

REPORT ON MACHINERY.

No. 15527

MON. 25 JUN 1923

Received at London Office

Date of writing Report 18th June 1923 When handed in at Local Office

10

Port of HAMBURG

No. in Survey held at HAMBURG

Date, First Survey 4th Novemb. 22. Last Survey 12th June 1923.

Reg. Book.

on the Steel Screw Steamer "GERA" (YARD No 404)

(Number of Visits 28.)

Gross 5185.

Tons Net 3100.

Master Built at HAMBURG By whom built BLOHM & VOSS.

When built 1923

Engines made at HAMBURG By whom made BLOHM & VOSS

when made 1923

Boilers made at HAMBURG By whom made BLOHM & VOSS

when made 1923

Registered Horse Power 634 Owners Deutsch-Austral. Dampfschiff-Frt. G. Port belonging to HAMBURG

Shaft Horse Power at Full Power 2660 Is Refrigerating Machinery fitted for cargo purposes no. Is Electric Light fitted yes

TURBINE ENGINES, &c.—Description of Engines

4 Turbines geared to 1 screw shaft No. of Turbines 4.

Diameter of Rotor Shaft Journals, H.P. 700-1/2 I.P. 1000-1/2 L.P. 1200 Diameter of Pinion Shaft 125 in.

Diameter of Journals 130 in. Distance between Centres of Bearings 895 in. Diameter of Pitch Circle 143.72 in.

Diameter of Wheel Shaft 390 in. Distance between Centres of Bearings 2090 in. Diameter of Pitch Circle of Wheel 3700.63 in.

Width of Face 2 x 550 in. Diameter of Thrust Shaft under Collars 1400 in. Diameter of Tunnel Shaft as per rule 327 in. as fitted 327 in.

No. of Screw Shafts 1. C.L. see over. as per rule 374 in. as fitted 385 in. Diameter of Propeller 5600 in. Pitch of Propeller 5000 in.

No. of Blades 4. State whether Moveable yes. Total Surface 9 sq. m. Diameter of Rotor Drum, H.P. 550 I.P. 670 L.P. 935 Astern 1345

Thickness at Bottom of Groove, H.P. 50% I.P. 50% L.P. 75% Astern 75% Revs. per Minute at Full Power, Turbine 2400 Propeller 80.

PARTICULARS OF BLADING.

	H.P.			I.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.
1ST EXPANSION	30 in.	1437 in.	1.	65 in.	800 in.	6 rows.	30 in.	1426 in.	1 impulse
2ND	50 in.	1438 in.	1.	85 in.	840 in.	5.	50 in.	1444 in.	1
3RD	40 in.	730 in.	5.	110 in.	890 in.	5.			
4TH	15 I.P.								
5TH	30 in.	1425 in.	impulse 1.	80 in.	1095 in.	3.	40 in.	1425 in.	1
6TH	60 in.	670 in.	reaction 6.	110 in.	1155 in.	3.	85 in.	1472 in.	1
7TH	70 in.	710 in.	" 6.	148 in.	1231 in.	3.			
8TH				125 in.	1325 in.	4.			

No. and size of Feed pumps 2. Simplex. 250 x 180 x 600 in. (See Type)

No. and size of Bilge pumps 10 Duplex. 170 x 170 x 300 in. 10 Duplex. 270 x 170 x 400 in. 1 Duplex (Ballot). 250 x 280 x 400 in.

No. and size of Bilge suction in Engine Room 3 each of 90 in. in girder space. 2 each of 90 in. from tunnel well 1 of 90 in. from hold.

8 each of 90 in. 2 each of 70 in. In Hold, etc. Tank suction 11 each of 150 in. 1 of 100 in.

No. of Bilge Injections 1. sizes 300 in. Connected to condenser or to circulating pump yes Is a separate Donkey Suction fitted in Engine Room & size yes - 200 in.

Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks valves & 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 above & 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 fire hold suction. How are they protected bronze & steel from paring

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

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from engine room and deck

BOILERS, &c.—(Letter for record 5.)

Manufacturers of Steel Phoenix P. G. Hordt. Fried. Krupp. - Zimm. Gussst. Hütte. Oberhausen.

Total Heating Surface of Boilers 8880 sq. ft. Is Forced Draft fitted yes No. and Description of Boilers 3 single ended multi-tubular.

Working Pressure 15 kg. (213 lb.). Tested by hydraulic pressure to 370 lb. Date of test 29/5-25/4-7/4/23. No. of Certificate 328-329-330.

Can each boiler be worked separately yes Area of fire grate in each boiler 16.2 sq. m. No. and Description of Safety Valves to each boiler 2 spring loaded. Dia. of each valve 110 in. Pressure to which they are adjusted 15 kg. (213 lb.). Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 1100 in. Mean dia. of boilers 4850 in. Length 3660 in. Material of shell plates steel.

Thickness 38.5 in. Range of tensile strength 28-32 tons. Are the shell plates welded or flanged flanged. Descrip. of riveting: cir. seams sp. abt.

long. seams D. B. kettle. Diameter of rivet holes in long. seams 41 in. Pitch of rivets 207 in. Lap of plates or width of butt straps 606 in.

Per centages of strength of longitudinal joint rivets 94.4%. plates 84.64%. Working pressure of shell by rules 217.5 lb. Size of manhole in shell 320 x 420 in.

Size of compensating ring 1000 x 1100 x 38.5 in. No. and Description of Furnaces in each Boiler 3 horizontal Material steel Outside diameter 1250 in.

Length of plain part top 17.5 in. crown 17.5 in. bottom 17.5 in. Description of longitudinal joint welded. No. of strengthening rings

Working pressure of furnace by the rules 212 lb. Combustion chamber plates: Material steel Thickness: Sides 17 in. Back 17 in. Top 17 in. Bottom 23 in.

Pitch of stays to ditto: Sides 90 x 200 in. Back 190 x 200 in. Top 190 x 200 in. If stays are fitted with nuts or riveted heads no. Working pressure by rules 265 lb.

Material of stays steel. Diameter of smallest part 39 in. Area supported by each stay 100 x 100 in. Working pressure by rules 259 lb. End plates in steam space

Material steel. Thickness 26 in. Pitch of stays 380 x 380 in. How are stays secured D. H. & W. Working pressure by rules 300 lb. Material of stays steel.

Diameter at smallest part 70 in. Area supported by each stay 1444 sq. cm. Working pressure by rules 292.3 lb. Material of Front plates at bottom steel.

Thickness 14 in. Material of Lower back plate steel. Thickness 26 in. Greatest pitch of stays 350 in. Working pressure of plate by rules 237 lb.

Diameter of tubes 83 in. Pitch of tubes 110 in. Material of tube plates steel. Thickness: Front 28 in. Back 23 in. Mean pitch of stays 240 in.

Pitch across wide water spaces 360 in. Working pressures by rules 270 lb. Girders to Chamber tops: Material steel. Depth and thickness of girder at centre 220 (3 x 25) in. Length as per rule 875 in. Distance apart 120 in. Number and pitch of stays in each 3 - 200 in.

Working pressure by rules 240 lb. Steam dome: description of joint to shell 1/10 of strength of joint Diameter

Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets

Working pressure of shell by rules Crown plates: Thickness How stayed

SUPERHEATER. Type *Horizontal*. Date of Approval of Plan *20/1/21*. Tested by Hydraulic Pressure to *45 kgr*
Date of Test *16/4/23*. Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *yes*
Diameter of Safety Valve *40 mm*. Pressure to which each is adjusted *15 kgr (213 lb)*. Is Easing Gear fitted *yes*

IS A DONKEY BOILER FITTED? *no*. If so, is a report now forwarded?
SPARE GEAR. State the articles supplied:— *All spare articles required & recommended in Section 32, page 84 of the Rules have been supplied.*

The foregoing is a correct description,
BLOHM & VOSS
KÖNIGSBERG-GESELLSCHAFT AUF AKTIEN
Kahn Manufacturer.

Dates of Survey while building: During progress of work in shops -- *4/11 - 14/12/22 - 5/1 - 11/1 - 24/1 - 24/2 - 17/3 - 29/3 - 3/4 - 5/4 - 7/4 - 13/4/23.*
During erection on board vessel -- *16/4 - 18/4 - 23/4 - 27/4 - 2/5 - 5/5 - 12/5 - 17/5 - 19/5 - 22/5 - 26/5 - 30/5 - 2/6 - 9/6/23 - 12/6/23.*
Total No. of visits *28*. Is the approved plan of main boiler forwarded herewith? *Yes. 15/27*

Dates of Examination of principal parts—Casings *4/11-14/12/22*. Rotors *4/11-14/12*. Blading *5-11-24/4/23*. Gearing *14/2-5-11-24/4-23*.
Rotor shaft *4/11-14/12*. Thrust shaft *16/3/22-4/11/23*. Tunnel shafts *4/11/23*. Screw shaft *19/5/23*. Propeller *14/5-22/5/23*.
Stern tube *3/4-13/4/23*. Steam pipes tested *2/5-12/5-24/5/23*. Engine and boiler seatings *16-18/4*. Engines holding down bolts *23/4-27/4/23*.
Completion of pumping arrangements *9/6/23*. Boilers fired *23/4/23*. Engines tried under steam *2/6/23*.
Main boiler safety valves adjusted *2/6/23*. Thickness of adjusting washers *For 23.5 mm. 19.5 mm. 18.5 mm. 17.5 mm.*
Material and tensile strength of Rotor shaft *HP 15 + 22 LR 5.7. Steel 52-60 kgr. L.P. 60-70 kgr.* Identification Mark on Do. *TH*.
Material and tensile strength of Pinion shaft *Nickel Steel 63 kgr 19 mm.* Identification Mark on Do. *TH*.
Material of Wheel shaft *Steel* Identification Mark on Do. *TH*. Material of Thrust shaft *Steel* Identification Mark on Do. *TH*.
Material of Tunnel shafts *Steel* Identification Marks on Do. *103-12-21-107/108-1.22 H: 124/125-17.2.22. J.A.*
Material of Steam Pipes *Steel* Identification Marks on Do. *104-16.2.22. J.A.*
Test pressure *50 kgr per sq. cm. 710 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 *yes*. If so, state name of vessel *DÜSSELDORF, ESSEN & FREIBURG*.
Is this machinery a duplicate of a previous case *yes*.

General Remarks (State quality of workmanship, opinions as to class, &c.) *Material & workmanship of turbines, gear and auxiliary machinery and boilers are of best quality; the outfit is ample. The machinery constructed under Special Survey in accordance with the approved plans, the Society's Letters E 21/1/21 - 23/1/21 - 16/2/21 - 7/7/21 - 24/7/21. and otherwise in conformity with the requirements of the Society's Rules. The machinery has been tested in my presence in full working & manoeuvring conditions and has given full satisfaction. It is eligible in my opinion for notification "L.M.C. 6-23" (Pair ship C.L.)*

It is submitted that
this vessel is eligible for
THE RECORD. + L.M.C. 6.23. F.D. CL.
4 Steam Turbines S.R. geared to 1 Screw Shaft.

The amount of Entry Fee ... £ *6.00*.
Special ... £ *106.14*.
Donkey Boiler Fee ... £ *:*.
Travelling Expenses (if any) ... £ *:*.
When applied for, *6-4 June 1923*.
When received, *16.6.23*.

Friedrich H. A.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 6 JUL 1923*

Assigned *L.M.C. 6.23. F.D. CL. 9R*