

REPORT ON BOILERS.

No. 25978

Received at London Office

Date of writing Report 1/7-60. 19 -- When handed in at Local Office 5/7 1960 Port of Gothenburg.

No. in Survey held at Gothenburg Date, First Survey 23/2 -60 Last Survey 17/6 19 60

Reg. Book. (Number of Visits 8) Gross 3850
 on the "PARANAGUA" Tons Net

Built at Helsingfors By whom built Valmet O/y Yard No. 203 When built --

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

Boiler made at Gothenburg By whom made A-B. Lindholmens Varv Boiler No. 3452 When made 1960

Owners Commissao de Marinha Mercante Port belonging to Rio de Janeiro

VERTICAL BOILER.

Made at Gothenburg By whom made A/B Lindholmens Varv Boiler No. 3452 When made 1960 Where fixed ---

Manufacturers of Steel Avesta Järnverk, Stewart & Lloyd's. Exh. or Coal or Oil fired oil fired.

Total Heating Surface of each Boiler 893 sq. ft. Is forced draught fitted --- Working Pressure 100 lbs. ✓

No. and Description of Boilers 1 vertical comb. oil fired and exh. heated boiler ✓

Tested by hydraulic pressure to 200 lbs. ✓ Date of test 1st June, 1960. No. of Certificate 872

Area of fire grate in each Boiler --- No. and description of safety valves to each boiler 1 double spring loaded ✓

Area of each set of valves per boiler { per Rule 6300 mm² Pressure to which they are adjusted --- Are they fitted with easing gear ---
 as fitted 7650 mm² ✓

State whether steam from main boilers can enter the donkey boiler --- Smallest distance between boiler or uptake and bunkers or woodwork ---

Is oil fuel carried in the double bottom under boiler --- Smallest distance between base of boiler and tank top plating ---

Is the base of the boiler insulated --- Largest internal dia. of boiler 1980 mm. ✓ Height 4370 mm. ✓

Shell plates: Material S.M. Steel Tensile strength 44 - 50 kg/mm² ✓ Thickness 10 mm. ✓

Are the shell plates welded or flanged Welded ✓ If fusion welded, state name of welding firm A/B Lindholmens Varv

Have all the requirements of the Rules for Class I vessels been complied with Yes ✓ Description of riveting: circ. seams { end E.W. ✓
 inter E.W. ✓

long. seams E.W. ✓ Dia. of rivet holes in { circ. seams --- Pitch of rivets --- Thickness of butt straps { outer ---
 long. seams --- inner ---

Shell Crown: Whether complete hemisphere, dished partial spherical, or flat --- Material --- Tensile strength --- Thickness ---

Radius 50 mm. ✓ Description of Furnace: Plain, spherical, or dished crown Plain ✓ Material S.M. Steel ✓

Tensile strength 41 - 47 kg/mm² ✓ Thickness 18/20 mm. ✓ External diameter { top 1600 mm. ✓ Height 1160 mm. ✓
 bottom 1600 mm. ✓ Length as per Rule

Pitch of support stays circumferentially None and vertically None Are stays fitted with nuts or riveted over ---

Diameter of stays over thread --- Radius of spherical or dished furnace crown ---

Thickness of Ogee Ring --- Diameter as per Rule { D ---
 d ---

Combustion Chamber: Material --- Tensile strength --- Thickness of top plate ---

Radius if dished --- Thickness of back plate --- Diameter if circular ---

Length as per Rule --- Pitch of stays ---

Are stays fitted with nuts or riveted over --- Diameter of stays over thread ---

Tube Plates: Material { top --- Tensile strength { 41 - 47 kg/mm² ✓ Thickness { 20 mm. ✓ Mean pitch of stay tubes in nests 285 mm. ✓
 back bottom --- 41 - 47 kg/mm² ✓ 20 mm. ✓

If comprising shell, dia. as per Rule { front --- Pitch in outer vertical rows { --- Dia. of tube holes FRONT { stay --- BACK { stay ---
 back --- plain --- plain ---

Is each alternate tube in outer vertical rows a stay tube ---

Girders to Combustion Chamber Tops: Material --- Tensile strength ---

Depth and thickness of girder at centre --- Length as per Rule ---

Distance apart --- No. and pitch of stays in each ---

Handwritten notes: 9/2/60, 9/1/60

WITH YOUR FIRST ENTRY.

REPORT ON BOILERS

Crown Stays: Material --- **Tensile strength** --- **Diameter** { at body of stay ---
 or ---
 over threads ---
No. of threads per inch --- **Screw Stays: Material** --- **Tensile strength** ---
Diameter { at turned off part ---
 or ---
 over threads --- **No. of threads per inch** --- **Are the stays drilled at the outer ends** ---
Tubes: Material S.M. Steel **External diameter** { plain 51 mm. ✓
 stay 51 mm. ✓ **Thickness** { 3 mm. ✓
 9 mm. ✓
No. of threads per inch Electrically welded ✓ **Pitch of tubes** Δ 73 mm. ✓
Manhole Compensation: Size of opening in shell plate 470 x 370 mm. ✓ **Section of compensating ring** 5000 mm. ✓ **No. of rivets and diameter**
of rivet holes Electrically welded ✓ **Outer row rivet pitch at ends** --- **Depth of flange if manhole flanged** ---
Uptake: External diameter --- **Thickness of uptake plate** ---
Cross Tubes: No. --- **External diameters** { --- **Thickness of plates** ---
 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
ÄNGPANNÄVDELNINGEN
Curt Palmberg Manufacturer.

Dates of Survey while building { **During progress of work in shops** - - 23/2 - 17/6 -60. **Is the approved plan of boiler forwarded herewith** 23/10-59
 (If not state date of approval.)
 { **During erection on board vessel** - - - **Total No. of visits** 8.

Is this Boiler a duplicate of a previous case **Yes** If so, state Vessel's name and Report No. m.s. "Todos os Santos" - Valmet O/y No.201
 Gothenburg FE Report No.25788.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been built under Special Survey in accordance with the Rules for Welded Pressure Vessels Class I and approved plan. The workmanship is good. All welded parts of this boiler have been stress relieved in accordance with the Rules. The material fulfils the requirements of the Rules. A plan showing the position and number of X-ray films taken together with a report issued by Tekniska Röntgencentralen, indicating the category in which each film has been placed are attached. Routine tests of the welding gave following results:-

Tensile all welded material:- 10.0 mm. ϕ U.T.S. 51.0 kg/mm², Y.P. 40.8 kg/mm², Elongation 33.6%, Red of area 71%
Tensile welded joint:- 9.7 x 24.7 \square U.T.S. 48.3 kg/mm². Bend test - 180° Good. Macro test - Good.

Note I:- The diameter of Exhaust Gas Inlethas been increased to 950 mm. as noted on the plan approved 23/10-59.
 For identification purposes the boiler has been marked:-

No. 872
 Lloyd's test Got. 200 lbs
 WP 100 lbs.
 LE 1.6.60.
 LV No.3452

Note II:- As the order of 4 boilers now is completed, material certificates for the boilers are now enclosed.

Survey Fee Kr. 300:- : When applied for 5/7 19 60
 Travelling Expenses (if any) £ -- -- : When received --- 19 ---

N. H. Jilberg
 Engineer Surveyor to Lloyd's Register of Shipping.

Date **THURSDAY 13 JUL 1961**
 Committee's Minute

