

REPORT ON BOILERS.

No. 22840

Date of writing Report 7/7/38 to When handed in at Local Office 19 Port of **HAMBURG**

No. in Survey held at **Lübeck** Date, First Survey 16.8.37 Last Survey 30.6.38 19

Reg. Book. on the **Steel Sc. "Reinbek"** (Number of Visits 22) Gross 2884 Tons Net 1644

Master Built at **Lübeck** By whom built **Lüb. Maschb. Ges.** Yard No. 367 When built 1938

Engines made at **Berlin-Tegel** By whom made **Rheinmetall-Borsig A.G.** Engine No. 3289 When made 1938

Boilers made at **Lübeck** By whom made **Lüb. Maschinenbau Gesellsch.** Boiler No. 1291/2 When made 1938

Nominal Horse Power **353** Owners **Knöhr & Burchard NfL.** Port belonging to **Hamburg**

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel **Mannesmannröhrenwerke Akt. Hannh. Biermes Hütte, Hückingen** (Letter for Record **S**)

Total Heating Surface of Boilers **457.6 m²** Is forced draught fitted **yes** Coal or Oil fired **coal**

No. and Description of Boilers **2 Multitubular Scotch Marine** Working Pressure **214 lb.**

Tested by hydraulic pressure to **371 lb.** Date of test **13.1.38** No. of Certificate **684-5** Can each boiler be worked separately **yes**

Area of Firegrate in each Boiler **5.61 m²** No. and Description of safety valves to each boiler **1, 2 springs loaded**

Area of each set of valves per boiler **per Rule 9050 mm²** Pressure to which they are adjusted **214 lb.** 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 or woodwork **420 mm** Is oil fuel carried in the double bottom under boilers **no**

Smallest distance between shell of boiler and tank top plating **420 mm** Is the bottom of the boiler insulated **yes**

Largest internal dia. of boilers **4400 mm** Length **3474 mm** Shell plates: Material **O.H. Steel** Tensile strength **47-53 kg/cm²**

Thickness **35 mm** Are the shell plates welded or flanged **flanged** Description of riveting: circ. seams **38 mm** end **lap, J.B.**

long. seams **double lt. stay, treble** Diameter of rivet holes in **38 mm** Pitch of rivets **114.1 mm**

Percentage of strength of circ. end seams **plate 66.6 rivets 56.6** Percentage of strength of circ. intermediate seam **plate 84.5 rivets 124.9**

Percentage of strength of longitudinal joint **plate 84.5 rivets 124.9 combined 87.9** Working pressure of shell by Rules **15.67 kg/cm²**

Thickness of butt straps **outer 35 mm inner 35 mm** No. and Description of Furnaces in each Boiler **3 Morrison**

Material **O.H. Steel** Tensile strength **41-47 kg/cm²** Smallest outside diameter **1084 mm**

Length of plain part **top 250 mm bottom —** Thickness of plates **top 17 mm bottom —** Description of longitudinal joint **welded (water gas)**

Dimensions of stiffening rings on furnace or c.c. bottom **Working pressure of furnace by Rules 16.1 kg/cm²**

End plates in steam space: Material **O.H. Steel** Tensile strength **41-47 kg/cm²** Thickness **32 mm** Pitch of stays **d = 435 mm**

How are stays secured **screwed, nuts inside and outside** Working pressure by Rules **17.7 kg/cm²**

Tube plates: Material **front O.H. Steel back O.H. Steel** Tensile strength **41-47 kg/cm²** Thickness **27 mm**

Mean pitch of stay tubes in nests **220 x 222 mm** Pitch across wide water spaces **360 mm** Working pressure **front 17.8 kg/cm² back 27.7 kg/cm²**

Girders to combustion chamber tops: Material **O.H. Steel** Tensile strength **41-47 kg/cm²** Depth and thickness of girder

at centre **240, 2 x 15 mm** Length as per Rule **760 mm** Distance apart **200 mm** No. and pitch of stays

in each **3, 180 mm** Working pressure by Rules **15.15 kg/cm²** Combustion chamber plates: Material **O.H. Steel**

Tensile strength **41-47 kg/cm²** Thickness: Sides **17 mm** Back **17 mm** Top **17 mm** Bottom **20 mm**

Pitch of stays to ditto: Sides **180 x 200 mm** Back **240 x 200 mm** Top **180 x 200 mm** Are stays fitted with nuts or riveted over **with nuts**

Working pressure by Rules **17.5, 17.6, 19.5 kg/cm²** Front plate at bottom: Material **O.H. Steel** Tensile strength **41-47 kg/cm²**

Thickness **27 mm** Lower back plate: Material **O.H. Steel** Tensile strength **41-47 kg/cm²** Thickness **27 mm**

Pitch of stays at wide water space **d = 550 mm** Are stays fitted with nuts or riveted over **with nuts**

Working Pressure **15.65 kg/cm²** Main stays: Material **O.H. Steel** Tensile strength **43.3 - 49.3 kg/cm²**

Diameter **At body of stay, 76 mm 68 mm** No. of threads per inch **6** Area supported by each stay **440 x 440 mm**

Working pressure by Rules **17.5, 18.3 kg/cm²** Screw stays: Material **O.H. Steel** Tensile strength **40.2 - 46.2 kg/cm²**

Diameter **At turned off part, 37 mm 41.3 mm** No. of threads per inch **9** Area supported by each stay **40,000 mm²**

REPORT ON BOILERS

Working pressure by Rules $17 \frac{1}{2}$ $\frac{lb}{sq. in.}$ Are the stays drilled at the outer ends ☒ Margin stays: Diameter $4 \frac{1}{2}$ Over threads 47.6

No. of threads per inch 9 Area supported by each stay $180 \times 200, 291 \times 200$ Working pressure by Rules $17.65 \frac{lb}{sq. in.}$

Tubes: Material 0.4 Steel External diameter $8 \frac{1}{2}$ Thickness 4 No. of threads per inch 9

Pitch of tubes 110×111 Working pressure by Rules $16 \frac{lb}{sq. in.}$ Manhole compensation: Size of opening in shell plate 69×45 Section of compensating ring $110 \times 51 \frac{1}{2}$ No. of rivets and diameter of rivet holes $36, 38 \times \phi$

Outer row rivet pitch at ends 208 Depth of flange if manhole flanged 113 Steam Dome: Material \checkmark

Tensile strength \checkmark Thickness of shell \checkmark Description of longitudinal joint \checkmark

Diameter of rivet holes \checkmark Pitch of rivets \checkmark Percentage of strength of joint \checkmark

Internal diameter \checkmark Working pressure by Rules \checkmark Thickness of crown \checkmark No. and diameter of stays \checkmark Inner radius of crown \checkmark Working pressure by Rules \checkmark

How connected to shell \checkmark Size of doubling plate under dome \checkmark Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell \checkmark

Type of Superheater *Schmidt'sche Heißdampf-Ges.* Manufacturers of *Deutsche Röhrenwerke, Düsseldorf*

Number of elements 64 each side Material of tubes 0.4 Steel Internal diameter and thickness of tubes $12 \frac{1}{2}$ 2.8

Material of headers *solid drawn sp. tubes* Tensile strength $41 \div 47 \frac{1}{2}$ Thickness 20 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 $125 \frac{1}{2}$ Are the safety valves fitted with easing gear ☒ Working pressure as per Rules $92.4 \frac{lb}{sq. in.}$ Pressure to which the safety valves are adjusted $214 \frac{lb}{sq. in.}$ Hydraulic test pressure: tubes $80 \frac{lb}{sq. in.}$ forgings and castings $50 \frac{lb}{sq. in.}$ and after assembly in place $48 \frac{lb}{sq. in.}$ 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 ☒

The foregoing is a correct description,

Maschinen-Gesellschaft Manufacturer.

Dates of Survey while building 1937 During progress of work in shops - $Aug. 16, Sep. 7, 14, 30 Oct. 7, 14, 21, 28 Nov. 4, 11, 18, 25 Dec. 2, 9, 16, 30 1937$ Are the approved plans of boiler and superheater forwarded herewith ☒ (If not state date of approval.)

During erection on board vessel - $Mar. 29, May 10 Jun. 20, 30$ Total No. of visits 22

Is this Boiler a duplicate of a previous case ☒ If so, state Vessel's name and Report No. *"Nordcoke", 22153.*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

These Boilers are built under Special Survey in accordance with the approved plans, the Secretary's Letters thereto and in compliance with the Society's Rules. The materials used in the construction and the workmanship are of good quality. They have been satisfactorily fitted on board and the safety valves were adjusted under steam to a working pressure of 214 lb. In my opinion these Boilers are eligible for notation in the Reg. Book of

	2 58.	6cf.	214 lb.
Safety valves' washers:	port	starb	superheater
Port Boiler:	21-	33.5	9- $\frac{1}{2}$ in.
Starb "	27-	24.5	3- $\frac{1}{2}$ in.

Survey Fee ... *See machinery* When applied for, 19

Travelling Expenses (if any) £ *Report.* When received, 19

Committee's Minute *FRI 29 JUL 1938*

Assigned *See Ham. 76 22840*

J. A. McKee
Engineer/Surveyor to Lloyd's Register of Shipping.