

# REPORT ON MACHINERY.

Port of Belfast

Received at London Office SAT. MAY 2 1896

No. in Survey held at Belfast  
eg. Book.

Date, first Survey 19<sup>th</sup> April 1896 Last Survey 31<sup>st</sup> April 1896

(Number of Visits 34)

on the Steel Twin Screw Steamer "Iran"

Tons <sup>Gross</sup> 6250  
<sub>Net</sub> 5257  
When built 4066

Master Thos. Hughes Built at Belfast By whom built Harland & Wolff Ltd

Engines made at Belfast By whom made Harland & Wolff Ltd when made 1896

Boilers made at Belfast By whom made Harland & Wolff Ltd when made 1896

Registered Horse Power 478 Owners Iran Steamer Ship Co. Ltd Port belonging to Liverpool

nom. Horse Power as per Section 28 478 (Laward Baker & Sons Mgrs)

**ENGINES, &c.** — Description of Engines Triple Expansion Twin screws No. of Cylinders Six

Diameter of Cylinders 18 1/2, 31, 52 Length of Stroke 48 Revolutions per minute 75 Diameter of Screw shaft as per rule 11"  
as fitted 12"

Diameter of Tunnel shaft as per rule 10 1/4" Diameter of Crank shaft journals 12" Diameter of Crank pin 12" Size of Crank webs 8 1/2 x 15 1/2  
as fitted 11 1/4"

Diameter of screw 14" 9" Pitch of screw 19" 3" No. of blades 3 State whether moveable Yes Total surface 53 1/2 sq ft  
each propeller

No. of Feed pumps Two Diameter of ditto 4 1/4" Stroke 24" Can one be overhauled while the other is at work One on each engine

No. of Bilge pumps Two Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work " " " "

No. of Donkey Engines Four Sizes of Pumps Duplex by Am. donkey 7 1/2 x 5 x 6"  
Winton's 10 x 8 x 2 1/4" No. and size of Suctions connected to both Bilge and Donkey pumps  
Westminster's 12 x 10 x 14"  
Carothers' 4 x 2 1/2 x 7" Holds, &c. No 1 hold one 3 1/2" No 2 hold two 3 1/2"

Engine Room Three, 3 1/2"  
No 3 hold two 3 1/2" No 4 hold two 3 1/2" No 5 hold one 3 1/2" Tunnel well two 2 1/2"

No. of bilge injections 2 sizes 6 1/2" Connected to condenser, or to circulating pump See p. 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 Forward bilge suction How are they protected Strong wood casing

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 level of deck

**BOILERS, &c.** — (Letter for record S) Total Heating Surface of Boilers 7998 sq ft.

Description of Boilers Two double- & two single-ended Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs

Can each boiler be worked separately Yes Area of fire grate in each boiler 46 sq ft. No. and Description of safety valves to 38 lbs.

Area of each valve 9.6 sq ft. Pressure to which they are adjusted 205 lbs Are they fitted Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 2 feet Mean diameter of boilers 12" 5"

Material of shell plates Steel Thickness 1 5/16" Description of riveting: circum. seams Middle treble; long. seams Double butt  
ends double riv.

Pitch of rivets 9 1/4" Lap of plates or width of butt straps 20 1/2" x 1" thick

Working pressure of shell by rules 217 lbs Size of manhole in shell 16" x 12"

No. and Description of Furnaces in each boiler 2 Material Steel Outside diameter 46"

Description of longitudinal joint Welded No. of strengthening rings ✓

Working pressure of furnace by the rules 219 Combustion chamber plates: Material Steel Thickness: Sides 19 1/32" Back 19 1/32" Top 7/8" Bottom 3/4"

Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 60" max Working pressure by rules 194 1/2 lbs End plates in steam space: Steel

Thickness 1 1/16" Pitch of stays 14 3/4" x 16 1/2" How are stays secured Double nut Working pressure by rules 200 lbs Material of stays Steel

Area supported by each stay 288 sq in Working pressure by rules 200 Material of Front plates at bottom Steel

Material of Lower back plate Steel Thickness 1 5/16" Greatest pitch of stays As approx Working pressure of plate by rules 200 lbs

Material of tube plates Steel Thickness: Front 7/8" Back 3/4" Mean pitch of stays 8 1/2"

Girders to Chamber tops: Material Wt. Iron Depth and 4 at 7 3/4" S. I.

Working pressure by rules 200 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

Are they fitted with easing gear Yes



**DONKEY BOILER**— Description *Single ended main boiler used for auxiliary purposes.* When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of safety valves \_\_\_\_\_  
 Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ If fitted with easing gear \_\_\_\_\_ If steam from main boilers \_\_\_\_\_  
 No. of safety valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_  
 enter the donkey boiler \_\_\_\_\_ Diameter of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_  
 Description of riveting long. seams \_\_\_\_\_ Rivets \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of Stays to do. \_\_\_\_\_  
 Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Plates \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description \_\_\_\_\_  
 Dia. of stays \_\_\_\_\_ Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_  
 joint \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_  
 Working pressure of furnace by rules \_\_\_\_\_ Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— *Two propeller blades. Piece crank shaft. Piston rod. 2 pair to  
 brasses. 1 pair bottom end brasses. Eccentric & strap. Propeller shaft. Air pump rod, bucket & g.  
 Centre pump spindle & impeller. 2 feed & 2 Bilge pump valves. 1 & 1/2 P valve spindle with the  
 8 1/2 P piston rings. 4 S.P. piston rings. 2 sets rings for piston valves. Two main bearings bolts. Two con.  
 top end & two bottom end bolts. 12 shaft coupling bolts. Two sets studs & nuts for one propeller bla  
 12 main ring bolts. Assorted bolts & iron of various sizes. 25 Condenser tubes. 4 Safety valve sp  
 one set main pump valves & steam valve chest. 1/2 set furnace bars & foot plates.*

The foregoing is a correct description,  
*Harland & Wolff* Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
 During progress of work in shops— *Apr. 19 Aug. 2, 23, Sept 24, 25 Oct 2, 5, 11, 16 Nov 11, 14, 15, 19, 29 Dec 4, 11, 13, 16*  
 During erection on board vessel— *July 7, 19, 24, 28 Mar. 4, 11, 12, 14, 24, 31 April 9, 13, 14, 30.*  
 Total No. of visits *34.*

The above described engines & boilers have been made & fitted under special supervision & the workmanship is throughout good.  
 Each separate length of main steam pipe has been tested to double the working pressure by water pressure & found satisfactory.  
 The pumping arrangements are fitted in accordance with the approved plan & the electric lighting has been carried out by Messrs. B. H. Allen & Co. & the report will be shortly forwarded.  
 The vessel made a satisfactory trial run on the 30<sup>th</sup> April.  
 Two boiler photographs, a tracing of the pumping arrangements & seven forging certificates accompany this report.  
 The machinery in my opinion renders the vessel eligible for the Record + *L.M.C. 4.96* in the Register Book.

It is submitted that  
 this vessel is eligible for  
**THE RECORD.** *L.M.C. 4.96. Elec: Light:*  
*H.S.*  
*2.5.96.*  
*Emd.*  
*2.5.96.*

Certificate (if required) to be sent to \_\_\_\_\_  
 The amount of Entry Fee... £ 3 : 0 :  
 Special ... £ 43 : 18 :  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, *1<sup>st</sup> May 1896*  
 When received, *5/5/96*

Assigned \_\_\_\_\_  
**TUES. MAY 5 1896**  
*L.M.C. 4.96*  
*elec. Light*  
*A. H. Jones*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

