

## REPORT ON BOILERS.

No. 18356

Received at London Office

26 NOV 1928

Date of writing Report 10<sup>th</sup> Nov 1928 When handed in at Local Office

Port of HAMBURG

No. in Survey held at Kiel.

Date, First Survey 4<sup>th</sup> MAYLast Survey 2<sup>nd</sup> Nov. 1928

on the Steel Twin Sc. Sr. "ELENA"

(Number of Visits 15)

Gross 2609  
Tons Net 1147

Master Built at Kiel By whom built HOWALDTSWERKE A.G. Yard No. 690 When built 1928

Engines made at Kiel By whom made HOWALDTSWERKE A.G. Engine No. 783/84 When made 1928

Boilers made at Kiel By whom made HOWALDTSWERKE A.G. Boiler No. 14404 When made 1928

Nominal Horse Power 238 Owners CURAÇAO SCHEEP. MAATS. Port belonging to WILLEMSTAD.

## MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel T. Colville &amp; Sons, Ltd. - D. Thompson &amp; Sons, Ltd. (Letter for Record 3.)

Total Heating Surface of Boilers 4168 sq. ft. Is forced draught fitted yes Coal or Oil fired oil

No. and Description of Boilers 2 single end, multitubular 2 S.B. Working Pressure 180 lb. (12.65 kg.)

Tested by hydraulic pressure to 320 lb. Date of test 27.8.28 No. of Certificate 471/72 Can each boiler be worked separately yes

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler 2 spring loaded, High-Lift safety valves.

Diameter of each set of valves per boiler per Rule 3 1/4" as fitted 2 1/2" Pressure to which they are adjusted 180 lb. Are they fitted with easing gear yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler no donkey boiler

Smallest distance between boilers or tanks and bunkers 2800 mm Is oil fuel carried in the double bottom under boilers yes

Smallest distance between shell of boiler and tank top plating no double bottom Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 13' Length 12'-3" Shell plates: Material Steel Tensile strength 28-32 tons

Thickness 1 3/32" Are the shell plates welded or flanged flanges Description of riveting: circ. seams end 1 p. double rivets

Long. seams D.B. treble. Diameter of rivet holes in circ. seams 1 3/16" Pitch of rivets 3 13/16" 8 1/2" plan

Percentage of strength of circ. end seams plate 68.9% rivets 43.4% Percentage of strength of circ. intermediate seam plate 85.3% rivets 95.4%

Percentage of strength of longitudinal joint plate 85.3% rivets 95.4% combined 89.88% Working pressure of shell by Rules 184 lb. 19

Thickness of butt straps outer 7/8" inner 1" No. and Description of Furnaces in each Boiler 2 - horizon.

Material S.M. Steel Tensile strength 26-30 tons Smallest outside diameter 3' 7 5/16"

Length of plain part top bottom Thickness of plates crown 2 1/2" bottom 1 3/32" Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 222 lb. 0

End plates in steam space: Material S.M. Steel Tensile strength 26-30 tons Thickness 1 1/8" Pitch of stays 14" x 15"

How are stays secured fore and aft into the plate &amp; fixed with nuts outside. Working pressure by Rules 193.3 lb. 0

Tube plates: Material front S.M. Steel Tensile strength 26-30 tons Thickness front 13/16" back 3/4"

Lean pitch of stay tubes in nests 9" x 8" Pitch across wide water spaces 1' 2 3/4" Working pressure front back

Girders to combustion chamber tops: Material S.M. Steel Tensile strength 28-32 tons Depth and thickness of girder

Centre 8 1/2" x 2 x 3/4" Length as per Rule 2' 7 1/2" Distance apart 8 1/2" No. and pitch of stays

Each 2 - 10" Working pressure by Rules 222 lb. 0 Combustion chamber plates: Material S.M. Steel

Tensile strength 26-30 tons Thickness: Sides 7/8" Back 3/4" Top 7/8" Bottom 7/8"

Pitch of stays to ditto: Sides 9 3/4" x 10" Back 7 3/4" x 8" Top 8 1/2" x 10" Are stays fitted with nuts or riveted over stays fitted with nuts.

Working pressure by Rules 187 lb. 0 Front plate at bottom: Material S.M. Steel Tensile strength 26-30 tons

Thickness 13/16" Lower back plate: Material S.M. Steel Tensile strength 26-30 tons Thickness 3/4"

Pitch of stays at wide water space 2' 23 5/8" Are stays fitted with nuts or riveted over stays fitted with nuts.

Working Pressure 169 lb. Main stays: Material S.M. Steel Tensile strength 28-32 tons

Diameter At body of stay, 2 1/2" No. of threads per inch 9 Area supported by each stay 14" x 15"

Working pressure by Rules 183.1 lb. 0 Screw stays: Material S.M. Steel Tensile strength 26-30 tons

Diameter At turned off part, 1 3/4" No. of threads per inch 9 Area supported by each stay 3 1/2" x 10" - 7 3/4" x 8"

Working pressure by Rules 183.1 lb. 0

Diameter At turned off part, 1 3/4" No. of threads per inch 9 Area supported by each stay 3 1/2" x 10" - 7 3/4" x 8"

Working pressure by Rules 183.1 lb. 0

Diameter At turned off part, 1 3/4" No. of threads per inch 9 Area supported by each stay 3 1/2" x 10" - 7 3/4" x 8"

Working pressure by Rules 183.1 lb. 0

Diameter At turned off part, 1 3/4" No. of threads per inch 9 Area supported by each stay 3 1/2" x 10" - 7 3/4" x 8"

Working pressure by Rules 183.1 lb. 0

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Working pressure by Rules 202 lbs Are the stays drilled at the outer ends yes Margin stays: Diameter { At turned off part, 1 7/8" or 1 3/4" Over threads }  
No. of threads per inch 9 Area supported by each stay 1' 5/8" x 7 3/4" Working pressure by Rules  
Tubes: Material S. M. Steel plate External diameter { Plain 2 3/4" Stay 2 3/4" Thickness { 5/16" No. of threads per inch 9  
Pitch of tubes 2" x 2" Working pressure by Rules Manhole compensation: Size of opening  
shell plate 1' 8 3/4" x 1' 4 3/4" Section of compensating ring 2' 8 1/2" x 2' 4 1/2" x 1 1/8" No. of rivets and diameter of rivet holes 42 - 1 3/16"  
Outer row rivet pitch at ends 3 1/4" Depth of flange if manhole flanged 3 1/2" 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

Type of Superheater 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 23 inclusive for boilers been complied with yes

The foregoing is a correct description,

Howaldtswerke

Manufactured by

Dates of Survey { During progress of work in shops - - - 4/5-23/5-1/6-4/6-27/6-8/8-17/8-22/8-24/8-27/8 Are the approved plans of boiler and superheater forwarded herewith yes (If not state date of approval.)  
while building { During erection on board vessel - - - 14/9-24/9-3/10-7/10-2/11/28 Total No. of visits 15

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

Material and workmanship of these main boilers are of good quality. The materials used in the construction are made at works recognized by the Committee and tested by the Society's Surveyors in accordance with the requirements of the Rules. The boilers have been constructed under special supervision in accordance with the approved plan, the Secretary's letter and otherwise in conformity with the requirements of the Rules. Upon pressure to hydraulic pressure of 320 lbs per sq. in. they showed no signs of weakness and were found tight and sound in every respect at that pressure, also under steam. These boilers are eligible in my opinion to be classed.

Survey Fee ... Please see ... When applied for, 192  
Travelling Expenses (if any) ... When received, 192

Report on Machinery

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 30 NOV 1928

Assigned see minute on  
Ham Rpt 1835b attached



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Foundation