

## REPORT ON BOILERS.

No. 13237

Date of writing Report 22nd March 1913 When handed in at Local Office 19 Port of Hamburg  
 No. in Survey held at Kiel Date, First Survey 20th Novr. 1911 Last Survey 4th Febr. 1913  
 Reg. Book. 53 on the Steel Twin Screw Motor Vessel "Hagen" (Number of Visits 16)  
 Master Geertin Built at Kiel By whom built Fried. Krupp A.G. Germaniawerft When built 1913  
 Engines made at Kiel By whom made Fried. Krupp A.G. Germaniawerft when made 1913  
 Boilers made at Kiel By whom made Fried. Krupp A.G. Germaniawerft when made 1913  
 Registered Horse Power 450 Owners Deutsch Amerika Petroleum Ges. Port belonging to Hamburg

**MULTITUBULAR BOILERS** ~~MAIN, AUXILIARY OR DONKEY.~~ — Manufacturers of Steel Phoenix & A. H. Norden Verein  
 (Letter for record S) Total Heating Surface of Boilers 1076 sq. ft. Is forced draft fitted no No. and Description of Boilers 1 Single ended multitubular Working Pressure 100 lbs. Tested by hydraulic pressure to 200 lbs. Date of test 31.5.12  
 No. of Certificate 163 Can each boiler be worked separately — Area of fire grate in each boiler filled with liq. fuel No. and Description of safety valves to each boiler 2 Spring loaded Area of each valve 8 sq. ins. Pressure to which they are adjusted 100 lbs.  
 Are they fitted with easing gear yes In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler no main boiler fitted  
 Smallest distance between boilers or uptakes and bunkers or woodwork 20" Mean dia. of boilers 10'-6" Length 10'-0"  
 Material of shell plates Steel Thickness .6" Range of tensile strength 28-32 Tons Are the shell plates welded or flanged —  
 Descrip. of riveting: cir. seams lap. all. riv. long. seams all. butt. lap. riv. Diameter of rivet holes in long. seams 1" Pitch of rivets 6.87"  
 Lap of plates or width of butt straps 14x68" Per centages of strength of longitudinal joint 106.3% Working pressure of shell by rules 112.6 lbs. Size of manhole in shell 11.75x15.75" Size of compensating ring 9.4x68" No. and Description of Furnaces in each boiler 2 Horisons Material Steel Outside diameter 41.3" Length of plain part top 6" Thickness of plates crown .43"  
 Description of longitudinal joint welded No. of strengthening rings none Working pressure of furnace by the rules 153.1 lbs. Combustion chamber plates: Material Steel Thickness: Sides .57" Back .5" Top .57" Bottom .7" Pitch of stays to ditto: Sides 7.87" Back 7.87x7.5"  
 Top 7.87" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 153.1 lbs. Material of stays Steel Diameter at smallest part 1.37" Area supported by each stay 58.29" Working pressure by rules 206.7 lbs. End plates in steam space: Material Steel Thickness .87"  
 Pitch of stays 15x15.75" How are stays secured all. nut + wash. Working pressure by rules 180.3 lbs. Material of stays Steel Diameter at smallest part 2.3"  
 Area supported by each stay 236.29" Working pressure by rules 149.8 lbs. Material of Front plates at bottom Steel Thickness .87" Material of Lower back plate Steel Thickness .87" Greatest pitch of stays 24" Working pressure of plate by rules 148 lbs. Diameter of tubes 3"  
 Pitch of tubes 4" Material of tube plates Steel Thickness: Front .87" Back .7" Mean pitch of stays 8" Pitch across wide water spaces 14" Working pressures by rules 160 lbs. Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 6"x8.7" Length as per rule 24.2" Distance apart 7.8" Number and pitch of Stays in each 2 - 7.8"  
 Working pressure by rules 180.2 lbs. Superheater or Steam chest: how connected to boiler — Can the superheater be shut off and the boiler worked separately — Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet holes — Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness —  
 If stiffened with rings — Distance between rings — Working pressure by rules — End plates: Thickness — How stayed —  
 Working pressure of end plates — Area of safety valves to superheater — Are they fitted with easing gear —

The foregoing is a correct description,  
Fried. Krupp Aktiengesellschaft Manufacturer.  
Richthausen

Dates of Survey: During progress of work in shops 20/11, 4/12, 19/11, 24/12, 28/12, 1/1, 1/5, 23/5, 31/5. Is the approved plan of boiler forwarded herewith yes  
 while building: During erection on board vessel 8/10, 24/11, 10/12, 19/12, 4/1, 11/1, 4/2, 1913 Total No. of visits 16.

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c. Material and workmanship of this Donkey Boiler are of best description and has been built under Special Survey in accordance with the approved plan. The results of tests of the materials, signed by the testing Officers are in my hands. The Safety valves have been set to 100 lbs. on the 4. Febr. 13. I beg to recommend that NDB 3.13 - 100 lbs. and fitted for Liquid Fuel 3.13 be entered in the Reg. Book.

Survey Fee ... When applied for, 19  
 Travelling Expenses (if any) ... When received, 19

Engineer Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute TUE. APR. 1 - 1913

Assigned