

REPORT ON MACHINERY.

Intro No. 9702
re 1494

Port of **WEST HARTLEPOOL.**

Received at London Office **JUN 1895**

No. in Survey held at **WEST HARTLEPOOL.**
Reg. Book.

Date, first Survey **28th Decr 1894** Last Survey **9th May, 1895.**
1895 15th May (Number of Visits 48, 29th " 3291
4 Tons } Gross 2118
Net 2118

on the **S.S. Nordhvalen**

Master **J. Brunnich** Built at **Trondheim** By whom built **Richardson, Duck & Co.** When built **1895**
Engines made at **Hartlepool** By whom made **J. Richardson & Son, Ltd.** when made **1895**
Boilers made at **do** By whom made **do** when made **1895**
Registered Horse Power **220** Owners **Dampskibs Selskabet Nordre** Port belonging to **Kjøbenhavn**
Nom. Horse Power as per Section 28 **266**

ENGINES, &c.— Description of Engines **Triple expansion** No. of Cylinders **3**
Diameter of Cylinders **24, 38, 64** Length of Stroke **42** Revolutions per minute **60** Diameter of Screw shaft as per rule **11.26**
Diameter of Tunnel shaft as fitted **11.4** Diameter of Crank shaft journals **11.4** Diameter of Crank pin **12** Size of Crank webs **17.4 x 7.2**
Diameter of screw **16.0** Pitch of screw **16.0** No. of blades **4** State whether moveable **No** Total surface **70 sq**
No. of Feed pumps **2** Diameter of ditto **2.4** Stroke **27** Can one be overhauled while the other is at work **Yes**
No. of Bilge pumps **2** Diameter of ditto **3.4** Stroke **37** Can one be overhauled while the other is at work **Yes**
No. of Donkey Engines **2** Sizes of Pumps **3.5 x 7.8 8.2 x 7** No. and size of Suctions connected to both Bilge and Donkey pumps
Engine Room **3.5" diam** In Holds, &c. **Forward Hold: 2-3.5" dia. Main**
Old: 2-3.5" dia. Deep Tank: 2-4" dia. After Hold: 2-3.5" dia. Tunnel Well: 1-2.5" dia.
No. of bilge injections **1** sizes **6** Connected to condenser, or to circulating pump **Yes** Is a separate donkey suction fitted in Engine room & size **Yes 3.5**
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**
Are all pipes 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**
Were stern tube, propeller, screw shaft, and all connections examined in dry dock **Revised** Is the screw shaft tunnel watertight **Yes**
Is it fitted with a watertight door **Yes** worked from **Top platform in Engine room.**

BOILERS, &c.— (Letter for record **(S.)**) Total Heating Surface of Boilers **4016**
Description of Boilers **Two Single ended Steel** Working Pressure **160** Tested by hydraulic pressure to **320**
Test **24.4.95** Can each boiler be worked separately **Yes** Area of fire grate in each boiler **47.3** No. and Description of safety valves to
Boiler **Two Spring** Area of each valve **8.29** Pressure to which they are adjusted **165** Are they fitted
Working gear **Yes** Smallest distance between boilers or uptakes and bunkers or woodwork **14"** Mean diameter of boilers **15.3"**
10.3" Material of shell plates **Steel** Thickness **1.32** Description of riveting: circum. seams **Lap double** long. seams **R.B. Straps**
Pitch of rivets **8.2"** Lap of plates or width of butt straps **19.2"**
Stages of strength of longitudinal joint rivets **88.09** Working pressure of shell by rules **163** Size of manhole in shell **16 x 12"**
plate **85.29** compensating ring No. and Description of Furnaces in each boiler **3 Morrison** Material **Steel** Outside diameter **3.104**
top **6.3"** crown **12"** Description of longitudinal joint **Welded** No. of strengthening rings **—**
bottom **7.0"** Thickness of plates bottom **1.32** pressure of furnace by the rules **177** Combustion chamber plates: Material **Steel** Thickness: Sides **19"** Back **19"** Top **19"** Bottom **19"**
Stays to ditto: Sides **8.2"** Back **8.4"** Top **8.4"** If stays are fitted with nuts or riveted heads **Nuts** Working pressure by rules **169**
of stays **Steel** Diameter at smallest part **1.3"** Area supported by each stay **720** Working pressure by rules **164.5** End plates in steam space:
Steel Thickness **1.32** Pitch of stays **18.5, 16.5** How are stays secured **By nuts** Working pressure by rules **161** Material of stays **Steel**
at smallest part **2.5"** Area supported by each stay **3000** Working pressure by rules **162.55** Material of Front plates at bottom **Steel**
16 Material of Lower back plate **Steel** Thickness **2.7** Greatest pitch of stays **12"** Working pressure of plate by rules **170**
of tubes **3.5"** Pitch of tubes **24.4"** Material of tube plates **Steel** Thickness: Front **31"** Back **34"** Mean pitch of stays **9.2"**
Cross wide water spaces **14.4"** Working pressures by rules **165** Girders to Chamber tops: Material **Steel** Depth and
of girder at centre **7.2 x 1.3"** Length as per rule **2.35** Distance apart **8.4"** Number and pitch of Stays in each **Two 8.4"**
pressure by rules **185** Superheater or Steam chest; how connected to boiler **None** Can the superheater be shut off and the boiler worked
Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet
Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
with rings Distance between rings Working pressure by rules End plates: Thickness How stayed
Pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

DONKEY BOILER— Description *Cylindrical multitubular with 2 plain furnaces.*
 Made at *Shekton* By whom made *F. Searon & Co Ltd* When made *1895*—Where fixed *In Stokes old*
 Working pressure *90 lbs* Tested by hydraulic pressure to *180 lbs* No. of Certificate *1030* Fire grate area *28 ft* Description of safety valves *Direct Spring*
 No. of safety valves *2* Area of each *5.4* Pressure to which they are adjusted *90 lbs* If fitted with easing gear *Yes*. If steam from main boilers
 enter the donkey boiler *No* Diameter of donkey boiler *9' 0"* Length *9' 0"* Material of shell plates *Steel* Thickness *1 1/2"*
 Description of riveting long. seams *RTB. Shap. Double* Diameter of rivet holes *1 3/16"* Whether punched or drilled *punched* Pitch of rivets *3 1/2"*
RTB. Shap. Lap of plating *8"* Per centage of strength of joint *83* Rivets *83* Thickness of shell *2nd* plates *1 3/16"* Radius of do. *pitch* No. of Stays to do. *17 1/2 x 13*
 Dia. of stays *2" Eff.* Diameter of furnace *Top 3 1/4"* Bottom *9"* Length of furnace *6 ft.* Thickness of furnace plates *32* Description of
 joint *RTB. Shap.* Thickness of *inner cover* plates *1/2"* *9"* Stays by *1 1/4" Sp. Screw Shap. hotted. pitch* Working pressure of shell by rules *92 lbs*
 Working pressure of furnace by rules *96 lbs.* Diameter of *tubes* *3"* Thickness of *tube* plates *5* Thickness of water tubes

SPARE GEAR. State the articles supplied:— *Propeller, propeller shaft, 3rd. part crank*
shaft, 2 main bearing bolts & nuts, 2 top end bolts & nuts,
2 bottom end bolts & nuts, 1 set of shaft coupling bolts &
nuts, 6 each air & circulating pump valves. Feed & relief pump valves
Spring for each piston. Bolt nuts & iron.

The foregoing is a correct description,
 For THOMAS RICHARDSON & SONS, LIMITED, Manufacturer.

J. M. Morris
 General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery has been*
Specially Surveyed during construction the materials and
workmanship good and renders the vessel eligible in
our opinion to have the Record L.M.C. 5, 95 in the Register
Book of the Society.

The vessel returned to the yard of the Builders for completion
The Middlesex Surveyors were advised of the requirements
to complete the Survey.

The Survey has now been satisfactorily completed.

Wm. Austin
Middlesex Surveyors

It is submitted that
this vessel is eligible for
THE RECORD. + LMC 5, 95

J. R. R.
4.6.95

MACHINERY CERTIFICATE
 WRITTEN.

Certificate (if required) to be sent to

The amount of Entry Fee..	£	2:	:	When applied for,
Special	£	33:	6:	29.5.95
Donkey Boiler Fee	£	:	:	4/6
Travelling Expenses (if any) £	:	:	:	31/5/95

Richard Hirst
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute

TUES 4 JUN 1895

Assigned

+ LMC 5, 95



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 Foundation