

# REPORT ON MACHINERY.

Port of Newcastle on Tyne

Received at London Office TUES. 8 DEC 1903

No. in Survey held at Newcastle Date, first Survey May 28 Last Survey 7 Dec 1903

Reg. Book. on the Steel S. S. "RABENFELS" (Number of Visits 47)

Master R. L. Kippner Built at Newcastle By whom built Swan Hunter & W Richardson Ltd When built 1903

Engines made at Newcastle By whom made Swan Hunter & W Richardson Ltd when made 1903

Boilers made at S By whom made S when made 1903

Registered Horse Power 492 Owners Deutsche Dampfschiffahrts Ges Port belonging to Bremen

Nom. Horse Power as per Section 28 492 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

**ENGINES, &c.**—Description of Engines Quadruple Expansion No. of Cylinders 4 No. of Cranks 4  
 Dia. of Cylinders 23-32-48-72 Length of Stroke 54 Revs. per minute 62 Dia. of Screw shaft 14 1/2 as per rule 14 1/2 as fitted 15 Material of Steel  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight  
 in the propeller boss Yes If the liner is in more than one length are the joints burned Yes If the liner does not fit tightly at the part  
 between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If two  
 liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 72  
 Dia. of Tunnel shaft 13-15 as per rule 13-15 Dia. of Crank shaft journals 13-8 as per rule 13-8 Dia. of Crank pin 14 1/2 Size of Crank webs 9 1/2 x 22 Dia. of thrust shaft under  
 collars 14 3/4 Dia. of screw 18-6 Pitch of screw 19-9 No. of blades 4 State whether moveable Yes Total surface 104 sq ft  
 No. of Feed pumps 2 Diameter of ditto 4 Stroke 28 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 28 Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Two Sizes of Pumps FD 8 x 12. BD 16 x 24 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Six 3 1/2 In Holds, &c. In all holds Two 3 1/2 Tunnel  
 well One 3 1/2  
 No. of bilge injections 1 sizes 8 Connected to condenser or to circulating pump CP Is a separate donkey suction fitted in Engine room & size Yes 3 1/2  
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes  
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks both  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the discharge pipes above or below the deep water line above & below  
 Are they each fitted with a discharge valve always accessible on the plating of the vessel Yes Are the blow off cocks fitted with a spigot and brass covering plate Yes  
 What pipes are carried through the bunkers for bilge pipes How are they protected Strong wood casings  
 Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times Yes  
 Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges Yes  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock while built Is the screw shaft tunnel watertight Yes  
 Is it fitted with a watertight door Yes worked from top platform

**BOILERS, &c.**— (Letter for record (R)) Total Heating Surface of Boilers 6462 sq ft Is forced draft fitted Yes  
 No. and Description of Boilers 3 Cylindrical Working Pressure 213 Tested by hydraulic pressure to 426  
 Date of test 7-10-03 Can each boiler be worked separately Yes Area of fire grate in each boiler 51-5 sq ft No. and Description of safety valves to  
 each boiler Two Spring Area of each valve 9-62 Pressure to which they are adjusted 218 Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 24 Mean dia. of boilers 13-11 Length 12-0 Material of shell plates S  
 Thickness 1 1/2 Range of tensile strength 2834 Are they welded or flanged no Descrip. of riveting: cir. seams l-d lap long. seams d shap  
 Diameter of rivet holes in long. seams 19/16 Pitch of rivets 9 7/8 Lap of plates width of butt straps 22 1/4  
 Per centages of strength of longitudinal joint 96 Working pressure of shell by rules 248 Size of manhole in shell 16 x 12  
 Size of compensating ring 7 1/2 x 1 1/2 No. and Description of Furnaces in each boiler 3 Brown Canit Material S Outside diameter 37 3/4  
 Length of plain part top bottom 5/8 Thickness of plates 5/8 Description of longitudinal joint Welded No. of strengthening rings Yes  
 Working pressure of furnace by the rules 246 Combustion chamber plates: Material S Thickness: Sides 2 1/2 Back 2 1/2 Top 2 1/2 Bottom 1 7/8  
 Pitch of stays to ditto: Sides 7 1/8 x 7 3/4 Back 7 1/8 x 7 3/4 Top 7 1/8 x 7 5/8 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 244  
 Material of stays Iron Diameter at smallest part 2 3/8 Area supported by each stay 61 Working pressure by rules 290 End plates in steam space:  
 Material S Thickness 5/8 Pitch of stays 14 7/8 x 15 How are stays secured d & w Working pressure by rules 220 Material of stays S  
 Diameter at smallest part 5-56 Area supported by each stay 223 Working pressure by rules 219 Material of Front plates at bottom S  
 Thickness 1 Material of Lower back plate S Thickness 1 Greatest pitch of stays as per plan Working pressure of plate by rules 213  
 Diameter of tubes 2 1/2 Pitch of tubes 3 3/8 x 3 3/4 Material of tube plates S Thickness: Front 1 Back 7/8 Mean pitch of stays 8 5/8  
 Pitch across wide water spaces 13 1/2 Working pressures by rules 239 Girders to Chamber tops: Material S Depth and  
 thickness of girder at centre 11 1/4 x 13 1/8 Length as per rule 34 1/2 Distance apart 7 7/8 Number and pitch of Stays in each 3. 7 5/8  
 Working pressure by rules 235 Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked  
 separately Yes Diameter Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet  
 holes Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes  
 If stiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes  
 Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes



DONKEY BOILER— No. 1 Description *Cylindrical Multitubular*  
Made at *Newcastle* By whom made *Swan Hunter & W Richardson & Co* When made *7-10-03* Where fixed *Stokehole*  
Working pressure *120* tested by hydraulic pressure to *240* No. of Certificate *6676* Fire grate area *49 1/4* Description of safety valves *Spring*  
No. of safety valves *2* Area of each *7 1/2* Pressure to which they are adjusted *120* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *13-0* Length *10-3* Material of shell plates *S* Thickness *14/16* Range of tensile strength *28 3/4* Descrip. of riveting long. seams *d shap* Dia. of rivet holes *15/16* Whether punched or drilled *drilled* Pitch of rivets *5 3/4*  
*Shap 32* Rivets *8 1/2* Thickness of shell *end 13/16* Radius of do. *Pitch 1 1/2* of Stays to do *16 3/8 x 1 1/4*  
In of plating *14 3/4* Per centage of strength of joint *83.7* Thickness of *main* plates *13/16* Thickness of furnace plates *2 1/32* Description of  
Dia. of stays. *3-26 S* Diameter of furnace Top *40 1/2* Bottom *✓* Length of furnace *84 1/2* Thickness of furnace plates *2 1/32* Description of  
joint *d shap* Thickness of *chamber* plates *12 1/2* Stayed by *Iron Stay 1-73 Area* Working pressure of shell by rules *140*  
Working pressure of furnace by rules *134* Diameter of *tube* *3 1/4* Thickness of *tube* plates *F 15/16 B 11/16* Thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *Propeller blades, Crank shaft, tail shaft*  
*two top end, two bottom end, two main bearing & set of coupling*  
*bolts, feed & bilge valves, piston rings, air pump rod, eccentric*  
*shap, various brasses, assorted bolts & nuts, a few bars of iron*  
*& other gear*  
The foregoing is a correct description,

*Wm Hunter* Manufacturer.

DIRECTOR.  
Dates of Survey while building { During progress of work in shops— *1903. May 28, June 4, 9, 12, 15, July 3, Aug 5, 12, 19, 24, 25, 27, Sep. 28, 10, 15, 16, 21, Oct. 1, 5, 7, 8, 9, 14, 15, 17, 20, 21, 22, 30, Nov.*  
During erection on board vessel — *23, 4, 6, 9, 10, 12, 16, 17, 18, 19, 21, 27, 30, Dec. 3, 7*  
Total No. of *47* Is the approved plan of main boiler forwarded herewith *Yes*  
" " " donkey " " " *Yes*

General Remarks (State quality of workmanship, opinions as to class, &c.)

*The Mach? is a duplicate of that fitted in the S.S. "Reichenfels" Muc Rep. No 45964.*  
*The material & workmanship is good throughout.*  
*The Mach? has been built under special Survey & is eligible in our opinion for classification & the record I.M.C. 12-03.*

It is submitted that this vessel is eligible for

THE RECORD. I.M.C. 12.03. ELEC LIGHT F.D.

*Bab.*

*8-12-03*

*8.12.03*

The amount of Entry Fee. £ *3* : : : When applied for, *7th Dec 1903*  
Special . . . . . £ *44* : *12* : : :  
Donkey Boiler Fee . . . . . £ : : : : When received, *9/12/03*  
Travelling Expenses (if any) £ : : : : *10/10/03*

Committee's Minute

Assigned

*10th Dec 1903*

*+ LMC 12.03*

MACHINERY CERTIFICATE WRITTEN.



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*Newcastle-on-Tyne.*

Certificate (if required) to be sent to the Committee's Minute.