

REPORT ON MACHINERY.

Port of Bremerhaven

WED. 8 NOV 1905

Received at London Office 19

No. in Survey held at Geestemünde Date, first Survey 15th April 1905 Last Survey 4th November 1905
Reg. Book. (Number of Visits)

on the steel screw steamer Hessen Yard No. 207 Tons } Gross
Master Built at Geestemünde By whom built Joh. C. Tecklenborg A. G. When built 1905 Net

Engines made at Geestemünde By whom made Joh. C. Tecklenborg A. G. when made 1905

Boilers made at Geestemünde By whom made Joh. C. Tecklenborg A. G. when made 1905

Registered Horse Power 533 Owners Norddeutscher Lloyd Port belonging to Bremen
Nom. Horse Power as per Section 28 533 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Inverted quadruple comp. surf. condensing No. of Cylinders 4 No. of Cranks 4
 Dia. of Cylinders 24 1/2" 34 5/8" 50" 72 1/2" Length of Stroke 53 1/8 Revs. per minute 70 Dia. of Screw shaft as per rule 15 7/16 Material of S.M. steel
as fitted 15 3/4 screw shaft)
 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 one length 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 one lining for whole length Length of stern bush 8' 8 1/16"
 Dia. of Tunnel shaft as per rule 13 1/16 Dia. of Crank shaft journals as per rule 14 3/8 Dia. of Crank pin 14 3/4 Size of Crank webs Dia. of thrust shaft under
as fitted 14" collars 14 3/4 Dia. of screw 19 3/8 Pitch of screw 20" No. of blades 4 State whether moveable Yes Total surface 99.0
 No. of Feed pumps 2 Diameter of ditto 3 3/4 Stroke 26 9/16 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 4 3/8 Stroke 26 9/16 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 3 Sizes of Pumps 1a 9 3/16 x 7 1/2 2a 7 1/4 x 5 1/8 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 4 in Engine and Boiler room a 3 1/2 diam. In Holds, &c. in each hold two a 3 1/2 diam., in tunnel one a 3 1/2 diam.

No. of bilge injections 1 sizes 8 diam. Connected to condenser, or to circulating pump Circ. pump Is a separate donkey suction fitted in Engine room & size Yes
 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 Valves
 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 pipes 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
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock Is the screw shaft tunnel watertight Yes
 Is it fitted with a watertight door Yes worked from Upper deck

BOILERS, &c.— (Letter for record 1) Total Heating Surface of Boilers 7230 Is forced draft fitted Yes
 No. and Description of Boilers 3 multitubular cylindrical steel Working Pressure 220 lb Tested by hydraulic pressure to 292 lb
 Date of test 18.9.21.9 and 25.9 Can each boiler be worked separately Yes Area of fire grate in each boiler 55.9 No. and Description of safety valves to
 each boiler two spring valves Area of each valve 12 3/16 Pressure to which they are adjusted 220 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 Material of shell plates S.M. steel
 Thickness 1 29/32 Range of tensile strength 28-32 Are they welded or flanged flanged Descrip. of riveting: cir. seams double long. seams quadruple
 Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 19 1/2" Lap of plates or width of butt straps 29 1/4"
 Per centages of strength of longitudinal joint rivets 102.90 Working pressure of shell by rules 230 Size of manhole in shell 11 7/8 x 15 3/4"
 plate 92.3% Size of compensating ring 9 7/8 x 1 1/2" No. and Description of Furnaces in each boiler 3 Morrison's Material S.M. steel Outside diameter 42 3/4"
 Length of plain part top 4" bottom 5" Thickness of plates crown 1 1/16" bottom 1 1/4" Description of longitudinal joint welded No. of strengthening rings -
 Working pressure of furnace by the rules 235 Combustion chamber plates: Material S.M. steel Thickness: Sides 4 3/8" Back 4 3/8" Top 4 3/8" Bottom 9 1/2"
 Pitch of stays to ditto: Sides 7 1/16" Back 7 1/16" Top 7 1/16" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 244
 Material of stays S.M. steel Diameter at smallest part 1 1/32 Area supported by each stay 56.2 Working pressure by rules 294 End plates in steam space:
 Material S.M. steel Thickness 1 1/16" Pitch of stays 4 29/32 x 4 9/16 How are stays secured with nuts & washers Working pressure by rules 269 Material of stays S.M. steel
 Diameter at smallest part 2 1/16 Area supported by each stay 214 Working pressure by rules 290 Material of Front plates at bottom S.M. steel
 Thickness 1 3/8" Material of Lower back plate S.M. steel Thickness 1" Greatest pitch of stays 13 x 7 1/16 Working pressure of plate by rules 296
 Diameter of tubes 2 3/4" Pitch of tubes 3 1/16 Material of tube plates S.M. steel Thickness: Front 1 3/8" Back 2 9/32 Mean pitch of stays 9 7/8"
 Pitch across wide water spaces 13 3/4 Working pressures by rules 227 Girders to Chamber tops: Material S.M. steel Depth and
 thickness of girder at centre 10 1/4 x 2 5/8 Length as per rule 35 1/16 Distance apart 7 1/16 Number and pitch of Stays in each 4 x 6 1/16"
 Working pressure by rules 223 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

DONKEY BOILER— No. _____ Description *See special Report on donkey boiler*

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____

No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ 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 _____ 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 _____

Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____

Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:—*1 1/2 crank shaft, 1 propeller shaft with nut, 2 propeller blades, 1 propeller boss, 1 set of piston rings for each cylinder, 1 complete eccentric, 1 crankpin brass, 2 bolts and nuts for crankpin brasses, 2 ditto for crosshead, 4 bolts & nuts for main bearings, 1 set of coupling bolts, 1 slide valve spindle fitting for all slides, 1 air pump piston rod, 1 set of air pump valves, 1 set of feed pump valves, 1 set of bilge pump valves, 1 set of check valves, 1 set of leak brasses, 1 set of safety valve springs, 4 2 condenser tubes, 8 4 condenser stuffing boxes, 13 main boiler tubes, 4 donkey boiler tubes, 3 main boiler stay tubes, 2 donkey boiler stay tubes, 10 20 of bolts & nuts for cylinder covers, slide valve covers, air and air circulating pump covers and for pistons, 1/2 set of fire bars, iron, bolts and washers of different sizes. For circulating pump 1 piston & rod, 3 main brasses and 2 bolts for same. For reversing engine 1 cylinder cover, 1 valve spindle, 1 piston rod and piston. For turning engine 1 cylinder cover, 1 valve spindle, and 1 piston & rod.*

The foregoing is a correct description, **JOH. C. TECKLENBORG A.G.**
 Manufacturer. *Schiffswerft und Maschinenfabrik*

Dates of Survey while building	During progress of work in shops	15/4, 25, 13/5, 24/5, 1/6, 13, 28/6, 17, 18/7, 4/8, 9/8, 24/8, 2/9, 6/9, 9/9, 15/9
	During erection on board vessel	18/9, 2/9, 25/9, 5/10, 16/10, 18/10, 26/10, 4/11, 1905
	Total No. of visits	23.

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

General Remarks (State quality of workmanship, opinions as to class, &c. *These Engines and Boilers have been built under special Survey of best material and good workmanship. All castings, as cylinders, valve casings, condenser, pumps and other casings, have been tested by hydraulic pressure, and all steam and feed pipes have been tested hydraulically by double working pressure and all found quite tight.*)

The shafting, rods, etc., have been made of Siemens Martin steel manufactured at approved works and tested as per rule by the Surveyors at Düsseldorf and have been carefully fitted.

The Boilers have been built of Siemens Martin steel manufactured by Thyssen & Co tested as per rule and in accordance with the approved tracings.

At the special request of the owners the boilers have not been tested with hydraulic double working pressure, but only with single working pressure plus 7 1/2% as required by German law, please see my Report N. 1098 on S.S. Frankten and letters from Secretary dated 18.1. & 2.3.05. installed E.

Under steam the boilers are tight and the Engines work well.
*In my opinion these Engines and Boilers are eligible to be classed with notation of **L.M.C. 11.05.***

It is submitted that this vessel is eligible for **THE RECORD L.M.C. 11.05 F.D. ELEC. LIGHT.**

Ans
9.11.05

The amount of Entry Fee..	£ 3 :	When applied for,
Special	£ 46 : 13 :	6.11.1905
Donkey Boiler Fee	£ 2 : 2 :	When received
Traveling Expenses (if any)	£ 1 : 1 :	paid by

J. Thomson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. 10 NOV 1905**
 Assigned *+ L.M.C. 11.05*
F. D. Elec. light.



Certificate (if required) to be sent to Surveyor Bremer Vulkan

The Surveyors are requested not to write on or below the space for Committee's Minute.