP 14 KG.
 P.S. 20.6.36 R.

Survey Fee £ : 435.00 When applied for *7th July* 1936

Travelling Expenses (if any) £ : : When received *24.8* 1936 *26/8*

L. P. O. Sjogren
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **TUE 9 FEB 1937**

Assigned *See Memo, J.E. 1527*

