

REPORT ON MACHINERY.

No. 4939
MON. SEP 24 1906

Port of Rotterdam

Received at London Office

No. in Survey held at Rotterdam Date, first Survey 27 March Last Survey 20 Sept 1906

Reg. Book. ✓ on the Steel Steem Trawler "Balder" (Number of Visits 20)

Master P. Roobol Built at Rotterdam By whom built Wilton's Engin. & Shipway Co Tons ^{Gross} 247.12 _{Net} 86.99 When built 1906

Engines made at Rotterdam By whom made Wilton's Engin. & Shipway Co when made 1906

Boilers made at Rotterdam By whom made same firm when made 1906

Registered Horse Power ✓ Owners Hevischery Maatschappij, Ysland Port belonging to Ymuiden

Nom. Horse Power as per Section 28 69 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

ENGINES, &c.—Description of Engines Inverted, triple expansion No. of Cylinders three No. of Cranks 3

Dia. of Cylinders 12 1/4", 20" & 33" Length of Stroke 24" Revs. per minute 110 Dia. of Screw shaft ^{as per rule} 7 1/16" _{as fitted} 7 1/16" Material of steel screw shaft

Is the screw shaft fitted with a continuous liner the whole length of the stern tube no 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 ✓ 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 yes Length of stern bush 30 1/4"

Dia. of Tunnel shaft ^{as per rule} 6 1/4" _{as fitted} 6 3/8" Dia. of Crank shaft journals ^{as per rule} 6 9/16" _{as fitted} 7" Dia. of Crank pin 6 1/8" Size of Crank webs 3 1/2 x 4 1/2" Dia. of thrust shaft under collars 6 3/4" Dia. of screw 9" Pitch of Screw 10'-8" No. of Blades 4 State whether moveable no Total surface 27.4 ft

No. of Feed pumps 1 Diameter of ditto 2 3/4" Stroke 10 1/8" Can one be overhauled while the other is at work ✓

No. of Bilge pumps 1 Diameter of ditto 3" Stroke 10 1/8" Can one be overhauled while the other is at work ✓

No. of Donkey Engines 1 Duplex Sizes of Pumps 5 1/4" x 3 1/2" x 5" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 2-2" & 1-2 1/2" ejector In Holds, &c. forehold 1-2" & 1-2 1/2" ejector.

no afterhold, drain cock from after peak bulkhead.

No. of Bilge Injections 1 sizes 3 1/2" Connected to condenser, or to circulating pump. Is a separate Donkey Suction fitted in Engine room & size yes - 2"

Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes Are the sluices in Engine room bulkheads always accessible no

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 none How are they protected ✓

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 20 Aug. of Stern Tube 20 Aug. Screw shaft and Propeller 20 Aug

Is the Screw Shaft Tunnel watertight no Is it fitted with a watertight door ✓ worked from -

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Duisburger Eisen- & Stahlwerk, Frodingen Iron & steel works.

Total Heating Surface of Boilers 1237 sq ft Is Forced Draft fitted no No. and Description of Boilers one single ended marine

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 20 Aug 06 No. of Certificate 231

Can each boiler be worked separately ✓ Area of fire grate in each boiler 36.6 sq ft No. and Description of Safety Valves to each boiler 2 spring loaded Area of each valve 10 sq in Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 7" Mean dia. of boilers 11'-10" Length 9'-8" Material of shell plates steel

Thickness 1 1/16" Range of tensile strength 28-32 T Are the shell plates welded or flanged no Descrip. of riveting: cir. seams lap 2 x long. seams dbl butt 5 x Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 7 1/16" Lap of plates or width of butt straps 19"

Per centages of strength of longitudinal joint rivets 110 plate 83.7 Working pressure of shell by rules 186 lbs Size of manhole in shell 12" x 16"

Size of compensating ring 1 1/16" No. and Description of Furnaces in each boiler 2 Morrison's Material steel Outside diameter 3'-7 3/8"

Length of plain part ^{top} ✓ _{bottom} ✓ Thickness of plates ^{rown} 1 1/32" _{bottom} 1 1/32" Description of longitudinal joint welded No. of strengthening rings ✓

Working pressure of furnace by the rules 188 Combustion chamber plates: Material steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 3/4" & T

Pitch of stays to ditto: Sides 8" x 8 1/4" Back 8" x 8 1/4" Top 8 1/4" x 8 1/4" If stays are fitted with nuts or riveted heads nutted Working pressure by rules 204 lbs

Material of stays steel Diameter at smallest part 1.539 Area supported by each stay 66 sq in Working pressure by rules 186 End plates in steam space: scrund, dbl nuts

Material steel Thickness 1 1/32" Pitch of stays 16 1/2" How are stays secured 3/4" x 1/2" W.L. Working pressure by rules 185 Material of stays steel

Diameter at smallest part 5.94 Area supported by each stay 272.25 Working pressure by rules 217 Material of Front plates at bottom steel

Thickness 1 5/16" Material of Lower back plate steel Thickness 1 3/16" Greatest pitch of stays 13 3/4" Working pressure of plate by rules Tstiff

Diameter of tubes 3 1/4" Pitch of tubes 4 3/8" x 4 1/2" Material of tube plates steel Thickness: Front 1 5/16" Back 3/4" Mean pitch of stays 8 3/4" x 9"

Pitch across wide water spaces 14 1/8" Working pressures by rules Tstiffeners Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8" x 2" Length as per rule 28 1/2" Distance apart 8 3/8" Number and pitch of stays in each 2 - 8 1/4"

Working pressure by rules 261 Superheater or Steam chest; how connected to boiler vented Can the superheater be shut off and the boiler worked separately ✓ Diameter 31.5" Length 33.5" Thickness of shell plates 9/16" Material steel Description of longitudinal joint lap 2 x Diam. of rivet holes 7/8" Pitch of rivets 3 3/16" Working pressure of shell by rules 298 Diameter of flue ✓ Material of flue plates ✓ Thickness ✓

If stiffened with rings ✓ Distance between rings ✓ Working pressure by rules ✓ End plates: Thickness 7/8" How stayed 2 - 1 3/4" stays

Working pressure of end plates ✓ Area of safety valves to superheater ✓ Are they fitted with easing gear ✓

Lloyd's Register Foundation
W1226-0017

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. <i>11</i>	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
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment
If fitted with casing 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
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:— 1 set of main bearing branes & bolts; 1 set of do. for crank pins & crossheads; 1 set of thrust shoes, 1 set of piston springs for each piston; 1 piston rod; 1 eccentric rod & strap; 1 pump plunger, 1 set of valve for each pump; 1 escape valve spring; 8 holding down bolts, 12 coupling bolts; 12 condenser tubes & ferrules, 24 boiler tubes, 12 stay tubes, & a quantity of assorted bolts & nuts and iron of various sizes.

The foregoing is a correct description,
WILTON'S ENGINEERING & SLIPWAY CO.
J. D. Bolton Manufacturer.

Dates of Survey while building
 During progress of work in shops - 27/3; 11/4; 12, 15, 29/5; 11, 16, 19, 27/6; 5, 11, 27, 28/7; 20/8/06.
 During erection on board vessel - 24/8; 30/8; 4, 5, 18 & 20/9/06.
 Total No. of visits 20.

Is the approved plan of main boiler forwarded herewith
 plans have been forwarded with Dist. No. 4925
 " " " donkey " " "

Dates of Examination of principal parts—Cylinders 27/3-19/6 Slides 27/3-11/6 Covers 27/3-11/7 Pistons 27/3-11/7 Rods 27/3-11/6
 Connecting rods 11/7 Crank shaft 11/4 Thrust shaft 27/7 Tunnel shafts 27/7 Screw shaft 11/8 Propeller from hull
 Stern tube 27/7 Steam pipes tested 5/9 Engine and boiler seatings 24/8 Engines holding down bolts 24/8
 Completion of pumping arrangements 30/8 Boilers fixed 24/8 Engines tried under steam 18/9
 Main boiler safety valves adjusted 20/9 Thickness of adjusting washers No. 1, 6^{mm}; No. 2, 5^{mm}.
 Material of Crank shaft steel Identification Mark on Do. *W.V.D. 6.06* Material of Thrust shaft steel Identification Mark on Do. *W.V.D. 7.06*
 Material of Tunnel shafts steel Identification Marks on Do. *W.V.D. 7.06* Material of Screw shafts steel Identification Marks on Do. *W.V.D. 6.06*
 Material of Steam Pipes Solid drawn copper Test pressure 360 lbs.

General Remarks (State quality of workmanship, opinions as to class, &c.)
 A Walter's patent propeller of 7'-7" diameter has been fitted for experiment, the making of the spare propeller deferred until results are known, if unsatisfactory a propeller of 9' diameter will be fitted.

The machinery and boiler having been constructed in accordance with the approved plans, the Secretary's letters and the requirements of the Rules; materials tested, workmanship good, and all having worked satisfactory during a steam trial I am of opinion that this vessel is eligible to be recorded in the Society's Register Book with

L.M.C. 9.06

It is submitted that this vessel is eligible for THE RECORD. + RMB 9.06

The amount of Entry Fee..	£ 1:	:	When applied for.
Special	£ 10.	7:19.....
Donkey Boiler Fee	£ :	:	When received,
Travelling Expenses (if any) £	:	3:19.....

W. F. D. Van Ollefen
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute TUES. SEP 25 1906

Assigned

+ L.M.C. 9.06

MACHINERY CERTIFICATE WRITTEN.



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Certificate (if required) to be sent to the Surveyors Rotterdam

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