

# REPORT ON BOILERS.

No. 16808

Received at London Office 3 MAY 1926

Date of writing Report 24 April 1926 When handed in at Local Office 192 Port of **HAMBURG**

No. in Survey held at **HAMBURG** Date, First Survey 24 June 1925 Last Survey 16 April 1926

2260 on the **Steel Twin Sc. St. "NEPTUN"** (Number of Visits 21.) Tons { Gross 7250 Net 3640

aster Built at **HAMBURG** By whom built **BLOHM & VOSS** Yard No. 472 When built 1926

Engines made at **HAMBURG** By whom made **BLOHM & VOSS** Engine No. 472 When made 1926

Boilers made at **HAMBURG** By whom made **BLOHM & VOSS** Boiler No. { 1248 1249 1250 When made 1926

Minimal Horse Power 603 Owners **NORDDEUTSCHE SEEFABRIKWERKE** Port belonging to **NORDENHAFEN**

## MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel { **Krupp A.G. Essen.** **Mannmann Werke. Abt. Ludwig-Krauss. - Leichter.** (Letter for Record **S**)

Total Heating Surface of Boilers 765 sq. m. 82353 Is forced draught fitted **yes** Coal or Oil fired **coal**

No. and Description of Boilers 3 - Single multitubular. 358. Working Pressure 15 kg/cm<sup>2</sup> (313 lb)

Tested by hydraulic pressure to 370 lb. Date of test 22.12.25 No. of Certificate { 411 412 413 Can each boiler be worked separately **yes**

Area of Firegrate in each Boiler 5.5 sq. m. No. and Description of safety valves to each boiler 2 spring loaded. ✓

Area of each set of valves per boiler { per Rule 9843 sq. m. Pressure to which they are adjusted 15 kg/cm<sup>2</sup> Are they fitted with easing gear **yes** ✓

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler ✓

Smallest distance between boilers or uptakes and bunkers **1200 mm** Is oil fuel carried in the double bottom under boilers **no**

Smallest distance between shell of boiler and tank top plating **800 mm** Is the bottom of the boiler insulated **yes** ✓

Largest internal dia. of boilers 4650 mm. Length 3740 mm. Shell plates: Material **Steel** Tensile strength 47-55 kg/cm<sup>2</sup>

Thickness 37 mm. Are the shell plates welded or flanged **flanged** Description of riveting: circ. seams { end **double** ✓

Long. seams **double butt. rivets** Diameter of rivet holes in { circ. seams 38 mm ✓ long. seams 41 mm ✓ Pitch of rivets { 111.4 mm ✓ 254 mm ✓

Percentage of strength of circ. end seams { plate 66 % rivets 42.2 % Percentage of strength of circ. intermediate seam { plate ✓ rivets ✓

Percentage of strength of longitudinal joint { plate 83.8 % rivets 101 % combined 85.9 % Working pressure of shell by Rules 15.6 kg/cm<sup>2</sup>

Thickness of butt straps { outer 32 mm ✓ inner 32 mm ✓ No. and Description of Furnaces in each Boiler 3 - **horizontal**. 3 cf. ✓

Material **Steel** Tensile strength 41-47 kg/cm<sup>2</sup> Smallest outside diameter 1185 mm. ✓

Length of plain part { top ✓ bottom ✓ Thickness of plates { crown 17.5 mm ✓ bottom 17.5 mm ✓ Description of longitudinal joint **welded** ✓

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 15.2 kg/cm<sup>2</sup>

End plates in steam space: Material **Steel** ✓ Tensile strength 41-47 kg/cm<sup>2</sup> Thickness { front 28 mm ✓ back 26 mm ✓ Pitch of stays 380 x 380 mm.

How are stays secured **double nut - riveted washers at outside.** Working pressure by Rules 21.3 kg/cm<sup>2</sup>

Tube plates: Material { front **Steel** ✓ back **Steel** ✓ Tensile strength { 41-47 kg/cm<sup>2</sup> ✓ Thickness { 28 mm ✓ 23 mm ✓

Mean pitch of stay tubes in nests 220 mm. Pitch across wide water spaces 360 mm. Working pressure { front 15.55 kg/cm<sup>2</sup> ✓ back 16.95 kg/cm<sup>2</sup> ✓

Girders to combustion chamber tops: Material **Steel** ✓ Tensile strength 44-51 kg/cm<sup>2</sup> Depth and thickness of girder

at centre 210 mm - 2 x 25 mm ✓ Length as per Rule 350 mm. ✓ Distance apart 190 mm ✓ No. and pitch of stays

in each 3 - 200 mm. ✓ Working pressure by Rules 17.45 kg/cm<sup>2</sup> Combustion chamber plates: Material **Steel** ✓

Tensile strength 41-47 kg/cm<sup>2</sup> ✓ Thickness: Sides 19 mm ✓ Back 19 mm ✓ Top 19 mm ✓ Bottom 22 mm ✓

Pitch of stays to ditto: Sides 190 x 200 mm. Back 190 x 200 mm. Top 190 x 200 mm. Are stays fitted with nuts or riveted over **nuts** ✓

Working pressure by Rules 23.5 kg/cm<sup>2</sup> Front plate at bottom: Material **Steel** ✓ Tensile strength 41-47 kg/cm<sup>2</sup> ✓

Thickness 24 mm. Lower back plate: Material **Steel** ✓ Tensile strength 41-47 kg/cm<sup>2</sup> ✓ Thickness 26 mm. ✓

Pitch of stays at wide water space 250 mm. 330 ✓ Are stays fitted with nuts or riveted over **double nut & washers** ✓

Working Pressure 17.5 kg/cm<sup>2</sup> Main stays: Material **Steel** ✓ Tensile strength 44-51 kg/cm<sup>2</sup> ✓

Diameter { At body of stay, 70 mm. ✓ No. of threads per inch 11 ✓ Area supported by each stay 380 x 380 mm.

Working pressure by Rules 17.5 kg/cm<sup>2</sup> Screw stays: Material **Steel** ✓ Tensile strength 34-41 kg/cm<sup>2</sup> ✓

Diameter { At turned off part, 38.95 mm. ✓ No. of threads per inch 11 ✓ Area supported by each stay 190 x 200 mm.



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Working pressure by Rules  $15.8 \text{ kg/cm}^2$  Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 4 7/8 in  
Over threads 4 7/8 in  
No. of threads per inch 11 Area supported by each stay 200 x 300 mm Working pressure by Rules  $15.65 \text{ kg/cm}^2$   
Tubes: Material Seander External diameter { Plain 83 mm Thickness 4 mm  
Stay 83 mm No. of threads per inch 11  
Pitch of tubes 220 mm Working pressure by Rules  $15 \text{ kg/cm}^2$  Manhole compensation: Size of opening  
shell plate 420 x 520 mm Section of compensating ring 1040 x 940 x 37 mm No. of rivets and diameter of rivet holes 52 - 38 mm  
Outer row rivet pitch at ends 196 mm Depth of flange if manhole flanged 65 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 Schmidt Patent Manufacturers of { Tubes Naumann Röhren Werke  
Steel castings Glehn + Voss  
Number of elements 42 each from Material of tubes Seander Internal diameter and thickness of tubes 18 mm - 3 mm  
Material of headers Steel castings Tensile strength 41-55 kg/cm Thickness 22 mm Can the superheater be shut off  
the boiler be worked separately yes Is a safety valve fitted to every part of the superheater which can be shut off from the boiler yes  
Diam. of each safety valve 80 mm Are the safety valves fitted with easing gear yes Working pressure as  
Rules  $15 \text{ kg/cm}^2$  Pressure to which the safety valves are adjusted 15 kg/cm (213 lbs) Hydraulic test pressure  
tubes  $45 \text{ kg/cm}^2$  castings  $45 \text{ kg/cm}^2$  and after assembly in place  $45 \text{ kg/cm}^2$  Are drain cocks or valves fitted  
to free the superheater from water where necessary yes  
Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with yes  
The foregoing is a correct description,  
Fahm Manufacture

Dates of Survey { During progress of 24/6-6/7-13/7-18/8-27/8-29/8-10/9-11/10-15/10 Are the approved plans of boiler and superheater forwarded herewith  
work in shops - - - 6/11-27/4-7/12-12/12-23/2/25 (If not state date of approval.)  
while building { During erection on 30/1-13/2-19/2-5/3-10/3-13/4-15/4 Total No. of visits 21  
board vessel - - -

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) Material + workmanship of  
these main boilers are of good quality. The material used are made  
at works recognized by the Committee and tested by the Society's  
Surveyors in conformity with the requirements of the Rules. The  
boilers have been made in accordance with the approved plans, the  
Secretary's letter and otherwise in conformity with the Rules. Under  
steam they were found sound + tight in every respect and having  
been built under Special Survey, they are eligible in my opinion  
for record N.B-26

Survey Fee Please see Report on When applied for, 192  
Travelling Expenses (if any) nothing When received, 192

Friedrich Hill  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute FRI. 7 MAY 1926

Assigned



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Foundation