

## REPORT ON BOILERS.

No. 4380

Received at London Office 29 AUG 1949

Date of writing Report 22.8.49 When handed in at Local Office 19.10.49 Port of Stockholm

No. in Reg. Book. Survey held at Norrköping Date, First Survey 27.5 Last Survey 14.7 1949

95857 on the m.s. "NORDHEM" (Number of Visits 10) Gross 1041.93 Tons Net 492.22

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

Engines made at Stockholm By whom made A/B Atlas-Diesel Engine No. 86230 When made 1949

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

Nominal Horse Power 187 Owners Rederi A/B Manhem Port belonging to Stockholm

MULTITUBULAR BOILERS ~~MAIN~~ ~~AUXILIARY~~ OR DONKEY.

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

Total Heating Surface of Boilers  $60 \text{ m}^2 = 646 \text{ square feet}$  Is forced draught fitted No Coal or Oil fired Oil fired

No. and Description of Boilers 1 multitubular (Scotch) boiler Working Pressure  $178 \text{ lbs/in}^2$

Tested by hydraulic pressure to  $317 \text{ lb/in}^2$  Date of test 5.5.49 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 Double spring loaded.

Area of each set of valves per boiler { per Rule  $2700 \text{ mm}^2$  as fitted  $4900 \text{ mm}^2$  Pressure to which they are adjusted  $176 \text{ lb/in}^2$  Are they fitted with easing gear Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No main boilers

Smallest distance between boilers or uptakes and bunkers or woodwork insulation  $175 \text{ m/m}$  Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating  $3000 \text{ m/m}$  Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers  $2561 \text{ m/m}$  Length  $3000 \text{ m/m}$  Shell plates: Material S.M. Steel Tensile strength  $44-50 \text{ kg/mm}^2$

Thickness  $19.5 \text{ m/m}$  Are the shell plates welded or flanged Electr. welded Description of riveting: circ. seams { end - inter -

Long. seams Electr. 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  $182 \text{ lbs/in}^2$

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

Material S.M. Steel Tensile strength  $41-47 \text{ kg/mm}^2$  Smallest outside diameter  $770 \text{ m/m}$

Length of plain part { top - bottom - Thickness of plates { crown  $10 \text{ m/m}$  bottom  $10 \text{ m/m}$  Description of longitudinal joint Electr. welded

Dimensions of stiffening rings on furnace or c.c. bottom - Working pressure of furnace by Rules  $182 \text{ lbs/in}^2$

Stays in steam space: Material S.M. Steel Tensile strength  $41-47 \text{ kg/mm}^2$  Thickness  $24 \text{ m/m}$  Pitch of stays Max.  $480 \text{ m/m}$

Are stays secured Electr. welded with welded washers outside Working pressure by Rules  $193 \text{ lbs/in}^2$

Stays in combustion chamber: Material S.M. Steel Tensile strength {  $41-47 \text{ kg/mm}^2$  Thickness {  $24 \text{ m/m}$   $18 \text{ m/m}$

In pitch of stay tubes in nests  $200 \text{ m/m}$  Pitch across wide water spaces  $345 \text{ m/m}$  Working pressure { front  $183 \text{ lbs/in}^2$  back  $285 \text{ lbs/in}^2$

Stays to combustion chamber tops: Material S.M. Steel Tensile strength  $44-50 \text{ kg/mm}^2$  Depth and thickness of girder

Centre  $175 \times 21 \text{ m/m}$  Length as per Rule  $529 \text{ m/m}$  Distance apart  $200 \text{ m/m}$  No. and pitch of stays

Each Electr. welded cont. Working pressure by Rules  $182 \text{ lbs/in}^2$  Combustion chamber plates: Material S.M. Steel

Tensile strength  $41-47 \text{ kg/mm}^2$  Thickness: Sides  $15 \text{ m/m}$  Back  $15 \text{ m/m}$  Top  $15 \text{ m/m}$  Bottom  $15 \text{ m/m}$

Effect of stays to ditto: Sides  $170 \times 190 \text{ m/m}$  Back  $190 \times 185 \text{ m/m}$  Top  $200$  Are stays fitted with nuts or riveted over Electr. welded

Working pressure by Rules  $220 \text{ lbs/in}^2$  Front plate at bottom: Material S.M. Steel Tensile strength  $41-47 \text{ kg/mm}^2$

Thickness  $24 \text{ m/m}$  Lower back plate: Material S.M. Steel Tensile strength  $41-47 \text{ kg/mm}^2$  Thickness  $24 \text{ m/m}$

Of stays at wide water space  $345 \times 185 \text{ m/m}$  Are stays fitted with nuts or riveted over Electr. welded

Working pressure  $308 \text{ lbs/in}^2$  Main stays: Material S.M. Steel Tensile strength  $44-50 \text{ kg/mm}^2$

Thickness  $60 \text{ m/m}$  No. of threads per inch El. welded Area supported by each stay Max.  $400 \times 357.5 \text{ m/m}$

Working pressure by Rules  $238 \text{ lbs/in}^2$  Screw stays: Material S.M. Steel Tensile strength  $41-47 \text{ kg/mm}^2$

Thickness  $38 \text{ m/m}$  No. of threads per inch 9 Area supported by each stay  $190 \times 200 \text{ m/m}$



Working pressure by Rules  $192 \text{ lb/in}^2$  Are the stays drilled at the outer ends. No Margin stays: Diameter  $\frac{1}{2}$  47 m/m  
No. of threads per inch El. welded Area supported by each stay  $267.5 \times 185 \text{ m/m}$  Working pressure by Rules  $367 \text{ lbs/in}^2$   
Tubes: Material S.M. Steel External diameter } Plain 70 m/m Thickness 3.69 m/m No. of threads per inch 9  
Pitch of tubes  $102 \times 98 \text{ m/m}$  Working pressure by Rules  $213 \text{ lbs/in}^2$  Manhole compensation: Size of opening  
shell plate  $570 \times 455 \text{ m/m}$  Section of compensating ring  $6900 \text{ mm}^2$  No. of rivets and diameter of rivet holes Electr. welded  
Outer row rivet pitch at ends - Depth of flange if manhole flanged 82 m/m Steam Dome: Material None  
Tensile strength Thickness of shell Description of longitudinal joint  
Diameter of rivet holes Pitch of rivets Percentage of strength of joint  
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 casing 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.

The foregoing is a correct description,

Dates of Survey while building During progress of work in shops - - - Are the approved plans of boiler and superheater forwarded herewith No. 3. large  
During erection on board vessel - - - 27.5.49 - 14.7.49 Total No. of visits 10  
(If not state date of approval.)

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 and has been fitted onboard under my supervision and to my satisfaction and its safety valves have been adjusted under steam to  $176 \text{ lbs/in}^2$ .

Please see also Gothenburg Surveyors' report No. 16742.

Marks on boiler:- No. 528 LLOYD'S TEST 317 lbs. W.P. 178 lbs. SJ 5.5.49.

Survey Fee ... £ : : When applied for, 19.....  
Travelling Expenses (if any) £ : : When received, 19.....

H. Pelin

Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute

21 OCT 1949

Assigned

For Committee J. E. R. H.



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