

# REPORT ON BOILERS.

No. 8004

Received at London Office

26 SEP 1931

Date of writing Report 8<sup>th</sup> Sept. 1931 When handed in at Local Office 22 Sept. 1931 Port of BILBAO.

No. in Reg. Book 16593 Survey held at BILBAO. Date, First Survey 12<sup>th</sup> May. Last Survey 10<sup>th</sup> Sept. 1930  
 (Number of Visits 10.) Gross 12588. Tons Net 7521.  
 on the TWIN SCREW M.V. "CABO SAN AGUSTIN"

Built at BILBAO. By whom built MESSRS SOC. ESPAÑOLA DE CONST NAVAL. Yard No. 38 When built 1931.  
 Engines made at AUGSBURG By whom made MESSRS M. A. N. Engine No. 330520 When made 1931.  
 Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓  
 Owners MESSRS YBARRA & Co. Port belonging to SEVILLE.

## VERTICAL DONKEY BOILER.

Made at BILBAO. By whom made MESSRS SOC. ESPAÑOLA: C. N. Boiler No. 118 When made 1931. Where fixed AF. BLK. HD. of ER. ON PLATFORM IN WAY OF UPPER DK.

Manufacturers of Steel MESSRS ALTOS HORNOS DE VIZCAYA.

Total Heating Surface of Boiler 650 FT. Is forced draught fitted YES. Coal or Oil fired OIL.

No. and Description of Boilers ONE VERTICAL CROSS TUBE DONKEY BOILER. Working pressure 80 lbs/DIN.

Tested by hydraulic pressure to 160 lbs/DIN. Date of test 27.7.31. No. of Certificate 118.

Area of Firegrate in each Boiler ✓ No. and Description of safety valves to each boiler ONE SPRING LOADED.

Area of each set of valves per boiler per rule 1964 D.M.M. Pressure to which they are adjusted 80 lbs/DIN Are they fitted with easing gear YES.

State whether steam from main boilers can enter the donkey boiler ✓ Smallest distance between boiler or uptake and bunkers or woodwork ✓

Is oil fuel carried in the double bottom under boiler ✓ Smallest distance between base of boiler and tank top plating ✓

Is the base of the boiler insulated YES. Largest internal dia. of boiler 1067 M.M. Height 3330 M.M.

Shell plates: Material MILD STEEL. Tensile strength 44/55 KGMS/D.M.M. Thickness 10 M.M.

Are the shell plates welded or flanged NO. Description of riveting: circ. seams SINGLE. long. seams DOUBLE.

Dia. of rivet holes in circ. seams 21 M.M. Pitch of rivets 51 M.M. Percentage of strength of circ. seams 58.8% of Longitudinal joint 87.5%

Working pressure of shell by rules 11.6 KGMS/D.C.M. [165 lbs/DIN] Thickness of butt straps outer 11.6 KGMS/D.C.M. [165 lbs/DIN]

Shell Crown: Whether complete hemisphere, dished partial spherical, or flat DISHED PARTIAL SPHERICAL. Material MILD STEEL.

Tensile strength 41/47 KGMS/D.M.M. Thickness 11 M.M. Radius 1067 M.M. Working pressure by rules 8.4 KGMS/D.C.M. [120 lbs/DIN]

Description of Furnace: Plain, spherical, or dished crown DISHED CROWN. Material MILD STEEL. Tensile strength 41/47 KGMS/D.M.M.

Thickness 11 M.M. External diameter 860 M.M. Length as per rule 1278 M.M. Working pressure by rules 5.8 KGMS/D.C.M. [82.5 lbs/DIN]

Pitch of support stays circumferentially ✓ and vertically ✓ Are stays fitted with nuts or riveted over ✓

Diameter of stays over thread ✓ Radius of spherical or dished furnace crown 838 M.M. Working pressure by rule 10.8 KGMS/D.C.M. [153 lbs/DIN]

Thickness of Ogee Ring 11 M.M. Diameter as per rule D 1067 M.M. Working pressure by rule 6.16 KGMS/D.C.M. [87 lbs/DIN]

Combustion Chamber: Material ✓ Tensile strength ✓ Thickness of top plate ✓

Radius if dished ✓ Working pressure by rule ✓ Thickness of back plate ✓ Diameter if circular ✓

Length as per rule ✓ Pitch of stays ✓ Are stays fitted with nuts or riveted over ✓

Diameter of stays over thread ✓ Working pressure of back plate by rules ✓

Tube Plates: Material ✓ Tensile strength ✓ Thickness ✓ Mean pitch of stay tubes in nests ✓

comprising shell, Dia. as per rule ✓ Pitch in outer vertical rows ✓ Dia. of tube holes FRONT ✓ BACK ✓

each alternate tube in outer vertical rows a stay tube ✓ Working pressure by rules ✓

Orders to combustion chamber tops: Material ✓

Depth and thickness of girder at centre ✓

Distance apart ✓ No. and pitch of stays in each ✓

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**Crown stays:** Material *SAE J18* Tensile strength *430* Diameter *120 M.M.* at body of stay, or over threads

No. of threads per inch *12* Area supported by each stay *100* Working pressure by rules *100*

**Screw stays:** Material *SAE J18* Tensile strength *430* Diameter *120 M.M.* at turned off part, or over threads No. of threads per inch *12*

Area supported by each stay *100* Working pressure by rules *100* Are the stays drilled at the outer ends *Yes*

**Tubes:** Material *SAE J18* External diameter *120 M.M.* Thickness *12 M.M.*

No. of threads per inch *12* Pitch of tubes *120 M.M.* Working pressure by rules *100*

**Manhole Compensation:** Size of opening in shell plate *430 x 330 M.M.* Section of compensating ring *120 M.M.* No. of rivets and diameter *63 M.M.*

of rivet holes *44 x 19 M.M.* Outer row rivet pitch at ends *90 M.M.* Depth of flange if manhole flanged *63 M.M.*

**Uptake:** External diameter *302 M.M.* Thickness of uptake plate *11 M.M.*

**Cross Tubes:** No. *3* External diameters *203 M.M.* Thickness of plates *8 M.M.*

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with *Yes*

The foregoing is a correct description,  
 SOCIEDAD ESPAÑOLA DE CONSTRUCCION NAVAL  
 Astilleros y Talleres de Sestao  
 Manufacturer

Dates of Survey while building

During progress of work in shops -	MAY 12. 30 JULY 9. 18. 27.
During erection on board vessel -	AUG. 4. 6. SEPT. 3. 8. 10.

Is the approved plan of boiler forwarded herewith (If not state date of approval.) *6, 3, 31.*

Total No. of visits *10*

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.)

The Donkey Boiler, as stated above, has been built under Special Survey, of tested materials, and in accordance with the approved plan, and the rules and regulations of the Society, and on completion was tested hydraulically to 160 lbs/sq in and found good and tight. Workmanship and materials were found to be good. This boiler has been efficiently fitted on board vessel, examined under steam pressure, and the safety valves adjusted to 80 lbs/sq, safety valves found satisfactory under accumulation of pressure test.

This Donkey Boiler is in my opinion eligible to be classed, and to have notation of working pressure "80 lbs" in the Register Book.

Survey Fee ... £ *6 : 6* (See Invt. Rpt.) When applied for, *19*

Travelling Expenses (if any) £ *74 : 13* When received, *1.1. 19 32*

Special Fee. *75. 50.*

*George R. Chappel*  
 Engineer Surveyor to Lloyd's Register of Shipping.

**Lloyd's Register Foundation**

Committee's Minute *TUE. 6 OCT 1931*

Assigned *See F.B. Rpt.*