

REPORT ON MACHINERY.

No. 749

JUL 6 1909

Port of *Bergen*

Received at London Office

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No. in Survey held at *Bergen*Date, first Survey *January 4th* Last Survey *July 3rd* 1909

Reg. Book.

(Number of Visits *44*)New on the *Steel screw steamer "Karlsborg"*Gross *1082.17*Net *633.55*Master *E. Rydstrom* Built at *Bergen*By whom built *Bergens Mek. Værksted*When built *1909*Engines made at *Bergen*By whom made *Bergens Mek. Værksted* when made *1909*Boilers made at *Bergen*By whom made *Bergens Mek. Værksted* when made *1909*Registered Horse Power *141*Owners *Consul Arthur Du Rietz*Port belonging to *Nem*Nom. Horse Power as per Section 28 *138.44*Is Refrigerating Machinery fitted for cargo purposes *No*Is Electric Light fitted *No*ENGINES, &c.—Description of Engines *Vertical triple expansion* No. of Cylinders *Three* No. of Cranks *Three*Dia. of Cylinders *14"-26½"-46"* Length of Stroke *30"* Revs. per minute *83* Dia. of Screw shaft *10½"* as per rule *10½"* Material of *steel*Is the screw shaft fitted with a continuous liner the whole length of the stern tube *no liner* Is the after end of the liner made water tightin the propeller boss *✓* If the liner is in more than one length are the joints burned *✓* If the liner does not fit tightly at the partbetween the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *✓* If twoliners are fitted, is the shaft lapped or protected between the liners *✓* Length of stern bush *4'-0"*Dia. of Tunnel shaft *8½"* as per rule *8½"* Dia. of Crank shaft journals *9"* as per rule *9"* Dia. of Crank pin *9"* Size of Crank webs *6" x 16½"* Dia. of thrust shaft undercollars *9"* Dia. of screw *12'-0"* Pitch of Screw *12'-0"* No. of Blades *4* State whether moveable *no* Total surface *50*No. of Feed pumps *2* Diameter of ditto *2½"* Stroke *16"* Can one be overhauled while the other is at work *Yes*No. of Bilge pumps *2* Diameter of ditto *2½"* Stroke *16"* Can one be overhauled while the other is at work *Yes*No. of Donkey Engines *Two* Sizes of Pumps *4" x 4" & 5" x 5"* No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room *One 2½" separate suction, one 2½" & two off 2" dia. Holds, &c. Two off 2" dia. to fore hold; four off,**2" dia. to after hold, and one off 2½" to after well. Bilge & tank pipe arrangements all as approved.*No. of Bilge Injections *One sizes 4" dia. connected to circulating pump* Is a separate Donkey Suction fitted in Engine room & size *Yes, one 2½"*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 *none*Are all connections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *Both valves & cocks*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*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 *cross* bunkers *Bilge Suctions to fore hold* How are they protected *Strong wooden box*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*Dates of examination of completion of fitting of Sea Connections *May 24th* of Stern Tube *May 24th* Screw shaft and Propeller *May 24th*Is the Screw Shaft Tunnel watertight *Yes, tested* Is it fitted with a watertight door *Yes* worked from *Engine room top platform*BOILERS, &c.—(Letter for record *North's*) of Manufacturers of Steel *The Lanarkshire Steel Co. Ltd. Motherwell & Glasgow*Total Heating Surface of Boilers *2347* Is Forced Draft fitted *No* No. and Description of Boilers *Two ordinary marine*Working Pressure *180 LBS* Tested by hydraulic pressure to *360 LBS* Date of test *June 9th* No. of Certificate *✓*Can each boiler be worked separately *Yes* Area of fire grate in each boiler *32½* No. and Description of Safety Valves toeach boiler *Two off. Spring loaded* Area of each valve *8.3* Pressure to which they are adjusted *180 LBS* Are they fitted with easing gear *Yes*Smallest distance between boilers or uptakes and bunkers *1½" S.B. & 10" P.S.* Mean dia. of boilers *11'-13½"* Length *10'-0"* Material of shell plates *Steel*Thickness *3½"* Range of tensile strength *26.4 to 30.6 tons* Are the shell plates *flanged* Yes Descrip. of riveting: cir. seams *Single*long. seams *Double* Diameter of rivet holes in long. seams *1½"* Pitch of rivets *6.78* Lap of plates or width of butt straps *15½"*Per centages of strength of longitudinal joint *94.65* Working pressure of shell by rules *187.9 LBS* Size of manhole in shell *12" x 16"*Size of compensating ring *Mc Neil's* No. and Description of Furnaces in each boiler *Two corrugated* Material *Steel* Outside diameter *3'-4½"*Length of plain part *top 4'-5½"* Thickness of plates *bottom 8"* Description of longitudinal joint *welded* No. of strengthening rings *none*Working pressure of furnace by the rules *87 LBS* Combustion chamber plates: Material *Steel* Thickness: Sides *5"* Back *5"* Top *5"* Bottom *1"*Pitch of stays to ditto: Sides *7" x 7½"* Back *7½" x 7½"* Top *8" x 7"* If stays are fitted with *riveted heads* Yes Working pressure by rules *190 LBS*Material of stays *Steel* Diameter at smallest part *1½"* Area supported by each stay *52.56* Working pressure by rules *197 LBS* End plates in steam space:Material *Steel* Thickness *1"* Pitch of stays *5½" x 15½"* How are stays secured *double nuts* Working pressure by rules *180.6 LBS* Material of stays *Steel*Diameter at smallest part *2½"* Area supported by each stay *248.06* Working pressure by rules *195 LBS* Material of Front plates at bottom *Steel*Thickness *7"* Material of Lower back plate *Steel* Thickness *2½"* Greatest pitch of stays *7½" x 13"* Working pressure of plate by rules *220 LBS*Diameter of tubes *3½"* Pitch of tubes *4½" x 4½"* Material of tube plates *Steel* Thickness: Front *3"* Back *16"* Mean pitch of stays *8½" x 12½"*Pitch across wide water spaces *14½"* Working pressures by rules *261 LBS* Girders to Chamber tops: Material *Steel* Depth andthickness of girder at centre *8" x 14½"* Length as per rule *2'-1"* Distance apart *8"* Number and pitch of stays in each *2 off, 4"*Working pressure by rules *228 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

VERTICAL DONKEY BOILER—

Manufacturers of Steel

None fitted

No.	Description				
Made at	By whom made	When made	Where fixed		
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area	Description of Safety
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment	
If fitted with easing gear	If steam from main boilers can enter the donkey boiler	Dia. of donkey boiler		Length	
Material of shell plates	Thickness	Range of tensile strength	Descrip. of riveting long. seams		
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating	Per centage of strength of joint	Rivets Plates
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays	
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates	Description of joint	
Working pressure of furnace by rules	Thickness of furnace crown plates	Stayed by			
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey		

SPARE GEAR. State the articles supplied: *One propeller, 2 crosshead bolts & nuts, 2 bottom end bolts & nuts, 2 main bearing bolts & nuts, One set of coupling bolts, One set of packing rings for H.P. piston valve, One packing ring for H.P. piston, One set of piston springs for L.P., One set of feed & bilge pump valves, One set of valves for duplex feed pump, One set of valves for air pump & circulating pump, One set of feed check valves, One set of boiler safety valve springs, 35 condenser tubes, 25 boiler tubes, 4 patent tube clippers, 50 screw ferrules for condenser, 18 main gauge glasses & rings, A set of fire bars for one boiler, assorted bolts & nuts, round, flat & square iron.*

The foregoing is a correct description,

As BERGENS MEKANISKE VÆRKSTED Manufacturer.

Dates of Survey while building	During progress of work in shops—	Jan. 4, 14, 2, 16, 27, 3, 5, 18, 20, 22, 23, 29 & 31. April 10, 13, 16, 20, 26, 29 & 30. May 4, 5, 15, 18, 19, 21, 22, 24 & 25. June 9 & 10
	During erection on board vessel—	June 15, 16, 18, 21, 22, 24, 25, 28, 29 & 30. July 1, 2 & 3.
	Total No. of visits	44.

Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—	Cylinders—	March 5, 20, 22, 16, 26, 4	Slides—	24, 25, 9.	Covers—	19, 24, 9, 10	Pistons—	15, 18, 24, 25, 10	Rods—	16, 13, 20, 18	
Connecting rods—	16, 13, 20, 18	Crank shaft—	23, 13, 20, 29	Thrust shaft—	16, 20, 22, 10	Tunnel shafts—	15, 22, 24, 10	Screw shaft—	24, 25	Propeller—	18, 24, 21, 34
Stern tube—	15, 19, 21, 22, 24	Steam pipes tested—	June 22 nd	Engine and boiler seatings—	15, 24, 15, 16	Engines holding down bolts—	15, 21, 25, 29				
Completion of pumping arrangements—	July 2 nd	Boilers fixed—	June 25 th	Engines tried under steam—	June 30 th						
Main boiler safety valves adjusted—	June 30 th	Thickness of adjusting washers—	check nuts								
Material of Crank shaft—	S. M. Lloyd's S.A.E. Identification Mark on Do. 6-09. S.A.E.	Material of Thrust shaft—	S. M. Lloyd's S.A.E. Identification Mark on Do. 6-09. S.A.E.								
Material of Tunnel shaft—	S. M. Lloyd's S.A.E. Identification Marks on Do. 6-09. S.A.E.	Material of Screw shaft—	S. M. Lloyd's S.A.E. Identification Marks on Do. 6-09. S.A.E.								
Material of Steam Pipes—	Copper	Test pressure—	400 LBS.								

General Remarks (State quality of workmanship, opinions as to class, &c. The workmanship of the above described machinery & boilers is in all respects satisfactory and in my opinion the machinery is eligible to receive notation \pm L.M.C. 7.09. The engines & boilers are fitted on board and secured to the vessel to my satisfaction and tried under steam with satisfactory results. The boilers have been tested with hydraulic pressure to 360 LBS and found good & tight. Following marks have been stamped on the front of each boiler: LLOYD'S TEST 360 LBS. 9-6-09. S.A.E. The screw shaft is fitted with Rederwall's protective box and the stern tube provided with proper automatic oiling arrangement.

The machinery & boilers are, so far as I have been able to observe, free from defects. The steel used in the construction of shaftings, rods, etc has been tested as required by the Rules.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 7.09

The amount of Entry Fee..	£ 2	When applied for.	July 1 st 1909
Special	£ 20	When received.	July 1 st 1909
Donkey Boiler Fee	£		
Travelling Expenses (if any) £			

Committee's Minute

Assigned

Engine Surveyor to Lloyd's Register of British & Foreign Shipping.

FRI. 9 JUL 1909

FRI. 16 JUL 1909

+ L.M.C. 7.09