

# REPORT ON MACHINERY.

No. 15861

Received at London Office

Writing Report 19 When handed in at Local Office 4/11 1921 Port of West Hartlepool  
 Survey held at West Hartlepool Date, First Survey 23<sup>rd</sup> Sept/19 Last Survey 31<sup>st</sup> Dec/1920  
 on the S.S. City of Glasgow (No 897) (Number of Visits 141) Tons { Gross 5321  
 Net 3400

W. Hill Built at West Hartlepool by whom built Wm Gray & Co (1918) Ltd. When built 1920  
 Engines made at West Hartlepool By whom made Central Marine Engine Works Ltd when made 1920  
 Engines made at ditto By whom made ditto when made 1920  
 Indicated Horse Power 630 Owners Ollerman (Hall) Line Ltd Port belonging to Liverpool  
 Horse Power at Full Power 3000 Is Refrigerating Machinery fitted for cargo purposes partly. Is Electric Light fitted Yes

LINE ENGINES, &c.—Description of Engines Double reduction geared turbines of Turbines Two  
 Diameter of Rotor Shaft Journals, H.P. 4 1/2" L.P. 5 1/2" Diameter of Pinion Shaft 1<sup>st</sup> Red <sup>H.P.</sup> 6" 2<sup>nd</sup> Red <sup>L.P.</sup> 9"  
 Diameter of Journals 4 1/2" x 10 1/2" Distance between Centres of Bearings 2<sup>nd</sup> Red 2-2 1/2" 1<sup>st</sup> Red 4.10.403. 2<sup>nd</sup> Red 16.62"  
 Diameter of Wheel Shaft 15 1/2" Distance between Centres of Bearings 5-9 5/8" Diameter of Pitch Circle of Wheel 1<sup>st</sup> Red 56.688" 2<sup>nd</sup> Red 84.579"  
 Diameter of Face 1<sup>st</sup> Red 13 1/2" 2<sup>nd</sup> Red 31" Diameter of Thrust Shaft under Collars 14 1/2" Diameter of Tunnel Shaft as per rule 13.02" as fitted 13 3/4"  
 Screw Shafts one Diameter of same as per rule 14.68" Contin. line as fitted 16 1/2" do. Diameter of Propeller 18'-0" Pitch of Propeller 15'-0"  
 Blades 4 State whether Moveable yes Total Surface 112 sq. ft. Diameter of Rotor Drum, H.P. L.P. — as stern astern  
 Revs. per Minute at Full Power, Turbine H.P. 3379 L.P. 2414 Propeller 87

## DETAILS OF BLADING.

EXPANSION	H.P. Impulse			L.P. Reaction			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1	1 3/4"	2-7 1/2"	1	2 1/4"	2'-8.14"	4	1 1/4"	2'-7 5/8"	1 Impulse
2	2 1/4"	2-8 1/2"	1	2 5/8"	2'-9.54"	4	1 3/8"	2'-8 1/2"	1
3	3 1/4"	2-8 13/16"	1	3 1/8"	2'-11.41"	4	1 5/8"	3'-7 1/8"	1
4	4 1/4"	2-8 3/4"	1	3 3/8"	3'-9.9"	2	2 3/8"	3'-8 3/8"	1
5	5 1/4"	2-8 13/16"	1	3 5/8"	3'-11.39"	2	1 1/2"	2'-11.025"	1 Reaction
6	6 1/4"	2-8 3/4"	1	4 1/8"	4'-0.38"	1	2 1/2"	3'-0.11"	1
7	7 1/4"	2-8 13/16"	1	4 3/8"	4'-1.87"	1	3 1/2"	3'-1.55"	1
8	8 1/4"	2-8 13/16"	1	5 1/8"	4'-3.61"	1	4 1/2"	3'-1.55"	1
9	9 1/4"	2-8 13/16"	1	6 1/8"	4'-5.84"	1	5 1/2"	3'-1.55"	1
10	10 1/4"	2-8 13/16"	1	6 3/8"	4'-5.84"	1			

Size of Feed pumps 2 Weirs 12 1/4" x 9" x 21"  
 Size of Bilge pumps 1 C.M.W. 5 1/2" x 6 1/2" x 15"  
 Size of Bilge suction in Engine Room Four of 3 1/2" and two of 2" from oil wells.  
 In Holds, &c. Two of 3 1/2" in each hold. One of 3 1/2"  
 Bilge Injections one sizes 11" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine Room & size 3 1/2"  
 Are the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes  
 Are 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  
 How are they protected yes  
 Are Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes  
 Are Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yes  
 Is Screw Shaft Tunnel watertight see ship report Is it fitted with a watertight door yes worked from upper grating

BOILERS, &c.—(Letter for record (S)) Manufacturers of Steel J. Spencers & Sons Ltd. No. and Description of Boilers Two, single ended (large wing) 3SB  
 Heating Surface of Boilers 79524 sq. ft. Is Forced Draft fitted yes Date of test 11-5-20 No. of Certificate 3572  
 Working Pressure 225 lbs. Tested by hydraulic pressure to 450 lbs. No. and Description of Safety Valves to each boiler 2 direct spring Area of fire grate in each boiler 76.85 sq. ft. Are they fitted with easing gear yes  
 Area of each valve 11.045 sq. ft. Pressure to which they are adjusted 230 lbs. Are they fitted with easing gear yes  
 Greatest distance between boilers or uptakes and bunkers or work 12" Mean dia. of boilers 16-4 1/2" Length 12'-6" Material of shell plates Steel  
 Thickness of shell plates 1 1/2" Range of tensile strength 28/20 Are the shell plates welded or flanged yes Descrip. of riveting: cir. seams J.R. Lap  
 Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 10 1/2" Lap of plates or width of butt straps 23 1/4"  
 Percentage of strength of longitudinal joint 90.4 Working pressure of shell by rules 227 lb Size of manhole in shell 16' x 20"  
 Diameter of compensating ring 3'-1" x 2'-9" x 1 1/8" No. and Description of Furnaces in each Boiler 4 Deightons Material Steel Outside diameter 3'-9 1/2"  
 Thickness of plain part 21" Description of longitudinal joint Welded No. of strengthening rings 3  
 Working pressure of furnace by the rules 235 Combustion chamber plates: Material Steel Thickness: Sides 23/32" Back 23/32" Top 23/32" Bottom 1"  
 Diameter of stays to ditto: Sides 9" x 8 1/2" Back 9 1/8" x 7 3/4" Top 9" x 8 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 226  
 Material of stays Steel Area at smallest part 2.069 = 2.429 Area supported by each stay 7 1/4" x 12 1/4" Working pressure by rules 226 End plates in steam space Steel  
 Thickness of stays 1 1/4" Pitch of stays 16" x 19" How are stays secured D. Nuts Working pressure by rules 226 Material of stays Steel  
 Diameter at smallest part 6.65" Area supported by each stay 16" x 19" Working pressure by rules 227 Material of Front plates at bottom Steel  
 Thickness of Lower back plate Steel Thickness 1" Greatest pitch of stays 15 1/4" x 7 3/4" Working pressure of plate by rules 236  
 Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" x 3 3/4" Material of tube plates Steel Thickness: Front 1 3/32" Back 13/16" Mean pitch of stays 9 3/8"  
 Working pressures by rules 234 Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 1 3/4" Length as per rule 30 1/2" Distance apart 8 1/2" Number and pitch of stays in each Three 9"  
 Working pressure by rules 230 Steam dome: description of joint to shell none % of strength of joint — Diameter —  
 Material — Description of longitudinal joint — Diameter of rivet holes — Pitch of rivets —  
 Working pressure of shell by rules — Crown plates: Thickness — How stayed —

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