

REPORT ON BOILERS.

19 MAR 1928

Received at London Office

Date of writing Report 1928 When handed in at Local Office Mar 12 1928 Port of Trieste
 No. in Survey held at Genoa & Trieste Date, First Survey Tri. Aug. 19th, 1927, Last Survey Tri. Feb 24, 1928
 Reg. Book. 40225 on the s/s "CONTE GRANDE" (Number of Visits Tri. 33) Gross 25661 Tons Net 15303
 Master Built at Trieste By whom built Stab. Tec. Irestino Yard No. 764 When built 1928.
 Engines made at Trieste By whom made Stab. Tecnica Irestino Engine No. 78/81 When made 1928
 Boilers made at Sampierdarena, Genoa By whom made Ansaldo S.A. Boiler No. 274-5 678 972980. When made 1927.
 Nominal Horse Power 4512 Owners Lloyds Sabauso Port belonging to Genoa.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Messrs August Thyssen Hütte & Messrs Krupp, etc. (Letter for Record S.)
 Total Heating Surface of Boilers 4088 sq. metres Is forced draught fitted Yes. Coal or Oil fired Oil
 No. and Description of Boilers 4 Double ended cylindrical multitubular Scotch type Working Pressure 220 lb/sq. in. 15.46 Kg/cm²
 Tested by hydraulic pressure to 26.70 Kg. Date of test 28.4.27, 4.5.27, 18.6.27, 19.6.27, 19.6.27 No. of Certificate 191, 194. Can each boiler be worked separately Yes.
 Area of Firegrate in each Boiler 26,000 sq. ft. for ordinary values. No. and Description of safety valves to each boiler 2 Spring loaded Cockburn's High Life.
 Area of each set of valves per boiler 16,220 mm² Pressure to which they are adjusted 225 lb/sq. in. 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 18" Is oil fuel carried in the double bottom under boilers Yes.
 Smallest distance between shell of boiler and tank top plating 14" Is the bottom of the boiler insulated Yes.
 Largest internal dia. of boilers 5030 mm Length 6700 mm Shell plates: Material Steel Tensile strength 44-50 Kg/mm²
 Thickness 41.5 mm Are the shell plates welded or flanged Yes Description of riveting: circ. seams Double Rivets
 long. seams Islet rivets Diameter of rivet holes in circ. seams 40 mm Pitch of rivets 100 x 117 mm
 Percentage of strength of circ. end seams plate 60% rivets 49.53% Percentage of strength of circ. intermediate seam plate 65.5% rivets 63.5%
 Percentage of strength of longitudinal joint plate 85.4% rivets 85% Working pressure of shell by Rules 15.46 Kg/cm²
 combined 87.79%
 Thickness of butt straps outer 32 mm inner 35 mm No. and Description of Furnaces in each Boiler 8 Morrison Corrugated.
 Material Steel Tensile strength 41-47 Smallest outside diameter 1057 mm.
 Length of plain part top 16 mm bottom 16 mm Thickness of plates crown 16 mm bottom 16 mm Description of longitudinal joint welded
 Dimensions of stiffening rings on furnace or c.c. bottom - Working pressure of furnace by Rules 15.56 Kg/cm²
 End plates in steam space: Material Steel Tensile strength 41-47 Thickness 31 mm Pitch of stays 468 x 432 mm
 How are stays secured Double nuts & washers Working pressure by Rules 15.56 Kg/cm²
 Tube plates: Material front Steel back Steel Tensile strength 41-47 Thickness 23 mm
 Mean pitch of stay tubes in nests 270 x 210 mm Pitch across wide water spaces 356 mm Working pressure front 15.9 Kg/cm² back 15.7 Kg/cm²
 Girders to combustion chamber tops: Material Steel Tensile strength 44-50 Depth and thickness of girder
 centre 232 x 36 mm Length as per Rule 746.5 mm Distance apart 203 mm No. and pitch of stays
 each 2-228 mm Working pressure by Rules 20.5 Kg/cm² Combustion chamber plates: Material Steel
 Tensile strength 41 x 47 Thickness: Sides 17.5 mm Back 18.5 mm Top 17.5 mm Bottom 22 mm
 Pitch of stays to ditto: Sides 203 x 228 mm Back 203 x 257 mm Top 228 x 203 mm Are stays fitted with nuts or riveted over Nuts
 Working pressure by Rules 16.34 16.0 Kg/cm² Front plate at bottom: Material Steel Tensile strength 41-47
 Thickness 23 mm Lower back plate: Material Steel Tensile strength 41-47 Thickness 23 mm
 Pitch of stays at wide water space 203 mm Are stays fitted with nuts or riveted over Yes
 Working Pressure 15.46 Kg/cm² Main stays: Material Steel Tensile strength 44-50.
 diameter At body of stay, 86 mm No. of threads per inch 6 Area supported by each stay 202176 mm²
 Over threads 19.8 Kg/cm² Screw stays: Material Steel Tensile strength 41-47
 Working pressure by Rules 19.8 Kg/cm² diameter At turned off part, 44.5 mm No. of threads per inch 9 Area supported by each stay 46284 mm²
 Over threads 51562 mm²

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Working pressure by Rules $14.4 + 16 \text{ Kg/cm}^2$ Are the stays drilled at the outer ends *no* Margin stays: Diameter { At turned off part, or Over threads 50.8 mm

No. of threads per inch 9 Area supported by each stay 47705 sq. mm Working pressure by Rules 23.6 Kg/cm^2

Tubes: Material *Steel* External diameter { Plain 46 Stay 46 Thickness { 4.06 mm $9\frac{1}{2} \times 4 \text{ mm}$ No. of threads per inch 9 .

Pitch of tubes $108 \times 105 \text{ mm}$ Working pressure by Rules 14.5 Kg/cm^2 Manhole compensation: Size of opening $40 \times 40 \text{ mm}$

shell plate $404 \times 540 \text{ mm}$ Section of compensating ring $304 \times 35 \text{ mm}$ No. of rivets and diameter of rivet holes $40 \times 40 \text{ mm}$

Outer row rivet pitch at ends 273 mm Depth of flange if manhole flanged 102 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

See Manchester Rpt. Type of Superheater *Smoke tube type* Manufacturers of { Tubes *The Superheater Co Ltd. Manchester.* Steel castings *do.*

Number of elements 518 Material of tubes *S.O. Steel* Internal diameter and thickness of tubes $16 \text{ mm} \times 3 \text{ mm}$

Material of headers *wrought steel* Tensile strength *See certificate* Thickness *min $5/8$ "* Can the superheater be shut off from the boiler *Yes.*

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 $3/20 \text{ m}^2$ Are the safety valves fitted with easing gear *Yes.* Working pressure as per Rules *See certificate* Pressure to which the safety valves are adjusted 225 lb/0" Hydraulic test pressure *See certificate*

tubes 1000 lb/0" , castings 660 lb/0" and after assembly in place *not tested* 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,
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Stalamenti neconis
San Ruardarena Signature *illegible* Manufacture

Dates of Survey { During progress of work in shops - *1926, Nov 10, 19, Dec 2, 6, 15, 1927, Jan 27, Feb 3, 8, 14, 16, 22, March 2, 5, 4, 10, 11, 19.* Are the approved plans of boiler and superheater forwarded herewith *Yes.* (If not state date of approval.)

while building { During erection on board vessel - *1927 Aug 19, Sep. 2, 6, Oct 11, 19, 25, 27, Nov 8, 17, 18.* Total No. of visits *Genoa 57. Trieste 33*

1927 Aug 19, Sep. 2, 6, Oct 11, 19, 25, 27, Nov 8, 17, 18.

Dec 8, 21, 23, 27, 28, 1928 Jan 3, 5, 9, 24, 27, 28, 29, 29.

Feb 2, 3, 4, 11, 17, 20, 20, 23, 23, 24.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers have been constructed of the materials under special survey and in accordance with approved plans, Secretary's letters and Rule requirements. The workmanship and materials are good, and when tested hydraulically, at 26.70 Kg/cm^2 were found light and satisfactory. These boilers are intended for the S/S Conte Grande, now building at Trieste, and will be eligible in our opinion to be classed in the Register Book when they have been satisfactorily fitted on board, all safety valves and mountings fitted; safety valves adjusted under steam and accumulation tests satisfactorily carried out.*

These boilers have been satisfactorily fitted on board, the safety valves and mountings fitted, the safety valves adjusted under steam, and the accumulation tests satisfactorily carried out. The superheaters have been satisfactorily fitted in place, their safety valves adjusted under steam, and the whole seen under working conditions and found in order.

Survey Fee ... $\pounds 7450$: When applied for, *16. 7 1927 J.W.*

Travelling Expenses (if any) $\pounds 500$: When received, *29. 11 1927 Recd See London Memo 29. 11. 27.*

See also Niche Report

Signia J.R. Morrison & J.W. Leicester & V. Lockney
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute *TUES. 3 APR 1928*

Assigned *See p. 6 rpt. attached*