

REPORT ON BOILERS.

No. 1787

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Date of writing Report 29.4.36 When handed in at Local Office 19 Port of BREMEN

No. in Survey held at WESERMÜNDE Date, First Survey 11th Dec. 1935 Last Survey 22nd April 1936

Reg. Book. 38932 on the STEEL SINGLE SC. STEAMER LEONIAN (Number of Visits 14) Gross 5424 Tons Net 3202

Master Built at WESERMÜNDE By whom built WERK: SEEBECK Yard No. 898 When built 1936

Engines made at WESERMÜNDE By whom made DESCHIMAG WERK: SEEBECK Engine No. 1411 When made 1936

Boilers made at WESERMÜNDE By whom made DESCHIMAG WERK: SEEBECK Boiler No. 1677/8 When made 1936

Nominal Horse Power 350 Owners UNITED AFRICA COMPANY Port belonging to LIVERPOOL

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Mann. Mannesmannröhren-Werke A.G. Düsseldorf (Letter for Record 5)

Total Heating Surface of Boilers 4476 sq. ft. = $2 \times 208 \text{ m}^2$ Is forced draught fitted yes Coal or Oil fired coal fired

No. and Description of Boilers 2 multitubular main boilers 28B. Working Pressure 220 lbs (15.46 kg/cm²)

Tested by hydraulic pressure to 380 lbs Date of test 15.11.35 No. of Certificate 1642/65 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 50 sq. ft. No. and Description of safety valves to each boiler 2 spring loaded safety valves

Area of each set of valves per boiler {per Rule 7673 mm² as fitted 11351 mm² Pressure to which they are adjusted 220 lbs 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 300 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 4350 mm Length 3350 mm Shell plates: Material F. M. Steel Tensile strength 47-53 kg/cm²

Thickness 35 mm Are the shell plates welded or flanged flanged Description of riveting: circ. seams {end up down inter. —

long. seams donkey butt straps Diameter of rivet holes in {circ. seams 36 mm long. seams 36 mm Pitch of rivets {99 mm 222 mm

Percentage of strength of circ. end seams {plate 63% rivets 56% Percentage of strength of circ. intermediate seam {plate 84% rivets 93%

Percentage of strength of longitudinal joint {plate 84% rivets 93% combined Working pressure of shell by Rules 15.5 kg/cm²

Thickness of butt straps {outer 28 mm inner 31 mm No. and Description of Furnaces in each Boiler 3 corrugated (Doughton) furnaces

Material F. M. Steel Tensile strength 41-47 kg/cm² Smallest outside diameter 1031 mm

Length of plain part {top — bottom — Thickness of plates {crown 15.5 mm bottom 15.5 mm Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom — Working pressure of furnace by Rules 15.5 kg/cm²

End plates in steam space: Material F. M. Steel Tensile strength 41-47 kg/cm² Thickness 29.5 mm Pitch of stays 420 x 475 mm

How are stays secured nuts inside & outside & washers Working pressure by Rules 15.5 kg/cm²

Tube plates: Material {front F. M. Steel back F. M. Steel Tensile strength {41-47 kg/cm² Thickness {28 mm 23 mm

Mean pitch of stay tubes in nests 208 x 208 mm Pitch across wide water spaces 360 mm Working pressure {front 16 kg/cm² back 31 mm

Girders to combustion chamber tops: Material F. M. Steel Tensile strength 44-50 kg/cm² Depth and thickness of girder

at centre 250 - 18 mm Length as per Rule 830 mm Distance apart 200 mm No. and pitch of stays

in each 3 - 210 mm Working pressure by Rules 18 kg/cm² Combustion chamber plates: Material F. M. Steel

Tensile strength 41-47 kg/cm² Thickness: Sides 23 mm Back 19 mm Top 23 mm Bottom 23 mm

Pitch of stays to ditto: Sides 210 x 190 mm Back 203 x 190 mm Top 210 x 200 mm Are stays fitted with nuts or riveted over fitted with nuts

Working pressure by Rules 23 kg/cm² Front plate at bottom: Material F. M. Steel Tensile strength 41-47 kg/cm²

Thickness 28 mm Lower back plate: Material F. M. Steel Tensile strength 41-47 kg/cm² Thickness 28 mm

Pitch of stays at wide water space 360 mm Are stays fitted with nuts or riveted over fitted with nuts

Working Pressure 26 kg/cm² Main stays: Material F. M. Steel Tensile strength 44-50 kg/cm²

Diameter {At body of stay, 80 mm No. of threads per inch 6 Area supported by each stay 420 x 475 mm

Working pressure by Rules 19.7 kg/cm² Screw stays: Material F. M. Steel Tensile strength 41-47 kg/cm²

Diameter {At turned off part, 38 mm No. of threads per inch 9 Area supported by each stay 203 x 190 mm

Working pressure by Rules 18.5 kg/cm^2 Are the stays drilled at the outer ends ☒ Margin stays: Diameter { At turned off part, 44 Z / or 48 Z / Over threads }
No. of threads per inch 9 / Area supported by each stay $203 \times 275 \text{ mm}^2$ Working pressure by Rules 17.5 kg/cm^2
Tubes: Material P. M. Steel External diameter { Plain 76 / Stay 76 } Thickness { 4 / 8 } No. of threads per inch 9
Pitch of tubes $104 \times 104 \text{ mm}$ Working pressure by Rules 17.5 kg/cm^2 Manhole compensation: Size of opening in shell plate $570 \times 440 \text{ mm}$ Section of compensating ring $35 \times 300 \text{ mm}$ No. of rivets and diameter of rivet holes 48 rivets of 36 Z dia
Outer row rivet pitch at ends 200 Z Depth of flange if manhole flanged 110 Z 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 { Plate / Rivets }
Internal diameter Working pressure by Rules Thickness of crown No. and diameter of stays
How connected to shell Size of doubling plate under dome Working pressure by Rules
Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell

Type of Superheater Schmidt Smoke tube / Manufacturers of { Tubes Mammernann Röhrenwerke of Dinsdorf / Steel castings Norddeutsche Stahlwerke, Rastatt, W. Germany }
Number of elements 78 Material of tubes P. M. Steel nameless Internal diameter and thickness of tubes 16 Z - 3 Z
Material of headers O. H. cast steel Tensile strength 41-55 kg/cm² Thickness 20 Z Can the superheater be shut off and 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
Area of each safety valve 1256 cm^2 dia 40 Z Are the safety valves fitted with easing gear yes Working pressure as per Rules 90 kg/cm^2 Pressure to which the safety valves are adjusted 220 lbs Hydraulic test pressure: tubes 100 kg/cm^2 castings 50 kg/cm^2 and after assembly in place 50 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 22 inclusive for boilers been complied with yes

The foregoing is a correct description, per Hoefor Mr. J. Hoff, Manufacturer.

Dates of Survey { During progress of work in shops - - 1935 Oct. 11, 16, 21, 23, 29, Nov. 1, 6, 15, Dec. 30. / During erection on board vessel - - 1936 March 3, 17, April 6, 15, 22. } Are the approved plans of boiler and superheater forwarded herewith yes (If not state date of approval.)
Total No. of visits 14

Is this Boiler a duplicate of a previous case yes If so, state Vessel's name and Report No. NIGERIAN & ETHIOPIAN, 1775 & 1780

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These Boilers & Superheaters have been built under Special Survey in accordance with the appr. plans, the Surveyor's letters and in conformity with the requirements of the Rules. The materials used in the construction are made at works recognized by the Committee and tested by the Port Surveyor. Materials & workmanship are of good quality.

Marks on Boilers:

No 164	No 165
Lloyd's Test	Lloyd's Test
380 lbs	380 lbs
WP 220	WP 220
A.C. 15.11.35.	A.C. 15.11.35.

Height of adjusting washers:

Starb. Boiler: Port valve 38 Z Starb. valve 36.2 Z Top up 29.5
Port. - - - 37.1 Z - - - 39.2 Z - - - 25.5

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

Included Rpt 4

A. Carstensen
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 15 MAY 1936

Assigned

See Bmn. J.E. 1787



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