

REPORT ON MACHINERY.

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Date of writing Report 17th Nov 19 When handed in at Local Office 19 Port of Bremerhaven
 No. in Survey held at Geestemünde Date, First Survey 9th June Last Survey 19th Nov 1910
 Reg. Book. 596 on the Machinery & Boilers of the steel S.S. Freienfels (Number of Visits) Tons 5092.66
 Master J. Siedrichsen Built at Geestemünde By whom built Joh. C. Tecklenborg A.G. When built 1910
 Engines made at Geestemünde By whom made Joh. C. Tecklenborg A.G. when made 1910
 Boilers made at Geestemünde By whom made Joh. C. Tecklenborg A.G. when made 1910
 Registered Horse Power 517 Owners D. S. Ges. Hansa Port belonging to Bremer
 Nom. Horse Power as per Section 28 517 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Two, quadr. comp. surf. condensing No. of Cylinders 4 No. of Cranks 4
 Dia. of Cylinders 24 1/4, 24 1/2, 24 1/2, 24 1/2 Length of Stroke 53 1/2 Revs. per minute 75 Dia. of Screw shaft as per rule 16 3/16 Material of S.A. steel
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes see Bury Rpt No 15231 - 2/16 Is the after end of the liner made water tight
 in 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 part
 between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive — If two
 liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 10' 1 1/2"
 Dia. of Tunnel shaft as per rule 13 1/2" Dia. of Crank shaft journals as per rule 14 1/4" Dia. of Crank pin 14 4/8" Size of Crank webs 9 1/2" Dia. of thrust shaft under
 collars 14 4/8" Dia. of screw 228 7/16" Pitch of Screw 240 7/16" No. of Blades 4 State whether moveable Yes Total surface 103.98"
 No. of Feed pumps 2 Diameter of ditto 3 3/4" Stroke 27 9/16" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 4 7/16" Stroke 27 9/16" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 3 Sizes of Pumps 13 1/2" x 15 1/2" / 9 1/2" x 5 1/2" / 7 1/4" x 4 3/4" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 4 x 3 1/2" diam. In Holds, &c. 2 in each hold a 3 1/2" diam. In tunnel 1 a 3 1/2" diam.
 No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump Yes 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
 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 Bilge suction! How are they protected wooden boxes
 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 15.8.10 of Stern Tube 7.8.10 Screw shaft and Propeller 10.8.10
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Engine room also main deck

BOILERS, &c.—(Letter for record n) Manufacturers of Steel Friedr. Krupp & Rheinische Stahlwerke
 Total Heating Surface of Boilers 6780" Is Forced Draft fitted Yes No. and Description of Boilers 3 cylindrical multitubular
 Working Pressure 213 lb Tested by hydraulic pressure to 285 lb Date of test 26.7.8.10 No. of Certificate 124/125/126
 Can each boiler be worked separately Yes Area of fire grate in each boiler 53.8" No. and Description of Safety Valves to
 each boiler 2 spring valves Area of each valve 12.2" Pressure to which they are adjusted 213 lb Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean dia. of boilers 14' 2 3/4" Length 128 3/4" Material of shell plates S.A. steel
 Thickness 1 3/4" Range of tensile strength 27.9-31.5 Are the shell plates welded or flanged flanged Descrip. of riveting: cir. seams double
 long. seams treble Diameter of rivet holes in long. seams 2 2 3/4" Pitch of rivets 9 1/2" Lap of plates or width of butt straps 2 1/4"
 Per centages of strength of longitudinal joint 84.5% Working pressure of shell by rules 224 lb Size of manhole in shell 14 1/2" x 15 7/16"
 rivets 84.1% plate 84.1% Size of compensating ring 9 7/8" x 12 1/4" No. and Description of Furnaces in each boiler 3 Morrison Material S.A. steel Outside diameter 40 3/4"
 Length of plain part 7 7/8" Thickness of plates 4 1/4" Description of longitudinal joint welded No. of strengthening rings corrus.
 Working pressure of furnace by the rules 200 lb Combustion chamber plates: Material S.A. steel Thickness: Sides 4 3/4" Back 4 3/4" Top 4 3/4" Bottom 5 1/4"
 Pitch of stays to ditto: Sides 8 7/8" Back 6 7/8" Top 8 7/8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 222 lb
 Material of stays Iron Diameter at smallest part 1 1/2" Area supported by each stay 48.9" Working pressure by rules 238 lb End plates in steam space:
 Material S.A. steel Thickness 1 3/4" Pitch of stays 14 9/16" x 4 3/8" How are stays secured nuts Working pressure by rules 250 lb Material of stays S.A. steel
 Diameter at smallest part 2 1/2" Area supported by each stay 206" Working pressure by rules 298 lb Material of Front plates at bottom S.A. steel
 Thickness 3 1/4" Material of Lower back plate S.A. steel Thickness 6 3/4" Greatest pitch of stays 6 7/8" Working pressure of plate by rules 224 lb
 Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" Material of tube plates S.A. steel Thickness: Front 1 3/4" Back 5 1/4" Mean pitch of stays 8 1/2"
 Pitch across wide water spaces 13 3/8" Working pressures by rules 233 lb Girders to Chamber tops: Material S.A. steel Depth and
 thickness of girder at centre 10 1/4" x 1 1/2" Length as per rule 36 1/4" Distance apart 6 1/2" Number and pitch of stays in each 3 a 7 1/8"
 Working pressure by rules 253 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

get plates for
 confirmed for Bremen letter 23.5.13 - take further deal with 1500 lb

If not, state whether, and when, one will be sent?

VERTICAL DONKEY BOILER— Manufacturers of Steel

No.	Description			When made		Where fixed
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		Radius of do.	Stayed by		
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey			

SPARE GEAR. State the articles supplied:—*1 crank shaft / 1 propeller shaft / 1 crank pin brass / 1 washhead brass / 2 overhead bolts and nuts / 2 crank pin bolts and nuts / 2 slide valve spindles / 1 set of coupling bolts / 1 piston rod for air pump / 1 set of valves for air pump / 1 fan with shaft / 1 brass with nuts for each side / 1 slide valve spindle for centrifugal pump / 1 set of feed and bilge pump valves / 1 set of links complete / 2% of condenser tubes / with stuffing boxes / 2% of boiler tubes for all boilers / 1 safety valve spring for each boiler / 1 set of gauge glasses / 1% of cylinder and slide valve cover bolts / 1% of piston bolts / 1 complete eccentric strap / 1 set of piston rings for each piston / 1 set of fire bars / nuts / bolts / washers and iron of various sizes / 2 complete sets of firing tools.*

The foregoing is a correct description,

JOH. C. TECKENBORG A.-G.
Schiffswerft und Maschinenfabrik Manufacturer.

Dates of Survey while building	During progress of work in shops—	9.5 / 18.6 / 22.6 / 27.6 / 29.8 / 1.7 / 5.7 / 8.7 / 18.7 / 20.7 / 26.7 /	
		During erection on board vessel—	30.7 / 3.8 / 10.8 / 18.8 / 2.9 / 16.9 / 19.9 / 29.9 / 11.10 / 17.10 / 22.10 / 25.10
		Total No. of visits	28.10 / 1.11 / 4.11 / 7.11 / 11.11 / 12.11 / 17.11.10 / Total 30 visits.

Dates of Examination of principal parts—	Cylinders 5.7 & 8.7	Slides 18.7	Covers 26.7	Pistons 26.7	Rods 26.7
Connecting rods 26.7	Crank shaft 30.7	Thrust shaft 30.7	Tunnel shafts 10.8	Screw shaft 2.8	Propeller 16.9
Stern tube 2.9	Steam pipes tested 28.10	Engine and boiler seatings 27.6	Engines holding down bolts 11.10		
Completion of pumping arrangements 7.11	Boilers fixed 11.10	Engines tried under steam 12.11			
Main boiler safety valves adjusted 12.11	Thickness of adjusting washers P.P. 0.0.45. etc. 0.43 / 0.42 / 0.35				
Material of Crank shaft <i>Steel</i>	Identification Mark on Do. 5686KH 7.10	Material of Thrust shaft <i>Steel</i>	Identification Mark on Do. 6618PA.3.0		
Material of Tunnel shafts <i>Steel</i>	Identification Marks on Do. 5468KH.5.10	Material of Screw shafts <i>Steel</i>	Identification Marks on Do. 5449KH.5.10		
Material of Steam Pipes <i>Steel</i>	2031/2 PA.4.10	Test pressure 4268	6620 PA.4.10		

General Remarks (State quality of workmanship, opinions as to class, &c. *These Engines and Boilers are of the same dimensions as those in the S. L. Schenckel Report No. 1572 and S. L. Birkenfeld Report No. 1590. The approved drawings of the boilers have been forwarded with Report No. 1572 and are still in London.*)

These Engines and Boilers have been built under special Survey and constructed in accordance with the rules and approved drawings. The workmanship is very good and the material is of best quality, manufactured by approved works and tested as per rules. All castings are of good sound quality, cylinders, slide valve casing, and all other vessels have been tested by hydraulic and found quite tight. Steam pipes and all other pipes working under pressure have been tested by hydraulic up to 4268 psi and found quite tight. The boilers have been tested by hydraulic up to 285 in accordance with German law and found quite tight, under steam they are also tight and the safety valves lift freely at 28.5 psi. In my opinion these Engines & Boilers are eligible to be classed under the provisions of L.M.C. 11.10.

The amount of Entry Fee	£ 3 : : :	When applied for,
Special	£ 45 : 17 : :	17.11.10
Donkey Boiler Fee	£ 2 : 2 : :	When received,
Travelling Expenses (if any)	£ : : :	17.11.10

Committee's Minute **TUE. 22 NOV 1910**
Assigned *+ L.M.C. 11.10*

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 11.10
J. J. Thomson
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



Form No. 1A. The Surveyors are requested not to write on or below the space for Committee's Minute. Certificate (if required) to be sent to Surveyor to Lloyd's Register of British & Foreign Shipping.