

4 JUL 1949

# REPORT ON BOILERS.

No. 16742.

IN D.O.

Received at London Office 23 JUN 1949

Date of writing Report 14th June 1949. When handed in at Local Office 21st June 1949. Port of Gothenburg.

No. in Reg. Book 95857 Survey held at Gothenburg Date, First Survey 28th March Last Survey 6th May 1949

on the Motor Tanker "N O R D H E M" (Number of Visits 11) Tons Gross 900 Net

Master --- Built at Norrköping By whom built Norrköpings Varv & Verkstad A-B. Yard No. 124 When built 1949

Engines made at Stockholm By whom made A-B. Atlas-Diesel Engine No. --- When made 1949

Boiler made at Gothenburg By whom made A-B. Lindholmens Varv Boiler No. 2850 When made 1949

Nominal Horse Power 43 Owners Rederi A-B. Manhem Port belonging to Stockholm

## MULTITUBULAR BOILERS ~~MANUFACTURED FOR~~ DONKEY.

Manufacturers of Steel Vitkovice Steel Works, Nat. Corp. (Letter for Record 8)

Total Heating Surface of Boiler 60 M<sup>2</sup> = 646 square feet Is forced draught fitted No Coal or Oil fired ---

No. and Description of Boilers 1 multitubular (Scotch) Boiler Working Pressure 178 lbs/in<sup>2</sup>

Tested by hydraulic pressure to 317 lb/in<sup>2</sup> Date of test 5.5.1949 No. of Certificate 528 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 2700 mm<sup>2</sup> 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 2561 mm. Length 3000 mm. Shell plates: Material S.M. Steel Tensile strength 44-50 kg/mm<sup>2</sup>

Thickness 19.5 mm. Are the shell plates welded or flanged Electr. welded Description of riveting: circ. seams { end --- inter ---

Long. seams Electrically welded 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 --- Working pressure of shell by Rules 12.85 kg/cm<sup>2</sup>

Thickness of butt straps { outer --- inner --- No. and Description of Furnaces in each Boiler 2 Morison corrugated

Material S.M. Steel Tensile strength 41 - 47 kg/mm<sup>2</sup> Smallest outside diameter 770 mm.

Length of plain part { top --- bottom --- Thickness of plates { crown 10 mm. bottom 10 mm. Description of longitudinal joint Electrically welded

Dimensions of stiffening rings on furnace or c.c. bottom --- Working pressure of furnace by Rules 12.9 kg/cm<sup>2</sup>

End plates in steam space: Material S.M. Steel Tensile strength 41-47 kg/mm<sup>2</sup> Thickness 24 mm. Pitch of stays Max. 480 mm.

How are stays secured EW with EW outside washers Working pressure by Rules 13.7 kg/cm<sup>2</sup>

End plates: Material { front S.M. Steel Tensile strength 41 - 47 kg/mm<sup>2</sup> Thickness { 24 mm. back S.M. Steel Tensile strength 41 - 47 kg/mm<sup>2</sup> Thickness { 18 mm.

Can pitch of stay tubes in nests 200 mm. Pitch across wide water spaces 345 mm. Working pressure { front 12.8 kg/cm<sup>2</sup> back 20.2 kg/cm<sup>2</sup>

Ends to combustion chamber tops: Material S.M. Steel Tensile strength 44 - 50 kg/mm<sup>2</sup> Depth and thickness of girder

Centre 175 x 21 mm. Length as per Rule 529 mm. Distance apart 200 mm. No. and pitch of stays

Each EW cont. Working pressure by Rules 12.9 kg/cm<sup>2</sup> Combustion chamber plates: Material S.M. Steel

Tensile strength 41 - 47 kg/mm<sup>2</sup> Thickness: Sides 15 mm. Back 15 mm. Top 15 mm. Bottom 15 mm.

Height of stays to ditto: Sides 170 x 190 mm. Back 190 x 185 mm. Top 200 x EW Are stays fitted with nuts or riveted over El. welded

Working pressure by Rules 15.5 kg/cm<sup>2</sup> Front plate at bottom: Material S.M. Steel Tensile strength 41 - 47 kg/mm<sup>2</sup>

Thickness 24 mm. Lower back plate: Material S.M. Steel Tensile strength 41 - 47 kg/mm<sup>2</sup> Thickness 24 mm.

Height of stays at wide water space 345 x 185 mm. Are stays fitted with nuts or riveted over Electrically welded

Working pressure 21.8 kg/cm<sup>2</sup> Main stays: Material S.M. Steel Tensile strength 44 - 50 kg/mm<sup>2</sup>

Diameter 60 mm. No. of threads per inch E.W. Area supported by each stay Max. 400 x 357.5 mm.

Working pressure by Rules 16.8 kg/cm<sup>2</sup> Screw stays: Material S.M. Steel Tensile strength 41 - 47 kg/mm<sup>2</sup>

Diameter 38 mm. No. of threads per inch 9 Area supported by each stay 190 x 220 mm.



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Handwritten notes: 8/5, 8/1/49

Working pressure by Rules  $13.5 \text{ kg/cm}^2$  Are the stays drilled at the outer ends... No Margin stays: Diameter  $47 \text{ mm.}$   
 No. of threads per inch... E.W. Area supported by each stay  $267.5 \times 185 \text{ mm.}$  Working pressure by Rules  $25.9 \text{ kg/cm}^2$   
 Tubes: Material S.M. Steel External diameter { Plain  $70 \text{ mm.}$  Thickness  $3.65 \text{ mm.}$  No. of threads per inch 9  
 Stay  $70 \text{ mm.}$  Thickness  $9 \text{ mm.}$   
 Pitch of tubes  $102 \times 98 \text{ mm.}$  Working pressure by Rules  $15 \text{ kg/cm}^2$  Manhole compensation: Size of opening  
 shell plate  $570 \times 455 \text{ mm.}$  Section of compensating ring  $6900 \text{ mm}^2$  No. of rivets and diameter of rivet holes... E.W.  
 Outer row rivet pitch at ends... Depth of flange if manhole flanged  $82 \text{ mm.}$  Steam Dome: Material...  
 Tensile strength... Thickness of shell... Description of longitudinal joint...  
 Diameter of rivet holes... Pitch of rivets... Percentage of strength of joint { Plate... Rivets...  
 Internal diameter... Working pressure by Rules... Thickness of crown... No. and diameter  
 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 { 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  
 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 per  
 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...

The foregoing is a correct description,  
**AKTIEBOLAGET LINDHOLMENS VARV**  
 INGRÄNNINGEN  
*Manufacturers*

Dates of Survey while building { During progress of work in shops - - - 28th March - 6th May, 1949. Are the approved plans of boiler and superheater... 3.11.1949  
 During erection on board vessel - - - Total No. of visits... 11

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.)

This boiler has been built under special survey in accordance with the approved plan and the Rules for Welded Pressure Vessels Class I. The workmanship is good. All welded parts of the boiler have been stress-relieved in accordance with the Rules. Test sheets for the material are attached. Chalmers' certificate of routine tests of welding carried out in my presence and plans showing the position and number of X-ray films on which it is indicated category in which each film was placed by Tekniska Röntgencentralen are attached. Two representative X-ray films are forwarded herewith. Macro tests have been carried out at the works of A-B. Lindholmens Varv with satisfactory results.

The boiler has been marked:

No. 528  
 LLOYD'S TEST 317 LBS.  
 WP 178 LBS.  
 SJ 5.5.49

Survey Fee ... Kr. 180:00: } When applied for... 21st June 1949.  
 Travelling Expenses (if any) £ : : } When received... 19...

*Sten Johansson*  
 Engineer Supervisor to Lloyd's Register of Shipping

Committee's Minute... *FRI, 21 JUN 1949*  
 Assigned... *In committee see J.S. Ryd*