

REPORT ON BOILERS.

No. 1788.

Received at London Office

26 MAR 1936

Date of writing Report 23. 3. 1936 When handed in at Local Office

10

Port of

BREMEN

No. in Survey held at WESERMÜNDE
eg. Book.

Date, First Survey 7. 8. 35 Last Survey 7. 3. 1936

2972 on the STEEL SINGLE SC. STEAMER

ETHIOPIAN

(Number of Visits 10)

Gross 5424

Net 3203

Master Built at WESERMÜNDE By whom built DEUTSCHE SCHIFF- UND MASCHINENBAU A.G. WERK: SEEBECK Yard No. 896 When built 1936

Engines made at WESERMÜNDE By whom made DESCHIMAG WERK: SEEBECK Engine No. 1409 When made 1936

Boilers made at WESERMÜNDE By whom made DESCHIMAG WERK: SEEBECK Boiler No. 1673/74 When made 1936

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

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Messrs. Mannesmann-Werke A.G., Krefeld (Letter for Record 5)

Total Heating Surface of Boilers 4476 sq. ft. \checkmark Is forced draught fitted \checkmark Coal or Oil fired \checkmark No. and Description of Boilers 2 Multitubular Main Boilers \checkmark Working Pressure 220 lb./sq. in. \checkmark Tested by hydraulic pressure to 380 lb. Date of test 24.9.35 No. of Certificate 157-158 Can each boiler be worked separately \checkmark Area of Firegrate in each Boiler 50 sq. ft. No. and Description of safety valves to each boiler 2 spring loaded safety valves \checkmark Area of each set of valves per boiler \checkmark per Rule 7673 mm² as fitted 11351 mm² Pressure to which they are adjusted 220 lb. Are they fitted with easing gear \checkmark In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler \checkmark Smallest distance between boilers or uptakes and bunkers or woodwork 300 mm \checkmark Is oil fuel carried in the double bottom under boilers \checkmark Smallest distance between shell of boiler and tank top plating 800 mm \checkmark Is the bottom of the boiler insulated \checkmark Largest internal dia. of boilers 4350 mm \checkmark Length 3550 mm \checkmark Shell plates: Material P. M. Steel Tensile strength 47-53 kg/cm² \checkmark Thickness 35 mm \checkmark Are the shell plates welded or flanged flanged \checkmark Description of riveting: circ. seams \checkmark end \checkmark inter. \checkmark Long. seams donkey butt straps \checkmark Diameter of rivet holes in \checkmark circ. seams 36 mm \checkmark Pitch of rivets \checkmark 99 mm \checkmark 122 mm \checkmark Percentage of strength of circ. end seams \checkmark plate 63 % rivets 56 % Percentage of strength of circ. intermediate seam \checkmark plate \checkmark rivets \checkmark Percentage of strength of longitudinal joint \checkmark plate 84 % rivets 93 % Working pressure of shell by Rules 15.5 kg/cm² \checkmark Thickness of butt straps \checkmark outer 28 mm \checkmark inner 31 mm \checkmark No. and Description of Furnaces in each Boiler 3 corrugated (Deighton) furnaces \checkmark 3cfMaterial P. M. Steel Tensile strength 41-47 kg/cm² \checkmark Smallest outside diameter 1031 mm \checkmark Length of plain part \checkmark top \checkmark bottom \checkmark Thickness of plates \checkmark crown 15.5 mm \checkmark bottom 15.5 mm \checkmark Description of longitudinal joint welded \checkmark Dimensions of stiffening rings on furnace or c.c. bottom \checkmark Working pressure of furnace by Rules 15.5 kg/cm² \checkmark End plates in steam space: Material P. M. Steel Tensile strength 41-47 kg/cm² \checkmark Thickness 29.5 mm \checkmark Pitch of stays 420 x 475 mm \checkmark How are stays secured run inside & outside & washers \checkmark Working pressure by Rules 15.5 kg/cm² \checkmark Tube plates: Material \checkmark front P. M. Steel Tensile strength \checkmark 41-47 kg/cm² \checkmark back P. M. Steel Tensile strength \checkmark 41-47 kg/cm² \checkmark Thickness \checkmark 28 mm \checkmark 23 mm \checkmark Mean pitch of stay tubes in nests 208 x 208 mm \checkmark Pitch across wide water spaces 360 mm \checkmark Working pressure \checkmark front 16 kg/cm² \checkmark back 31 kg/cm² \checkmark Girders to combustion chamber tops: Material P. M. Steel Tensile strength 44-50 kg/cm² \checkmark Depth and thickness of girderat centre 250 mm \checkmark 18 mm \checkmark Length as per Rule 830 mm \checkmark Distance apart 200 mm \checkmark No. and pitch of staysin each 3 - 210 mm \checkmark Working pressure by Rules 18 kg/cm² \checkmark Combustion chamber plates: Material P. M. Steel \checkmark Tensile strength 41-47 kg/cm² \checkmark Thickness: Sides 23 mm \checkmark Back 19 mm \checkmark Top 23 mm \checkmark Bottom 23 mm \checkmark Pitch of stays to ditto: Sides 210 x 190 mm \checkmark Back 203 x 190 mm \checkmark Top 210 x 200 mm \checkmark Are stays fitted with nuts or riveted over fitted with nuts \checkmark Working pressure by Rules 23 kg/cm² \checkmark Front plate at bottom: Material P. M. Steel Tensile strength 41-47 kg/cm² \checkmark Thickness 28 mm \checkmark Lower back plate: Material P. M. Steel Tensile strength 41-47 kg/cm² \checkmark Thickness 28 mm \checkmark Pitch of stays at wide water space 360 mm \checkmark Are stays fitted with nuts or riveted over fitted with nuts \checkmark Working Pressure 26 kg/cm² \checkmark Main stays: Material P. M. Steel Tensile strength 44-50 kg/cm² \checkmark Diameter \checkmark At body of stay, 80 mm \checkmark No. of threads per inch 6 \checkmark Area supported by each stay 420 x 475 mm \checkmark Over threads 86 mm \checkmark Working pressure by Rules 19.7 kg/cm² \checkmark Screw stays: Material P. M. Steel Tensile strength 41-47 kg/cm² \checkmark Diameter \checkmark At turned off part, 38 mm \checkmark No. of threads per inch 9 \checkmark Area supported by each stay 203 x 190 mm \checkmark Over threads 42 mm \checkmark

Working pressure by Rules 18.5 kg/cm² Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 44 2
or 48 2
Over threads }
No. of threads per inch 9 Area supported by each stay 203 x 275 2 Working pressure by Rules 17.5 kg/cm²
Tubes: Material P.M. Steel External diameter { Plain 76 2
Stay 76 2 } Thickness { 4 2
8 2 } No. of threads per inch 9
Pitch of tubes 104 x 104 2 Working pressure by Rules 17.5 kg/cm² Manhole compensation: Size of opening
shell plate 570 x 440 2 Section of compensating ring 35 x 300 2 No. of rivets and diameter of rivet holes 48 rivets 36 3
Outer row rivet pitch at ends 200 2 Depth of flange if manhole flanged 110 2 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 ✓ 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 Pinche Tube Manufacturers of Mannmann Röhrenwerke - Düsseldorf
Number of elements 78 Material of tubes P.M. Steel random drawn Internal diameter and thickness of tubes 16 2 - 3 2
Material of headers O.H. cast steel Tensile strength 41-55 kg/cm² Thickness 20 2 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 2 dia 40 2 Are the safety valves fitted with easing gear yes Working pressure as per
Rules 90 kg/cm² Pressure to which the safety valves are adjusted 220 lbs Hydraulic test pressure
tubes 100 kg/cm², castings 50 kg/cm² and after assembly in place 50 kg/cm² 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

Deutsche Schiff- und Maschinenbau Aktiengesellschaft The foregoing is a correct description,
Work: Seebeck
Wesermünde-G. Bochum W. H. Hoff Manufacture

Dates of Survey { During progress of work in shops - 7/8.35, 13/8.35, 11/9.35, 17/9.35, 24.9.35
while building { During erection on board vessel - 6/12.35, 21/12.35, 30/12.35, 17/1.36, 7/2.36 } Are the approved plans of boiler and superheater forwarded herewith
(If not state date of approval.)
Total No. of visits 10

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

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 Secretary's letters
and otherwise 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 Surveyors. Materials and workmanship are of good quality

Marks on Boilers:

No. 157	No. 158
Lloyd's Test	Lloyd's Test
380 lbs	380 lbs
W.P. 220 "	W.P. 220 "
R.C. 24.9.35	24.9.35

Design of adjusting washers:
Port Boiler: Port valve 34.1 2, Stab. valve 34.2 2, Paycock
Starb. " " 36.3 2 " 35 2 " "

Survey Fee ... £ : ✓ When applied for, 19
Travelling Expenses (if any) £ : ✓ When received, 19
included in Rpt. 4

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

Committee's Minute FRI. 27 MAR 1936
Assigned See other Rpt.
Bmn. 1780