

REPORT ON MACHINERY.

No. 49396

Port of Rotterdam

Received at London Office

MON. SEP 24 1906

No. in Survey held at Rotterdam

Date, first Survey 27 March

Last Survey 20 Sept 1906

Reg. Book.

on the Steel Steamer Trawler "Balder"

(Number of Visits 20)

Master F. Roobol

Built at Rotterdam

By whom built Wilton's Eng. & Shipway Co

Gross 247.12

Net 86.99

When built 1906

Engines made at Rotterdam

By whom made Wilton's Eng. & Shipway Co

when made 1906

Boilers made at Rotterdam

By whom made same firm

when made 1906

Registered Horse Power ✓

Owners Heerichery 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"* Material of *steel*
as fitted 7 1/16" 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"* Dia. of Crank shaft journals *as per rule 6 1/16"* Dia. of Crank pin *6 1/8"* Size of Crank webs *3 1/2 x 4 1/2"* Dia. of thrust shaft under
as fitted 6 3/8" 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 on 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, Frodingham 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 *4"* 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 old 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* Working pressure of shell by rules *186 lbs* Size of manhole in shell *12" x 16"*
 plate *83.7*

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 1 1/2"* Thickness of plates *crown 3 1/32"* Description of longitudinal joint *welded* No. of strengthening rings ✓
bottom 1 1/2"

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:
scrued, dbl nut

Material *steel* Thickness *1 1/32"* Pitch of stays *16 1/2"* How are stays secured *3 bolts* 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 *Tstiffness* 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 ✓

W1226-0017

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. <i>111</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 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
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 & cross heads; 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, & quantity of assorted bolts & nuts and iron of various sizes.*

The foregoing is a correct description,
WILTON'S ENGINEERING & SHIPWAY CO.
J. D. Wilton 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. + *LMB 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.....

Committee's Minute **TUES. SEP 25 1906**

Assigned

MACHINERY CERTIFICATE
WRITTEN.



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Lloyd's Register
Foundation

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.)