

REPORT ON MACHINERY.

Port of Belfast

WED, FEB 19 1896

Received at London Office

No. in Survey held at Belfast Date, first Survey March 28 1895 Last Survey Feb 15 1896
Reg. Book. (Number of Visits 37)

on the Steel Screw Steamer "Hyson" Tons { Gross 4445.1
Net 2879.2

Master J. S. Hogg Built at Belfast By whom built Workman Clark & Co. Ltd. When built 1896

Engines made at Belfast By whom made Workman Clark & Co. Ltd. when made 1896

Boilers made at Belfast By whom made Workman Clark & Co. Ltd. when made 1896

Registered Horse Power 800 Owners The China Mutual Ste. Nav. Co. Ltd. Port belonging to London

Nom. Horse Power as per Section 28 599

ENGINES, &c.— Description of Engines Triple Expansion No. of Cylinders Three

Diameter of Cylinders 28" 44" 44" Length of Stroke 60" Revolutions per minute 60 Diameter of Screw shaft as per rule 14.8"
as fitted 15 1/2"

Diameter of Tunnel shaft as per rule 14.1" Diameter of Crank shaft journals 15 1/2" Diameter of Crank pin 15 1/2" Size of Crank webs 2 1/2" x 10 1/2"
as fitted 15"

Diameter of screw 19' 0" Pitch of screw 20' 9" mean No. of blades 4 State whether moveable yes Total surface 98 sq ft

No. of Feed pumps 2 Diameter of ditto 4 1/2" Stroke 30" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 30" Can one be overhauled while the other is at work yes

No. of Donkey Engines four Sizes of Pumps Eng. Rm. duplex 7" x 5" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps
Ballast duplex 8" x 10" x 10" Water feed duplex 10" x 8" x 2 1/4" Small donkey 5" x 3 1/2" x 6" In Holds, &c. Yes 3 1/2" wing suction in each of

In Engine Room Three 3 1/2" Nos 1, 2 & 3 holds No 4 hold well 3 1/2" duct Tunnel well 3"

No. of bilge injections 1 sizes 9" 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 none

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks larger valves, smaller cocks

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 below

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock before launch Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from Upper Eng. Rm. platform

OILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 8493

No. and Description of Boilers Two double-ended Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs

Date of test 20.11.95 Can each boiler be worked separately yes Area of fire grate in each boiler 110 1/4 No. and Description of safety valves to
each boiler Two Adams patent Area of each valve 15' 9" Pressure to which they are adjusted 185 lbs Are they fitted
with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean diameter of boilers 14' 3"

Length 19' 0" Material of shell plates Steel Thickness 1 3/8" Description of riveting: circum. seams hand riveted long. seams Double straps
and double

Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 9 7/8" Lap of plates or width of butt straps 2 1/16"

Per centages of strength of longitudinal joint 88.8 Working pressure of shell by rules 199 lbs Size of manhole in shell 16" x 12"
plate 85.4

Size of compensating ring 2' 8" x 2' 3 1/2" x 1/2" No. and Description of Furnaces in each boiler six flanged Material Steel Outside diameter 43 1/2"

Length of plain part top 19 1/2" cen. 6" cen. Thickness of plates bottom 5/8" Description of longitudinal joint welded No. of strengthening rings four
of Adams

Working pressure of furnace by the rules 185 lbs Combustion chamber plates: Material Steel Thickness: Sides 19/32" Back ✓ Top 19/32" Bottom 3/4"

Pitch of stays to ditto: Sides 7 3/4" x 8 3/16" Back ✓ Top 7 3/4" x 8 3/16" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 182 lbs

Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 63.4 Working pressure by rules 186 End plates in steam space:

Material Steel Thickness 1 1/8" Pitch of stays 16" max How are stays secured dout nut washers Working pressure by rules 234 Material of stays Steel

Diameter at smallest part 2 1/2" Area supported by each stay 22.2 lbs Working pressure by rules 204 Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate ✓ Thickness ✓ Greatest pitch of stays as appx Working pressure of plate by rules 180 lbs

Diameter of tubes 2 1/2" Pitch of tubes 3 5/8" 3 3/16" Material of tube plates Steel Thickness: Front 13/16" Back 3/4" Mean pitch of stays 7 1/16"

Pitch across wide water spaces 13 1/2" Working pressures by rules 180 lbs Girders to Chamber tops: Material Steel Depth and
thickness of girder at centre 9" x 1 1/2" suspended Length as per rule 3' 10 1/2" Distance apart 7 3/4" Number and pitch of Stays in each four at 8 3/16"
12 1/2" x 1 1/2" not "

Working pressure by rules 190 lbs 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— Description *Horizontal Multitubular (956 sq ft heating surface)*
 Made at *Belfast* By whom made *Workman Clark & Co Ltd* When made *1896* Where fixed *On deck, under tri*
 Working pressure *90 lb* tested by hydraulic pressure to *180 lb* No. of Certificate *220* Fire grate area *31 1/2* Description of safety valves *Adams patent*
 No. of safety valves *2* Area of each *3.94* Pressure to which they are adjusted *90 lb* If fitted with easing gear *Yes* If steam from main boilers can
 enter the donkey boiler *No* Diameter of donkey boiler *10' 6"* Length *9' 0"* Material of shell plates *Steel* Thickness *5/8"*
 Description of riveting long seams *Double riveted lap* Diameter of rivet holes *29/32"* Whether punched or drilled *drilled* Pitch of rivets *4 3/8"*
 Lap of plating *6 3/4"* Per centage of strength of joint Rivets *83.2* Thickness of shell *end* plates *1 1/8" upper* Radius of do. *Pitch* No. of Stays to do. *14 ma*
 Dia. of stays *1 5/8"* Diameter of furnace Top *37 1/8"* Bottom *37 1/8"* Length of furnace *6' 3"* Thickness of furnace plates *17/32"* Description of
 joint *doub. straps* Thickness of furnace crown plates *1 1/2"* Stayed by *1/8" stays 8 1/2" x 9" max pitch* Working pressure of shell by rules *92 lb*
 Working pressure of furnace by rules *109 lb* Diameter of uptake *3"* Thickness of uptake plates *front 1 1/8" Pitch stay* Thickness of water tubes *8 1/8" x 10 3/8"*

SPARE GEAR. State the articles supplied:— *Propeller shaft. Length crank shaft. Thrust shaft. Two slide or. head*
Two top end & two bottom end bolts & nuts. Two main bearing bolts & nuts. Two bolts & nuts for eccentric straps. Two coupling
bolts & nuts. 12 Hank ring bolts & nuts. Two feed & two help pump valves. Two safety valve - springs. Two cyl. escape & a
feed escape valve & two springs. 10 Condenser tubes & 30 ferrules. Slides & nuts for various parts. 100 fire bars.
 The foregoing is a correct description, Assorted bolts & nuts. Iron etc.
 Set Weir's feed pump valves.
PRO WORKMAN, CLARK & CO, LIMITED. Manufacturer. *M. H. Bell*

General Remarks (State quality of workmanship, opinions as to class, &c.)
 During progress of work in shops— *March 28th April 3, 10, 30, May 14, June 6, July 8, 22, 30, Aug 12, 15.*
 During erection on board vessel— *Sep 8, 23, 26, Oct 1, 14, 18, 24, 31, Nov. 1, 6, 12, 18, 20, 21, 25, 26, Dec 9, 17, Jan 4, 13.*
 Total No. of visits *Jan 21, 27 Feb 4, 6, 11, 15. Total 34 visits*

The machinery has been constructed & fitted on board under special survey & the workmanship has been found good throughout. The boilers are made in accordance with the approved photoprints, & boilers & main steam pipes have been tested as required by the Rules.

Howden's system for forced draught is fitted.
 The electric lighting has been carried out by Messrs W C Martin & Co of Glasgow & the report which is now in their hands will be forwarded very shortly.
 Six engine forging certificates are forwarded herewith.
 This vessel & machinery are similar to the S.S. "Pallini" (Bel. Rep 4536) & the S.S. "Kintuck" (Belfast Rep. 4552) & the approved boiler tracings accompany the report on the former vessel.

The machinery in my opinion renders the vessel eligible for the record + **L.M.C. 2.96** in the Register Book.

It is submitted that this vessel is eligible for THE RECORD.
L.M.C. 2.96 F.D.
Electric Light.
19.2.96
19.2.96.

Certificate (if required) to be sent to
 The amount of Entry Fee.. £ 3 : 0 :
 Special £ 49 : 19 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :
 When applied for, *17 Feb 18 96*
 When received, *20 Feb 1896*
A. L. Jones
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
COMMITTEE'S MINUTE **FRI, FEB 21 1896**
 Assigned **+ L.M.C. 2,96**
7D.
Electric Light
 Lloyd's Register Foundation