

REPORT ON BOILERS.

No. 4896

Received at London Office 23 MAR 1931

Date of writing Report 7th March 1931 When handed in at Local Office 14th March 1931 Port of Bilbao

No. in Reg. Book. 89950 on the Steel Twin Sc. M.V. "CAMPOAMOR"

Date, First Survey 21st June 1930 Last Survey 26th Feb. 1931

(Number of Visits 23) Gross Tons 7872.64 Net Tons 4444.63

Master Built at Bilbao By whom built Cia. Ensalduna Yard No. 92 When built 1931

Engines made at Augsburg By whom made Maschf. Augsburg Nürnberg Engine No. 350050 When made 1930

Boilers made at Bilbao By whom made Cia. Ensalduna Boiler No. ✓ When made 1931

Nominal Horse Power 754 Owners Cia. Armadora del Maripolis de Petroleros S.A. Port belonging to Bilbao

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Dand Bolree & Son Ltd. Glasgow; Altos Hornos de Vizcaya; (Letter for Record (S))

Total Heating Surface of Boilers 127.43 metres ² (1372 sq ft) Is forced draught fitted Yes Coal or Oil fired Oil or Exhaust gas

No. and Description of Boilers Two multitubular return tube marine type Working Pressure 10.5 kg/cm² (150 lb)

Tested by hydraulic pressure to 275 lb Date of test 5/1/31 No. of Certificate 116 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler ✓ No. and Description of safety valves to each boiler Two direct spring loaded, 3" dia.

Area of each set of valves per boiler ^{per Rule} 12.45 sq in _{as fitted} 14.12 Pressure to which they are adjusted 150 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 ✓ Is oil fuel carried in the double bottom under boilers ✓

Smallest distance between shell of boiler and tank top plating In twin deck. Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 3500 mm Length 3250 mm Shell plates: Material S.M. steel Tensile strength 44/55 kg/cm²

Thickness 27 mm Are the shell plates welded or flanged No Description of riveting: circ. seams ^{end} Double zig-zag _{inter.} Zig-zag

long. seams ^{circ. seams} 29.5 mm ^{long. seams} 29.5 mm Pitch of rivets ^{end} 120 mm ^{inter.} 120 mm

Percentage of strength of circ. end seams ^{plate} 67.2% ^{rivets} 46% Percentage of strength of circ. intermediate seam ^{plate} 72.1% ^{rivets} 66.8%

Percentage of strength of longitudinal joint ^{plate} 84% ^{rivets} 105% ^{combined} 89.25% Working pressure of shell by Rules 13.95 kg/cm² = 198 lb

Thickness of butt straps ^{outer} 20 mm ^{inner} 20 mm No. and Description of Furnaces in each Boiler Two "Morrison" type corrugated, Galloway

Material S.M. Steel Tensile strength 26/30 kg/cm² Smallest outside diameter 1020 mm

Length of plain part ^{top} ✓ ^{bottom} ✓ Thickness of plates ^{top} 15 mm ^{bottom} 15 mm Description of longitudinal joint Welded

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 15.05 kg/cm² = 214 lb

End plates in steam space: Material S.M. Steel Tensile strength 41/47 kg/cm² Thickness 25 mm Pitch of stays 360 mm x 380 mm

How are stays secured Nuts & washers inside & outside Working pressure by Rules 14.75 kg/cm² = 210 lb

Tube plates: Material ^{front} S.M. Steel ^{back} S.M. Steel Tensile strength 41/47 kg/cm² Thickness 20 mm

Mean pitch of stay tubes in nests 190 mm Pitch across wide water spaces 360 mm Working pressure ^{front} 10.7 kg/cm² = 152 lb ^{back} 21.3 kg/cm² = 303 lb

Girders to combustion chamber tops: Material S.M. Steel Tensile strength 44/55 kg/cm² Depth and thickness of girder

at centre 170 mm; 2 x 19 mm Length as per Rule 700 mm Distance apart 180 mm No. and pitch of stays

in each 3 @ 180 mm Working pressure by Rules 13.9 kg/cm² = 198 lb Combustion chamber plates: Material S.M. Steel

Tensile strength 41/47 kg/cm² Thickness: Sides 18 mm Back 16 mm Top 15 mm Bottom 19 mm

Pitch of stays to ditto: Sides 200 x 180 mm Back 210 x 210 mm Top 180 x 180 mm Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules ^{Sides} 15 kg/cm² ^{Back} 14.2 kg/cm² ^{Front plate at bottom} Material S.M. Steel Tensile strength 41/47 kg/cm²

Thickness 20 mm Lower back plate: Material S.M. Steel Tensile strength 41/47 kg/cm² Thickness 20 mm

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

Working Pressure 19.8 kg/cm² = 282 lb Main stays: Material S.M. steel Tensile strength 44/50 kg/cm²

Diameter ^{At body of stay} 60 mm ^{Over threads} 67 mm No. of threads per inch 6 Area supported by each stay 360 x 380 mm

Working pressure by Rules 15.8 kg/cm² = 225 lb Screw stays: Material S.M. Steel Tensile strength 41/47 kg/cm²

Diameter ^{At turned off part} 35 mm ^{Over threads} 39 mm No. of threads per inch 9 Area supported by each stay 210 x 210 mm

Back: $13.6 \text{ kg cm}^2 = 193 \text{ lb}$

Working pressure by Rules 12.8 Are the stays drilled at the outer ends ☒ Margin stays: Diameter 35 L At turned off part, 39 L

No. of threads per inch 9 Area supported by each stay $180 + 105 \times 210 \text{ L}$ Working pressure by Rules $10.5 \text{ kg cm}^2 = 150 \text{ lb}$

Tubes: Material S.M. Steel External diameter 63 L Thickness 4 L No. of threads per inch 9

Pitch of tubes 95 L Working pressure by Rules $14.3 \text{ kg cm}^2 = 205 \text{ lb}$ Manhole compensation: Size of opening in shell plate $450 \times 550 \text{ L}$ Section of compensating ring $145 \times 27 \text{ L}$ No. of rivets and diameter of rivet holes $48 \text{ mm} \times 29.5 \text{ L}$

Outer row rivet pitch at ends 90 L Depth of flange if manhole flanged 90 L Steam Dome: Material ☒

Tensile strength ☒ Thickness of shell ☒ Description of longitudinal joint ☒

Diameter of rivet holes ☒ Pitch of rivets ☒ Percentage of strength of joint ☒

Internal diameter ☒ Working pressure by Rules ☒ Thickness of crown ☒ No. and diameter of stays ☒

How connected to shell ☒ Inner radius of crown ☒ Working pressure by Rules ☒

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 None fitted Manufacturers of ☒ Tubes ☒ Steel castings ☒

Number of elements ☒ Material of tubes ☒ Internal diameter and thickness of tubes ☒

Material of headers ☒ Tensile strength ☒ Thickness ☒ 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 ☒ Are the safety valves fitted with easing gear ☒ Working pressure as per Rules ☒

Pressure to which the safety valves are adjusted ☒ Hydraulic test pressure: tubes ☒ castings ☒ and after assembly in place ☒ 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

Yes **POR LA COMPAÑIA EUSKALDUNA DE CONSTRUCCIÓN Y REPARACION DE BURGOS**
The foregoing is a correct description,
[Signature] Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1930: Jan 21, July 3, 8, 10, 17, Aug. 5, 13, 22, Sept 9, 17, 26, Dec. 2, 10, 29, Nov. 8, 13, 21, Dec. 2, 9

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) 4/6/30

During erection on board vessel -- 1931: Jan 5, 21, Feb. 23, 26 Total No. of visits 23

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) The two Dabry Boilers have been constructed under survey, of tested materials and in accordance with the approved plan or Rules and Regulations. The workmanship is good and the boilers have been tested on completion to 275 lbs hydraulic pressure and found tight and sound. The two Dabry Boilers have been satisfactorily fitted on board this vessel, examined under steam and their safety valves adjusted to working pressure of 150 lbs sq. in., accumulation tests held, and found in order. In my opinion these Dabry Boilers are eligible to be classed, with notation in the Register Book of 2 D.B.-150 lbs

Survey Fee £100 Charged on Engine Repairs When applied for, 192

Travelling Expenses (if any) £100 When received, 192

[Signature]
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 10 APR 1931

Assigned See other Bbs

