

## REPORT ON OIL ENGINE MACHINERY.

No. 16427

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Port of HAMBURG

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HAMBURG

Date, First Survey 12<sup>th</sup> MARCH 1924 Last Survey 7<sup>th</sup> July 1925

Number of Visits 22

Single }  
on the Twin } Screw vessels  
Triple }

"DUISBURG"

Tons { Gross 6530  
Net 3800

Master Built at HAMBURG By whom built VULCAN-WERKE Yard No. 638 When built 1925

Engines made at HAMBURG By whom made VULCAN-WERKE Engine No. 638 When made 1925

Donkey Boilers made at HAMBURG By whom made VULCAN-WERKE Boiler No. 3299 When made 1925

Brake Horse Power 4100 Owners DEUTSCH-AUSTRAL. DAMPF. GES. Port belonging to HAMBURG

Nom. Horse Power as per Rule 978 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

2 Oil engines. Type Vulkan. M.A.M.

OIL ENGINES, &amp;c.—Type of Engines geared by Vulkan gear to 1 propeller shaft. 2 or 4 stroke cycle 4 Single or double acting single

Maximum pressure in cylinders 500 lb. 35 kg. No. of cylinders 2 x 8 = 16 No. of cranks 2 x 8 = 16 Diameter of cylinders 640 mm.

Length of stroke 700 mm. Revolutions per minute 105 Means of ignition Diesel principle Kind of fuel used Diesel gas oil

Is there a bearing between each crank yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 805 mm.

Distance between centres of main bearings 1220 mm. Is a flywheel fitted no Diameter of crank shaft journals as per Rule 359 mm.

Diameter of crank pins 390 mm with 40 mm hole. Breadth of crank webs as per Rule 377 mm.

Diameter of propeller shaft as per Rule 359 mm. Diameter of tunnel shaft as per Rule 378 mm. Diameter of thrust shaft as per Rule 397 mm.

Diameter of screw shaft as per Rule 420 mm. Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes

Is the after end of the liner made watertight in the propeller boss yes If the liner is in more than one length are the joints burned

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

If two liners are fitted, is the shaft lapped or protected between the liners If without liners, is the shaft arranged to run in oil

Type of outer gland fitted to stern tube Length of stern bush 41690 mm from 675 mm Diameter of propeller 6000 mm.

Pitch of propeller 5400 mm. No. of blades 4 state whether moveable yes Total surface 1119 m. square feet

Method of reversing in Vulkan gear Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Thickness of cylinder liners 54 mm.

Are the cylinders fitted with safety valves yes Means of lubrication forced lubrication Are the exhaust pipes and silencers water cooled or lagged with

non-conducting material yes If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine

exhaust gas first cooler and tunnel No. of cooling water pumps 1 Is the sea suction provided with an efficient strainer which can be cleared

within the vessel yes No. of bilge pumps fitted to the main engines 2 Diameter of ditto 185 mm. Stroke 200 mm.

Can one be overhauled while the other is at work yes No. of auxiliary pumps connected to the main bilge lines 2, also Jallard How driven electric.

Sizes of pumps 160 mm diam. 140 mm stroke No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 4 each of 80 mm.

and in holds, etc. 100 mm from forepeak 120 mm from hold No. of ballast pumps 1 How driven electric. Sizes of pumps 285 mm diam. 260 mm stroke.

Is the ballast pump fitted with a direct suction from the engine room bilges yes State size 200 mm. Is a separate auxiliary pump suction fitted in

Engine Room and size yes - 200 mm. 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 Are all connections with the sea direct on the skin of the ship yes

Are they valves or cocks valves and cocks Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates yes

Are the discharge pipes above or below the deep water line above and below Are they each fitted with a discharge valve always accessible on the plating of the vessel yes

Are all pipes, cocks, valves and pumps in connection with the machinery 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 deck and engine room If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

No. of main air compressors 2 No. of stages 3 Diameters 590-525-220 mm Stroke 400 mm. Driven by main engine.

No. of auxiliary air compressors 1 No. of stages 3 Diameters 350-305-75 mm Stroke 260 mm. Driven by 4 each of auxiliary

No. of small auxiliary air compressors 1 No. of stages 2 Diameters 170-70 mm Stroke 100 mm. Driven by Diesel engine.

No. of scavenging air pumps Diameter Stroke Driven by 149 mm 149 mm 149 mm 149 mm 149 mm 149 mm

Diameter of auxiliary Diesel Engine crank shafts as per Rule 162 mm as fitted 175 mm with 49 mm hole Are the air compressors and their coolers made so as to be easy of access yes

AIR RECEIVERS:—No. of high pressure air receivers 2 for injection air. Internal diameter 250 mm. Cubic capacity of each 0.09 cbm.

Material Steel Seamless, lap welded or riveted longitudinal joint Seamless Range of tensile strength 50-55 kg/cm<sup>2</sup>thickness 12 mm working pressure by Rules 102 kg/cm<sup>2</sup> No. of starting air receivers 2 for main engine. Internal diameter 515 mm.

Total cubic capacity 0.35 cbm Material Steel Seamless, lap welded or riveted longitudinal joint Seamless

Range of tensile strength 55 kg/cm<sup>2</sup> thickness 40 mm Working pressure by rules 149 kg/cm<sup>2</sup> Is each receiver, which can be isolated,

fitted with a safety valve as per Rule yes Can the internal surfaces of the receivers be examined yes What means are provided for cleaning their

inner surfaces screwed covers Is there a drain arrangement fitted at the lowest part of each receiver yes



ус:



Steel S. Motor V. "DUISBURG"

Diam. of Pinion Shaft	: 550 <sup>mm</sup> . with 460 <sup>mm</sup> hole
" " Journals	550 <sup>mm</sup> " 460 . .
Distance between Centres of Bearings.	1510 <sup>mm</sup> .
Diam. of Pitch Circle.	1000 <sup>mm</sup> .
Diam. of Wheel Shaft	420 <sup>mm</sup> .
Distance between Centres of Bearings.	1780 <sup>mm</sup> .
Diam. of Pitch Circle of Wheel.	2590 <sup>mm</sup> .
Width of Face.	1050 <sup>mm</sup> .

Friedrich Hill