

REPORT ON MACHINERY.

Received at London Office

TUE - 4 MAR. 1918

Date of writing Report 22nd February 1919 When handed in at Local Office 21st February 1919 Port of Malmö
No. in Survey held at Malmö Date, First Survey 6th October 1916 Last Survey 3rd February 1919

Supplemental 43 on the machinery of the S.S. "Grim", Kockums Mek Verkstads S.S No. 128 Tons { Gross 1323
Net 758
Master C.F. E. Hook Built at Malmö By whom built Kockums Mek. Verkstads AB When built 1919-2 mo

Engines made at Malmö By whom made Kockums Mek. Verkstads Aktiebolag when made 1919
Boilers made at Malmö By whom made Kockums Mek. Verkstads Aktiebolag when made 1919

Registered Horse Power 157 Owners Stockholms Rederi AB Luca Port belonging to Stockholm
Nom. Horse Power as per Section 28 157 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted No.

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3
Dia. of Cylinders 18 1/8, 28 3/4, 48 1/16 Length of Stroke 3 1/2 Revs. per minute about 84 Dia. of Screw shaft as per rule 10.92 70 1/16 Material of screw shaft as fitted 11 3/16 Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube No liners fitted Is the after end of the liner made water tight in the propeller boss Yes If the liner is in more than one length are the joints burned Yes If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If two liners are fitted, is the shaft lapped or protected between the liners Cedwalls patent protecting box Length of stern bush 45"

Dia. of Tunnel shaft as per rule 8 7/8 8.92 Dia. of Crank shaft journals as per rule 9 3/8 Dia. of Crank pin 9 3/4 Size of Crank webs 17 3/4 x 7 1/16 Dia. of thrust shaft under collars 9 3/4 Dia. of screw 12-10 Pitch of Screw 11-9 No. of Blades 4 State whether moceable No. Total surface 48 sq

No. of Feed pumps Two Diameter of ditto 3 1/16 Stroke 14 3/16 Can one be overhauled while the other is at work yes
No. of Bilge pumps 2 Diameter of ditto 3 1/16 Stroke 14 3/16 Can one be overhauled while the other is at work yes

No. of Donkey Engines 2 Duplex Sizes of Pumps 5 7/8 x 4 x 5 7/8 No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 4-2 1/2" Tunnel well, 1-2 1/2" In Holds, &c. Two-3" in fore hold, Two-2 1/2" in after hold

No. of Bilge Injections 1 size 6" Connected to condenser, or to circulating pump circ. pump a separate Donkey Suction fitted in Engine room & size yes 2 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 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
What pipes are carried through the bunkers Bilge suction to fore part of vessel carried through bilges How are they protected Bunker ceiling

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 grating level with upper deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Rheinischer Stahlwerke, Duisburg, Germany, Baidonhütte, Germany, Vyle Bole + Motrik Fabrik, Vyle, Denmark

Total Heating Surface of Boilers 2546 sq Is Forced Draft fitted No. No. and Description of Boilers Two single ended multitubular
Working Pressure 185 lbs Tested by hydraulic pressure to 370 lbs Date of test 10/5 + 18/5/1917 Nos. of Certificates 390 + 391

Can each boiler be worked separately yes Area of fire grate in each boiler 35 sq No. and Description of Safety Valves to each boiler Two spring loaded Area of each valve 7 sq Pressure to which they are adjusted 190 lbs per sq Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean dia. of boilers 36 5/8 Length 3250 Material of shell plates steel
Thickness 26 mm Range of tensile strength 44-50 kg per cm² Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Double riveted lap

long. seams of equal width Diameter of rivet holes in long. seams 27 mm Pitch of rivets 183 1/2 mm Lap of plates or width of butt straps 400 mm
Per centages of strength of longitudinal joint rivets 89 plate 85 Working pressure of shell by rules 185 lbs per sq Size of manhole in shell 490 mm x 390 mm

Size of compensating ring 720 mm x 26 mm No. and Description of Furnaces in each boiler 2 Morrison's Material Steel Outside diameter 1160 mm

Length of plain part top 15 1/2 mm Thickness of plates 15 mm Description of longitudinal joint welded No. of strengthening rings 1
Working pressure of furnace by the rules 188 lbs per sq Combustion chamber plates: Material Steel Thickness: Sides 15 mm Back 15 mm Top 15 mm Bottom 17 mm

Pitch of stays to ditto: Sides 2 1/2 mm x 195 mm Back 2 1/2 mm x 195 mm Top 2 00 mm x 208 mm If stays are fitted with nuts or riveted heads nuts Working pressure by rules 187 lbs
Material of stays Steel Area at smallest part 1,504 sq Area supported by each stay 63 sq Working pressure by rules 189 lbs per sq End plates in steam space:

Material Steel Thickness 25 mm Pitch of stays 4 1/6 x 380 mm How are stays secured washers outside the plates Working pressure by rules 186.5 Material of stays Steel
Area at smallest part 5.45 sq Area supported by each stay 2.46 sq Working pressure by rules 230 lbs Material of Front plates at bottom Steel

Thickness 25 mm Material of Lower back plate Steel Thickness 25 mm Greatest pitch of stays 340 mm x 195 mm Working pressure of plate by rules 281 lbs per sq
Diameter of tubes 3 1/2 Pitch of tubes 121 mm x 120 mm Material of tube plates Steel Thickness: Front 25 mm Back 20 mm Mean pitch of stays as per plan

Pitch across wide water spaces 370 mm Working pressures by rules 187 lbs per sq Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 2 (176 mm x 25 mm) Length as per rule 685 mm Distance apart 208 mm Number and pitch of stays in each Two 200 mm

Working pressure by rules 191 lbs per sq Steam dome: description of joint to shell None % of strength of joint Yes
Diameter Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet holes Yes

Pitch of rivets Yes Working pressure of shell by rules Yes Crown plates Yes Thickness Yes How stayed Yes

SUPERHEATER. Type None Date of Approval of Plan Yes Tested by Hydraulic Pressure to Lloyd's Register Foundation
Date of Test Yes Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler Yes
Diameter of Safety Valve Yes Pressure to which each is adjusted Yes Is Easing Gear fitted Yes

L5007101-005

IS A DONKEY BOILER FITTED? *No.*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— *2 connecting rod top & bottom-end bolts and nuts. 2 main bearing bolts. 1 set of coupling bolts. 1 set of feed and bilge pump valves. 1 set of L.P. piston springs. Bolts, nuts and iron of various sizes. 1 propeller. A number of boiler tubes and condenser tubes.*

The foregoing is a correct description,

KÖCKUMS MEKANISKA VERKSTADS
AKTIE-BOLAG

[Signature]

Manufacturer.

Dates of Survey while building { During progress of work in shops -- } *6, 12, 17, 19, 21, 24, 27, 30, 31, 7, 11, 21, 1916. 19, 31, 33, 21, 27, 30, 3, 20, 26, 4, 7, 10, 18, 26, 30, 19, 12, 1917. 12, 25, 2, 5, 4, 7, 2, 5, 19, 24, 10, 1918.*
{ During erection on board vessel --- } *10, 17, 20, 29, 1, 4, 2, 3, 2, 1919.*
Total No. of visits *39*

Is the approved plan of main boiler forwarded herewith *yes*
" " " donkey " " *yes*

Dates of Examination of principal parts—Cylinders *17, 19, 10, 1916* Slides *17, 10, 1916* Covers *17, 10, 1916* Pistons *17, 10, 1916* Rods *30, 11, 1917*
Connecting rods *30, 11, 1917* Crank shaft *27, 24, 19, 1918* Thrust shaft *2, 8, 1918* Tunnel shafts *2, 8, 1918* Screw shaft *2, 8, 1918* Propeller *19, 9, 1918*
Stern tube *5, 7, 1918* Steam pipes tested *26, 10, 1918* Engine and boiler seatings *26, 10, 1918* Engines holding down bolts *10, 1, 1919*
Completion of pumping arrangements *17, 1, 1919* Boilers fixed *10, 1, 1919* Engines tried under steam *20, 1, 1919*
Completion of fitting sea connections *26, 10, 1918* Stern tube *5, 7, 26, 10, 1918* Screw shaft and propeller *26, 10, 1918*

Main boiler safety valves adjusted *20, 1, 1919* Thickness of adjusting washers *None, double nuts fitted*
Material of Crank shaft *Steel* Identification Mark on Do. *11, 17 A.T.P.* Material of Thrust shaft *Steel* Identification Mark on Do. *11, 17 A.T.P.*
Material of Tunnel shafts *Steel* Identification Marks on Do. *2, 5, 18 G.W.J.* Material of Screw shafts *Steel* Identification Marks on Do. *2, 5, 18 G.W.J.*

Material of Steam Pipes *Steel* Test pressure *560 lbs per sq"*
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 duplicate of a previous case *yes* If so, state name of vessel *s.s. "Pergeik" No. 123, s.s. "Halpdan" s.s. 26, 120.*

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery and boilers of this vessel have been constructed under the usual conditions of Special Survey in accordance with the approved plans. Forgings and castings examined and tested as per rule. Engines tried under steam and found working satisfactorily. The survey has been partly carried out by the Copenhagen Surveyors and the boilers tested as per Copenhagen certificates Nos. 390 + 391. The machinery of this vessel is eligible in my opinion to have the notation of **⊕ LMC 2, 19** in the Register Book. Boiler pressure 185 lbs per sq".*

It is submitted that this vessel is eligible for THE RECORD. + LMC 2. 19.

[Signature]
4/3/19.

[Signature]
Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee ... *£. 36.40* : When applied for, *22 Feb. 1919.*
Special ... *£. 642.92* :
Travelling Expenses (if any) £ : :
When received, *11/4/19 1919*

Committee's Minute *FRI. - 7. MAR. 1919*

Assigned *+ LMC 2. 19*



Certificate (if required) to be sent to Surveyors Office, Malmo.

The Surveyors are requested not to write on or below the space for Committee's Minutes.