

## REPORT ON BOILERS.

No. 48379

Received at London Office 12 SEP 1928

Date of writing Report 1928 When handed in at Local Office 8.9.1928 Port of Glasgow

No. in Reg. Book. Survey held at Glasgow Date, First Survey 18.11.27 Last Survey 7.9.1923

on the new steel s/s "BENHOLM" (Number of Visits 46) Tons { Gross Net

Master Built at Port Glasgow By whom built R. Duncan & Co. Ltd. Yard No. 383 When built 1928

Engines made at Glasgow By whom made David Rowan & Co. Ltd. Engine No. 870 When made 1928

Boilers made at Glasgow By whom made David Rowan & Co. Ltd. Boiler No. 870 When made 1928

Nominal Horse Power 545 Owners Port belonging to Liverpool

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

Manufacturers of Steel David Beattie & Sons Ltd (Letter for Record (S) ✓)

Total Heating Surface of Boilers 8001 sq ft Is forced draught fitted yes Coal or Oil fired coal

No. and Description of Boilers Three single ended marine 358 Working Pressure 200

Tested by hydraulic pressure to 350 Date of test 30.5.28 No. of Certificate 17922 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 57.5 sq ft No. and Description of safety valves to each boiler Improved high lift.

Area of each set of valves per boiler { per Rule 2.22 sq ft as fitted 2.2 sq ft Pressure to which they are adjusted 205 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 on woodwork (corners) 6" Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating 2'-10" Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 16'-0" Length 11'-0" Shell plates: Material Steel Tensile strength 28-32 tons

Thickness 1 29/64" Are the shell plates welded or flanged no Description of riveting: circ. seams { end. DR inter. ✓

long. seams DBS. TR Diameter of rivet holes in { circ. seams F 1 7/16" B 1 1/2" Pitch of rivets { F 3-388" B. 4-131" long. seams 1 1/2" 10-125"

Percentage of strength of circ. end seams { plate F 61.3 B 63.7 rivets F 45.15 B 48.3 Percentage of strength of circ. intermediate seam { plate rivets ✓

Percentage of strength of longitudinal joint { plate 85.18 rivets 92.4 combined 88.6 Working pressure of shell by Rules 202

Thickness of butt straps { outer 1 7/8" inner 1 5/8" No. and Description of Furnaces in each Boiler Three Beighton

Material steel Tensile strength 26-30 tons Smallest outside diameter 47 7/16"

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

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 203

End plates in steam space: Material steel Tensile strength 26-30 tons Thickness 1 7/16" Pitch of stays 23 1/4" 19 1/2" 22 1/2"

How are stays secured D.N. Working pressure by Rules 200

Tube plates: Material { front steel back " Tensile strength { 26-30 tons Thickness { 2 1/32" 2 3/32" 4 7/32" ✓

Mean pitch of stay tubes in nests 9 1/4" Pitch across wide water spaces 13 1/2" Working pressure { front 207 back 215

Girders to combustion chamber tops: Material steel Tensile strength 28-32 tons Depth and thickness of girder

at centre 2 @ 8 7/8" x 1 7/8" Length as per Rule 33 9/16" Distance apart 9 1/4" No. and pitch of stays

in each 3 @ 8" Working pressure by Rules 201 Combustion chamber plates: Material steel

Tensile strength 26-30 tons Thickness: Sides 2 1/32" Back 2 1/32" Top 2 1/32" Bottom 7/8"

Pitch of stays to ditto: Sides 8" x 9 1/4" Back 8 7/16" x 8 7/8" Top 8" x 9 1/4" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 200 Front plate at bottom: Material steel Tensile strength 26-30 tons

Thickness 2 1/32" Lower back plate: Material steel Tensile strength 26-30 tons Thickness 1 3/16"

Pitch of stays at wide water space 13 1/2" Are stays fitted with nuts or riveted over nuts

Working Pressure 201 Main stays: Material steel Tensile strength 28-32 tons

Diameter { At body of stay, or Over threads 2 3/4" & 3 1/4" No. of threads per inch 6 Area supported by each stay 455.6 & 279.2 sq in

Working pressure by Rules 203 Screw stays: Material steel Tensile strength 26-30 tons

Diameter { At turned off part, or Over threads 1 5/8" & 1 7/8" (back) No. of threads per inch 9 Area supported by each stay 74.8 & 97.6 sq in



Working pressure by Rules 204 & 218 Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 17/8" or Over threads }  
 No. of threads per inch 9 Area supported by each stay 103 sq" Working pressure by Rules 206  
 Tubes: Material Iron External diameter { Plain 2 1/2" Stay 2 1/2" Thickness { 5/16" 3/8" 7/16" No. of threads per inch 9  
 Pitch of tubes 3 3/4" x 3 7/8" Working pressure by Rules 230 Manhole compensation: Size of opening in shell plate 15 1/2" x 19 1/2" Section of compensating ring 10 1/2" x 1 3/4" No. of rivets and diameter of rivet holes 34 @ 1 1/2"  
 Outer row rivet pitch at ends 10 1/4" Depth of flange if manhole flanged 3" Steam Dome: Material none  
 Tensile strength 585 Thickness of shell 9 Description of longitudinal joint  
 Diameter of rivet holes 0 1/8" Pitch of rivets 1 1/2" Percentage of strength of joint { Plate Rivets }  
 Internal diameter 0 1/8" Working pressure by Rules 230 Thickness of crown 5/16" No. and diameter of stays 4 @ 1 1/2"  
 Inner radius of crown 4 1/2" Working pressure by Rules 230  
 How connected to shell by doubler Size of doubling plate under dome 24" Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell 1 1/2"  
 Type of Superheater none Manufacturers of { Tubes Steel castings }  
 Number of elements 1 Material of tubes Iron Internal diameter and thickness of tubes 1 1/2" x 5/16"  
 Material of headers Iron Tensile strength 585 Thickness 5/16" Can the superheater be shut off and 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 1 1/2" Are the safety valves fitted with easing gear yes Working pressure as per Rules 230  
 Pressure to which the safety valves are adjusted 200 lbs Hydraulic test pressure: tubes 240 lbs and after assembly in place 240 lbs 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,  
 For David Rowan & Co. Ltd. Manufacturer.  
 Arch. W. Grierson

Dates of Survey { During progress of work in shops - - } See Accompanying  
 while building { During erection on board vessel - - } Machinery Report

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

Total No. of visits 46

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

The materials and workmanship are good.  
 The boilers have been constructed under special survey in accordance with the Rules, satisfactorily fitted in the vessel and their safety valves adjusted under steam.

Survey Fee ... .. £

Travelling Expenses (if any) £

When applied for,

192

When received,

192

S. C. Davis

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 11 SEP 1928

Assigned See Accompanying Machinery Report



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