Rpt. 5a.

REPORT ON BOILERS.

No. 20176.

Received at London Office 28 OCT 19--

Date of writing Report 26th Oct. 1953. When handed in at Local Office 27th Oct. 1953. Port of Gothenburg.

No. in Reg. Book. --- Survey held at Gothenburg Date, First Survey 27th August Last Survey 24th October 1953.

(Number of Visits 29) on the HAVSARL Tons Gross Approx.10800 Net ---

Built at Malmö By whom built Kockums Mek. Verkstads AB Yard No. 366 When built ---

Engines made at --- By whom made --- Engine No. --- When made ---

Boilers made at Gothenburg By whom made AB Lindholmens Varv Boiler No. 3004/5 When made 1953

Nominal Horse Power --- Owners P. Meyer Port belonging to Oslo

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Avesta Jernverks AB, Boiler Furnace, AB Motala Verkstad, Stewart & Lloyd's (Letter for Record s.)

Total Heating Surface of Boilers 2 x 2493 = 4986 sq. ft. ✓ Of Superheaters ---

Total for Register Book --- Is forced draught fitted Yes Coal or Oil fired Oil ✓

No. and Description of Boilers 2 single- end multitubular (Scotch) **Working Pressure** 150 lbs/in² ✓

Tested by hydraulic pressure to 275 lbs/in² ✓ Date of test 13.10 & 22.10.53 No. of Certificate 663 & 664 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 easing 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 4200 mm. ✓ Length 3660 mm. ✓ **Shell plates:** Material SM Steel ✓ Tensile strength 44-50 kg/mm² ✓

If fusion welded, state name of welding Firm AB Lindholmens Varv ✓ Have all the requirements of the Rules for Class I vessels been complied with Yes ✓ Thickness 26 mm. ✓ Are the shell plates welded ~~extended~~ Yes ✓ Description of riveting: circ. seams { end --- / inter E.W. ✓ } long. seams E.W. ✓ Diameter of rivet holes in { circ. seams --- / long. seams --- } Pitch of rivets { --- / --- }

Percentage of strength of circ. end seams { plate --- / rivets --- } Percentage of strength of circ. intermediate seam { plate --- / rivets --- }

Percentage of strength of longitudinal joint { plate --- / rivets --- / combined --- }

Thickness of butt straps { outer --- / inner --- } **No. and Description of Furnaces in each Boiler** 3 Morison corrugated ✓

Material SM Steel ✓ Tensile strength 41-47 kg/mm² ✓ Smallest outside diameter 1022 mm. ✓

Length of plain part { --- / 86 mm. } Thickness of plates 11 mm. ✓ Description of longitudinal joint E.W. ✓

Dimensions of stiffening rings on furnace or c.c. bottom ---

End plates in steam space: Material SM Steel ✓ Tensile strength 41-47 kg/mm² ✓ Thickness 24 mm. ✓ Pitch of stays 530 x 430 mm ✓

How are stays secured E.W. with outside washers ✓

Tube plates: Material { front SM Steel ✓ / back SM Steel } Tensile strength { 41-47 kg/mm² ✓ / 41-47 kg/mm² } Thickness { 24 mm. ✓ / 21 mm. ✓ }

Mean pitch of stay tubes in nests 281 mm. as offered ✓ Pitch across wide water spaces 360 mm. ✓

Girders to combustion chamber tops: Material SM Steel ✓ Tensile strength 44-50 kg/mm² ✓ Depth and thickness of girder at centre 232 x 26 mm. ✓ Length as per Rule 815 mm. ✓ Distance apart 220 mm. ✓ No. and pitch of stays in each Cont. E.W. ✓ **Combustion chamber plates;** Material SM Steel ✓

Tensile strength 41-47 kg/mm² ✓ Thickness: Sides 16 mm. ✓ Back 16 mm. ✓ Top 16 mm. ✓ Bottom 16 mm. ✓

Pitch of stays to ditto: Sides 180x215 mm. ✓ Back 200x195 mm. ✓ Top 220xC.E.W. ✓ Are stays fitted with nuts or riveted over E.W. ✓

Front plate at bottom : Material SM Steel ✓ Tensile strength 41-47 kg/mm² ✓

Thickness 24 mm. ✓ **Lower back plate:** Material SM Steel ✓ Tensile strength 41-47 kg/mm² ✓ Thickness 24 mm. ✓

Pitch of stays at wide water space 360 x 200 mm. ✓ Are stays fitted with nuts or riveted over E.W. ✓

Main stays : Material SM Steel ✓ Tensile strength 44-50 kg/mm² ✓

Diameter { xxxxxxxxxx / xx / 70 mm. ✓ } No. of threads per inch E.W. ✓

Screw stays : Material SM Steel ✓ Tensile strength 41-47 kg/mm² ✓

Diameter { xxxxxxxxxx / xx / 40 mm ✓ } No. of threads per inch E.W. ✓

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Are the stays drilled at the outer ends No ✓ Margin stays: Diameter XXXXXXXXXX XX XXXXXXXX 40 mmm. ✓

No. of threads per inch E.W. ✓

Tubes: Material SM Steel ✓ External diameter Plain 63.5 mm. ✓ Stay 63.5 mm. Thickness 3.25 mm. ✓ 8 mm. ✓ No. of threads per inch 9. ✓

Pitch of tubes 96 x 89 mm. ✓ **Manhole compensation:** Size of opening in shell plate 472 x 372 mm. ✓ Section of compensating ring 8320 mm. ✓ No. of rivets and diameter of rivet holes E.W. ✓

Outer row rivet pitch at ends --- Depth of flange if manhole flanged --- **Steam Dome:** Material

Tensile strength Thickness of shell Description of longitudinal joint

Diameter of rivet holes Pitch of rivets Percentage of strength of joint Plate Rivets

Internal diameter Thickness of crown No. and diameter of stays Inner radius of crown

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 Tubes Steel forgings Steel castings

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

Pressure to which the safety valves are adjusted Hydraulic test pressure: tubes forgings and 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,

AKTIEBOLAGET LINDHOLMENS VARV
ÅNGPANNEAVDELNINGEN

Manufacturer.

Dates of Survey while building — During progress of work in shops: 27.8 - 24.10 1953. During erection on board vessel: ---

Are the approved plans of boiler and superheater forwarded herewith 4.4.52 (If not state date of approval.)

Total No. of visits 29.

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

GENERAL REMARKS (*State quality of workmanship, opinions as to class, &c.*) These boilers have been built under Special Survey in accordance with the approved plan and the Rules for Welded Pressure Vessels Class I. The material has been tested under the supervision of the Society's Surveyors. Test certificates attached. The workmanship is good. Four representative X-ray films are attached together with a plan and a report indicating the position and results of the films. Macro tests carried out at the works of Messrs. AB Lindholmens Varv with satisfactory results. For identification the boilers have been marked:-

No.663 Lloyd's test 275 lbs. WP 150 lbs. NF 13.10.53. Got.	No.664 Lloyd's test 275 lbs. WP 150 lbs. SJ 22.10.53 Got.

Survey Fee ... ... Kr. 1250:-:

Travelling Expenses (if any) £ : - -:

When applied for 27th Oct. 19 53.

When received - 19 -

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUESDAY 11 MAY 1954

Assigned See Rpt. 4 le.

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