

"VULCAN" REDUCTION GEAR REPORT ON STEAM TURBINE MACHINERY,

No. 1258.

Received at London Office 27 NOV 1930

Date of writing Report 22nd April 1930 When handed in at Local Office

19

Port of *Krmin*No. in Survey held at *Krmin*
Reg. Book.

Date, First Survey 22nd Oct 1929 Last Survey 15th April 1930

on the *STEEL SC "KOTA AGOENG"*

(Number of Visits 23)

Tons { Gross
NetBuilt at *Rotterdam*By whom built *Maats. Fynmoord*Yard No. *317*

When built

~~Engines~~ made at *Krmin*By whom made *Dutch Ship. & Mach. B.V.*Engine No. *21*When made *1930*

Boilers made at

By whom made

Boiler No.

When made

Shaft Horse Power at Full Power *2 x 2750 = 5500 max*

Owners

Port belonging to

Nom. Horse Power as per Rule

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

STEAM TURBINE ENGINES, &c.

Description of Engines

*Two 216 H.P. Turbine Engines
Type: D 5252/70*

No. of Turbines

Ahead

Astern

~~Direct coupled, single or double~~ reduction geared to *one* propelling shafts. No. of primary pinions *2* of reduction gearing *2*, direct coupled to *✓* phase*✓* periods per second, Alternating Current Generator rated *✓* Kilowatts *✓* Volts at *✓* revolutions per minute; for supplying power for drivingPropelling Motors. Propelling Motors, Type *✓*rated *✓* Kilowatts *✓* Volts at *✓* revolutions per minute. Direct coupled, single or double reduction geared to *✓* propelling shafts.

PARTICULARS OF TURBINE BLADING.

	H.P.			I.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.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION												
2ND												
3RD												
4TH												
5TH												
6TH												
7TH												
8TH												

Shaft Horse Power *2750 to 3180 max.* at each Turbine Shaft *215 to 226 max.* 1st reduction wheel *✓*main shaft *86 to 90 max.* Pitch Circle Diameter, 1st pinion *938.9 mm.* 2nd pinion *✓* 1st reduction wheel *✓* main wheel *2264.41 mm.*Width of Face, 1st reduction wheel *pinion 1000 mm.* Distance between centres of pinion and wheel faces and the centre of the adjacent bearings,1st pinion *900 mm.* 2nd pinion *✓* 1st reduction wheel *✓* main wheel *900 mm.* Flexible Pinion Shafts, diameter 1st *external 350 mm.*Pinion Shafts, diameter at bearings External 1st *460 mm.* 2nd *✓* diameter at bottom of teeth of pinion 1st *922.38 mm.* 2nd *✓* internal *150 "*Wheel Shafts, diameter at bearings, 1st *✓* main *ext. 460 mm.* diameter at wheel shroud, 1st *✓* main *2150 mm.*Generator Shafts, diameter at bearings *✓* Propelling Motor Shafts, diameter at bearings *✓* *460.440*Main Shafting, diameter of Tunnel Shafting *as per rule* *✓* diameter of Thrust Shafting *as per rule* *406.15 mm.*diameter of Screw Shaft *as per rule* *✓* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *✓* Is the after end of the linermade watertight in the propeller boss *✓* If the liner is in more than one length are the joints burned *✓* If the liner does not fit tightly at thepart between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *✓* If two liners are fitted, is theshaft lapped or protected between the liners *✓* Is an approved appliance fitted at the after end of the shaft to permit of it being efficientlylubricated *✓* Length of Stern Bush *✓* Diameter of Propeller *✓*Pitch of Propeller *✓* No. of Blades *✓* State whether Moveable *✓* Total Surface *✓* square feet. If Single Screw, are

arrangements made so that steam can be led direct to the L.P. Turbine, and either the H.P. or I.P. Turbine can exhaust direct to the Condenser

No. of Turbines fitted with astern wheels *✓* Total number of power driven Main and Auxiliary PumpsNo. and size of Feed Pumps *✓* How driven *✓* No. and size of Pumps connected to the Main Bilge LineHow driven *✓* No. and size of Ballast Pumps *✓* No. and size of Lubricating Oil Pumps, includingSpare Pump *✓* Are two independent means arranged for circulating water through the Oil Cooler *✓* No. and size of suctionsconnected to both Main Bilge Pumps and Auxiliary Bilge Pumps;—In Engine and Boiler Room *✓* and in Holds, &c.No. and size of Main Water Circulating Pump Bilge Suctions *✓* No. and size of Donkey Pump Direct Suctionsto the Engine Room Bilges *✓* Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes

Are the Bilge Suctions in the Machinery Space led from easily accessible head-boxes, placed above the level of the working floor, with straight tail pipes to the bilges

Are all connections with the sea direct on the skin of the ship *✓* Are they Valves or CocksAre they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *✓* Are the Discharge Pipes above or below the deep water lineAre they each fitted with a Discharge Valve always accessible on the plating of the vessel *✓* Are the Blow Off Cocks fitted with a spigot and brass covering plateWhat pipes are carried through the bunkers *✓* How are they protected

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another *✓* Is the Screw Shaft Tunnel watertight *✓* Is it fitted with a watertight door *✓* worked fromBOILERS, &c.—(Letter for record *✓*) Total Heating Surface of BoilersIs Forced Draft fitted *✓* No. and Description of Boilers

Working Pressure

Is a Report on Main Boilers now forwarded? ☒

Is a Donkey Boiler fitted? ☒

If so, is a report now forwarded? ☒

Plans. Are approved plans forwarded herewith for Shafting 31/5/29 Main Boilers ☒ Auxiliary Boilers ☒ Donkey Boilers ☒
(If not state date of approval)

Spare Gear. State the articles supplied:—

As required by the Rules.

The foregoing is a correct description,
Deutsche Schiff- und Maschinenbau Aktiengesellschaft

Manufacturer.

A. H. Klemm

Dates of Survey while building { During progress of work in shops -- 1929:— Oct. 22, 30, Nov. 7, 13, 28, 29. Dec. 5, 27. 1930:— Jan. 3, 17, 30. Febr. 5, 14, 26.
During erection on board vessel --- March 6, 10, 14, 19, 25, 29. April 4, 11, 15
Total No. of visits 23.

Dates of Examination of principal parts—Casings 22/10, 7/11, 30/11. *Flutcher Rotors* 17/1, 26/2 Blading Pinion shafts Gearing 22/10, 5/12, 6/3

Wheel shaft *and* Thrust shaft 29/11, 3/1, 6/3 Tunnel shafts ☒ Screw shaft ☒ Propeller ☒

Stern tube ☒ Engine and boiler seatings ☒ Engines holding down bolts ☒

Completion of pumping arrangements ☒ Boilers fired ☒ GEAR on test bed 4/4/30
Engines tried under steam

Main boiler safety valves adjusted ☒ Thickness of adjusting washers ☒

Material and tensile strength of Rotor shaft ☒ Identification Mark on Do. ☒

Material and tensile strength of Pinion Shaft *Nickel Steel 44.3 tons per sq. inch* Identification Mark on Do. *LLOYD'S No. 1109 F.K. 12.9.29*

Material and tensile strength of Pinion shaft " " 43.0 " " " " Identification Mark on Do. *LLOYD'S No. 5957 F.K. 20.9.29*

Material and tensile strength of *main wheel & pinion* *Reduction Wheel* Shaft *J.M. Steel 29.1* " " " " Identification Mark on Do. *LLOYD'S No. 1081 F.K. 19.8.29*

Material of *2 primary* shafts *J.M. Steel* Identification Mark on Do. *No. 1082/83 F.K. 9.10.29* Material of Thrust shaft ☒ Identification Mark on Do. ☒

Material of Tunnel shafts ☒ Identification Marks on Do. ☒ Material of Screw shafts ☒ Identification Marks on Do. ☒

Material of Steam Pipes ☒ Oil couplings Test pressure 6.5 kg/cm² Date of test 2.12.29. (F.H.)

Is an installation fitted for burning oil fuel ☒ Is the flash point of the oil to be used over 150°F. ☒

Have the requirements of the Rules for carrying and burning oil fuel 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.) *This 'Vulcan' reduction gear has been made under Special Survey in accordance with the approved plan, the Secretary's letter and in all other respects in conformity with the Rules. The materials used in the construction and the workmanship are good. The gear has been tested on the makers test bed and found to work satisfactorily. In my opinion the vessel for which it is intended will be eligible for the notation of + LLOYD'S L.M.C., when the gear has been satisfactorily fitted on board and tried under working conditions. The gear casing has been stamped No. 430, LLOYD'S G.B. 4:4.30.*
A copy of this Report has been sent to the Rotterdam Surveyors.

The amount of Entry Fee ... £ : :
Special *Krumm* £ 16 : 0 :
Donkey Boiler Fee *Hamburg* £ 4 : 0 :
Travelling Expenses (if any) £ 0 : 5 :
When applied for, 26.4.30
When received, 27.5.30

G. H. C. Ham
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 4 NOV 1930

Assigned *See F.E. Rpt.*