

Rpt. 5a.

REPORT ON BOILERS.

No. 16051

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Date of writing Report 19 Sept 1924 When handed in at Local Office 1924 Port of HAMBURG

No. in Survey held at TIEL Date, First Survey 30th June Last Survey 30th August 1924

Reg. Book. Steel Sc. S. "IVAN GORTON" (Number of Visits 10) Tons { Gross 1578
Net 870

Master TIEL Built at TIEL By whom built HOWALDTSWERKE Hard No. 647 When built 1921

Engines made at TIEL By whom made HOWALDTSWERKE Engine No. 772 When made 1924

Boilers made at TIEL By whom made HOWALDTSWERKE Boilers Nos. 1387
1388 When made 1920

Nominal Horse Power 186 Owners Federatieve Dampschiff "GEFION" Port belonging to HELSINGBORG

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Wm. Beardmore & Co. Ltd. Glasgow. (Letter for Record S.)

Total Heating Surface of Boilers 242 sq. m. Is forced draught fitted yes. Coal or Oil fired coal.

No. and Description of Boilers 1 single end multitubular main boiler. Working Pressure 13 kg. (185 lb.)

Tested by hydraulic pressure to 328 lb. Date of test 22.7.24 No. of Certificate 348-349 Can each boiler be worked separately yes.

Area of Firegrate in each Boiler 2.8 sq. m. No. and Description of safety valves to each boiler 2 Spring loaded.

Area of each set of valves per boiler { per Rule 5270 sq. m.
as fitted 10050 sq. m. Pressure to which they are adjusted 85 lb. (3 kg.) Are they fitted with easing gear yes.

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

Smallest distance between boilers or plates and bunkers or woodwork 250 mm. Is oil fuel carried in the double bottom under boilers no.

Smallest distance between shell of boiler and tank top plating 355 mm. Is the bottom of the boiler insulated yes.

Largest internal dia. of boilers 3500 mm. Length 3260 mm. Shell plates: Material Steel. Tensile strength 44-50 kg.

Thickness 26 mm. Are the shell plates welded or flanged flanged. Description of riveting: circ. seams { end 4. double.
inter 82 mm.

long. seams Double butt. Diameter of rivet holes in { circ. seams 26 mm.
long. seams 26 mm. Pitch of rivets { 162 mm.

Percentage of strength of circ. end seams { plate 68.3 %.
rivets 45.45 %. Percentage of strength of circ. intermediate seam { plate 84 %.
rivets 96.6 %.

Percentage of strength of longitudinal joint { plate 84 %.
rivets 96.6 %. combined 87.25 %. Working pressure of shell by Rules 13.4 kg.

Thickness of butt straps { outer 26 mm.
inner 25 mm. No. and Description of Furnaces in each Boiler 2. horisont.

Material Steel. Tensile strength 41-47 kg. Smallest outside diameter 978 mm.

Length of plain part { top 13 mm.
bottom 13 mm. Thickness of plates { crown 13 mm.
bottom 13 mm. Description of longitudinal joint welded.

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 13.47 kg.

End plates in steam space: Material Steel. Tensile strength 41-47 kg. Thickness 25 mm. Pitch of stays 420 mm.

How are stays secured Double nut & wash. doubling plate riveted. Working pressure by Rules 14.85 kg.

Tube plates: Material { front Steel.
back Steel. Tensile strength { 41-47 kg. Thickness { 25 mm.
21 mm.

Mean pitch of stay tubes in nests 220 mm. Pitch across wide water spaces 360 mm. Working pressure { front 15.33 kg.
back 14.78 kg.

Girders to combustion chamber tops: Material Steel. Tensile strength 44 kg. Depth and thickness of girder

at centre 180 mm. - 2 x 18 mm. Length as per Rule 700 mm. Distance apart 210 mm. No. and pitch of stays

in each 2 - 200 mm. Working pressure by Rules 13.04 kg. Combustion chamber plates: Material Steel.

Tensile strength 41-47 kg. Thickness: Sides 17 mm. Back 17 mm. Top 17 mm. Bottom 17 mm.

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

Working pressure by Rules 17.7 kg. Front plate at bottom: Material Steel. Tensile strength 41-47 kg.

Thickness 25 mm. Lower back plate: Material Steel. Tensile strength 41-47 kg. Thickness 25 mm. + 25 mm. doubling.

Pitch of stays at wide water space 500 mm. Are stays fitted with nuts or riveted over nuts.

Working Pressure 18.4 kg. Main stays: Material Steel. Tensile strength 41-47 kg.

Diameter { At body of stay, 70 mm.
or
Over threads 11 threads. No. of threads per inch 8 threads. Area supported by each stay 420 x 420 mm.

Working pressure by Rules 15.75 kg. Screw [stays: Material Steel. Tensile strength 41-47 kg.

Diameter { At turned off part, 35 mm.
or
Over threads 41 mm. No. of threads per inch 11 threads. Area supported by each stay 200 x 200 mm.

Working pressure by Rules 17 kg. Are the stays drilled at the outer ends no. Margin stays: Diameter { At turned off part, 42 mm. or Over threads 42 mm. }
No. of threads per inch 10 threads Area supported by each stay 400 x 200 mm. Working pressure by Rules 10.5 kg.
Tubes; Material Steel External diameter { Plain 88 mm. Stay 82 mm. } Thickness { 4 mm. 8 mm. } No. of threads per inch 10 threads
Pitch of tubes 110 mm. Working pressure by Rules 10.5 kg. Manhole compensation: Size of opening in shell plate 300 x 400 mm. Section of compensating ring 880 mm. Dia. 826 mm. No. of rivets and diameter of rivet holes 10 - 21 mm.
Outer row rivet pitch at ends 90 mm. Depth of flange if manhole flanged 70 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 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 Patent Standard Type Manufacturers of { Tubes Linke-Hofmann-Lauscha - Kiere. Steel castings Ahear Werke - Bremen. }
Number of elements 84. Material of tubes Nauglers drawn steel. Internal diameter and thickness of tubes 18 mm - 3 mm
Material of headers Steel castings. Tensile strength 42 kg/mm² Thickness 20 mm. 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 50 cm² Are the safety valves fitted with easing gear yes Working pressure as per Rules 59.4 kg. Pressure to which the safety valves are adjusted 13 kg (185 lb) Hydraulic test pressure: tubes 2200 kg. castings 555 lb. (39 kg.) and after assembly in place 555 lb. (39 kg.) 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.

HOWALDTSWERKE Manufacturer.

Dates of Survey { During progress of work in shops - - 30/6-9/7-18/7-22/7/24. Are the approved plans of boiler and superheater forwarded herewith yes (If not state date of approval.)
while building { During erection on board vessel - - 9/8-13/8-22/8-26/8-29/8-30/8/24 Total No. of visits 10.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) Material and workmanship of boiler and superheater are of good quality. The materials used in the construction are made at works recognized by the Committee and tested in conformity with the requirements of the Rules. Boiler and superheater showed no weakness and were found to be light & sound in every respect when tested by hydraulic pressure to 328 lb. and 555 lb. per square inch respectively.

THICKNESS OF THICKENED PARTS.

	FORN.	AFR.	SUPERHEATER.
Stb. Boiler	38 mm.	42.5 mm.	19 mm.
Port. Boiler	43 mm.	39 mm.	19 mm.

Survey Fee Please see attached report on machinery When applied for, 192
Travelling Expenses (if any) £ ✓ When received, 192

Friedrich Hill

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 30 SEP 1924

Assigned



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