

REPORT ON MACHINERY.

No. 80687.

4a.

of writing Report 32 MAR 1918 When handed in at Local Office 22 MAR 1918 Port of London Received at London Office 22 MAR 1918
 in Survey held at Loughborough Date, First Survey 26th October 1916 Last Survey March 11th 1918
 Book. Ljungstrom Turbines Electric Drive for 3/4 "Walsley Castle" Number of Visits 23
 on the Ljungstrom Turbines Electric Drive for 3/4 "Walsley Castle" Tons { Gross 3566
 Net 2184
 Built at Sunderland By whom built J. Blumer & Co. 3/4 2940 When built 1918
 Turbines made at Loughborough By whom made The British Electric Eng. Co. Ltd when made 1918
 Motors made at Newcastle By whom made Warr Hunter & Wigham Richardson when made 1918
 Indicated Horse Power 295 Owners Lancashire Shipping Co. Ltd Port belonging to Liverpool
 Net Horse Power at Full Power 1500 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

BINE ENGINES, &c.—Description of Engines Ljungstrom Turbines Electric Drive No. of Turbines 2
 Diameter of Rotor Shaft Journals, H.P. L.P. Diameter of Pinion Shaft 6"
 Diameter of Journals 6 1/2" Distance between Centres of Bearings 36" Diameter of Pitch Circle 9.2"
 Diameter of Wheel Shaft 12" Distance between Centres of Bearings 36" Diameter of Pitch Circle of Wheel 86"
 Diameter of Face 22" Diameter of Thrust Shaft under Collars 12 1/2" 11.73" Diameter of Tunnel Shaft as per rule 11.18"
 as fitted 12"
 Diameter of same as per rule 12.8" Diameter of Propeller 16.8" Pitch of Propeller 15.0"
 as fitted 13 1/2" with 100 hairs
 State whether Moveable No Total Surface 81.5" Diameter of Rotor Drum, H.P. L.P. Astern
 Revs. per Minute at Full Power, Turbine 3600 Propeller 76
 " " " " Motors 714

PARTICULARS OF BLADING.

	H.P.			L.P.			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.
EXPANSION									
"	<u>Ljungstrom Turbines - Each Turbine driving two generating Electric Motors</u> <u>driving Motors two working two reducing gear</u> <u>on single screw shaft.</u>								
"									
"									
"									
"									

and size of Feed pumps 10 9 1/2 x 7 x 18 Weirs also one motor driven centrifugal pump to feed all boilers.
 and size of Bilge pumps Tangye's 5 1/2 x 4 3/4 x 6 Duplex
 and size of Bilge suction in Engine Room 4 @ 3 1/2"

In Holds, &c. N°1 hold. - 2 @ 3 1/2". N°2 hold. - 2 @ 3 1/2".
 3 hold. - 2 @ 3 1/2". N°4 hold. - 1 @ 3 1/2". Tunnel well. - 1 @ 3".
 Bilge Injections 2 sizes 6" Connected to condenser, or circulating pump C.P. Is a separate Donkey Suction fitted in Engine Room & size yes, 3 1/2"
 Are the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes
 Are the 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 the pipes carried through the bunkers none How are they protected yes
 Are the 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
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from Top platform

FURNACES, &c.—(Letter for record)

Manufacturers of Steel
 Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers
 Working Pressure Tested by hydraulic pressure to Date of test No. of Certificate
 Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to
 Area of each valve Pressure to which they are adjusted Are they fitted with easing gear
 Minimum distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates
Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams
Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps
Working pressure of shell by rules Size of manhole in shell
No. and Description of Furnaces in each Boiler Material Outside diameter
Thickness of plates Description of longitudinal joint No. of strengthening rings
Combustion chamber plates: Material Thickness: Sides Back Top Bottom
If stays are fitted with nuts or riveted heads Working pressure by rules
Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space
Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays
Area supported by each stay Working pressure by rules Material of Front plates at bottom
Material of tube plates Thickness Greatest pitch of stays Working pressure of plate by rules
Material of tube plates Thickness: Front Back Mean pitch of stays
Working pressures by rules Girders to Chamber tops: Material Depth and
Length as per rule Distance apart Number and pitch of stays in each
Steam dome: description of joint to shell % of strength of joint Diameter
Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets
Crown plates: Thickness How stayed



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SUPERHEATER. Type Schmidt Date of Approval of Plan _____ Tested by Hydraulic Pressure to _____

Date of Test _____ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler yes
Diameter of Safety Valve 2 1/2" Pressure to which each is adjusted 225 Is Easing Gear fitted yes

IS A DONKEY BOILER FITTED? yes If so, is a report now forwarded? yes

SPARE GEAR. State the articles supplied:— one set of coupling bolts and nuts, one set of feed pump valves, one set of valves for general service donkey, one set of check valves, iron and bolts of various sizes, one screw shaft and one propeller. Superheater elim

The foregoing is a correct description,

Bruck & Co Manufacturer.

Visits to the Bruck Electrical Engineering Co., Loughborough (1916) Oct 26 (1917) Mar 13, 23 May 1, 11, July 4, Sept. 30 (1918) Jan 26 Mar 11
Dates of Survey while building { During progress of work in shops - - Visits to Bruck & Co. (1914) Mar 13, 23 May 1, 11, July 4, Aug 14, 21, Sept. 22, Oct. 20, Nov. 17, 29, Dec. 6, 18.
{ During erection on board vessel - - See visits 1917 Sep 24, 1918 Mar 20, 22, 25, Apr 5, 19, 23, 26, 30, May 1, 6, 7, 8, 9, 15, 16, 29, 30, June 3, 4, 21 (2 ap of plan)
Total No. of visits 22 See Jul 4, 9, 15 — (24 + 23) Is the approved plan of main boiler forwarded herewith yes

Dates of Examination of principal parts—Casings 26-10-16 Rotors 13-3-17 Blading 21-8-17 Gearing 18-12-19
Rotor shaft 18-12-17 Thrust shaft 18-12-17 Tunnel shafts 31/7/17 17/8/17 Screw shaft 17/8/17 17/9/17 Propeller 17/8/17 4/9/17
Stern tube 31/7/17 17/8/17 Steam pipes tested iron & copper (29/10/18) Engine and boiler seatings 24-9-17 Engines holding down bolts 5-4-18
Completion of pumping arrangements 9-5-18 Boilers fixed 20-3-18 Engines tried under steam A-6-18
Main boiler safety valves adjusted 26-4-18 Thickness of adjusting washers Pol. boiler - both 3/8" Stacks 5/8" S 13/32"

Material and tensile strength of Rotor shaft

Identification Mark on Do.

Material and tensile strength of Pinion shaft

Identification Mark on Do.

Material of Wheel shaft Identification Mark on Do.

Material of Thrust shaft

Identification Mark on Do.

Material of Tunnel shafts iron Identification Marks on Do. (5938 29/10/17)

Material of Screw shafts steel

Identification Marks on Do. (5938 29/10/17)

Material of Steam Pipes Sp. welded iron & cold drawn copper 11 3/4"

Test pressure iron 660 lb copper 550 lb

Is an installation fitted for burning oil fuel no

Is the flash point of the oil to be used over 150°F. -

Have the requirements of Section 49 of the Rules been complied with -

Is this machinery a duplicate of a previous case NO If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, &c.) Two Turbines, each turbine fitted with

two generating motors (one on each end) and driving motors fitted on reduce gear & propeller shaft and condensers (2) constructed under special Survey material tested as required & workmanship good. Turbine casings tested hydraulic pressure & 30 lbs, stop valve chests (cast steel) & 400 lbs, Condensers (steel riveted) & 40 lbs per sq inch & all found tight & sound. Turbines, Generators & the whole plant coupled up with the driving motors & reducing gear in shop & work satisfactory & smoothly & with absence of vibration. Turbines & Generators run 3600 Revs. Propeller shaft 76 & 77 Revs. Bolts 655 Amp 560. The mark of this vessel has been built under special survey. I remain the vessel shipper in our opinion to have record of L.M.C. 7, 18

The amount of Entry Fee £ 2 : 0 : 0

When applied for, 3/4/18

Special Balanced 11/11/18

When received, at London 18.7.18

Donkey Boiler Fee £ 2 : 2 : 0

Attitude Sunday Fee £ 23 : 4 : 5

Travelling Expenses (if any) £ 23 : 4 : 5

Committee's Minute

FRI 2-AUG. 1918 FRI 2-AUG. 1918

Assigned

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