

# REDUCTION GEAR REPORT ON STEAM TURBINE MACHINERY. No. 1543

4a. Received at London Office **1 JUN 1933**

Report of writing Report **27<sup>th</sup> May 1933** When handed in at Local Office **19** Port of **BREMEN**

in Survey held at **BREMEN** Date, First Survey **8<sup>th</sup> NOV. 1932** Last Survey **15<sup>th</sup> MAY 1933**

on the **STEEL S.C. ZWARTE ZEE** (Number of Visits **To be ascertained**) Tons } Gross }  
Net }

at **KINDERDIJK** By whom built **L. SMIT & ZOON** Yard No. **872** When built **—**

engines made at **AMSTERDAM** By whom made **N.V. WERKSPOR** Engine No. **—** When made **—**

reduction gear made at **BREMEN** By whom made **DESCHIMAG - A.G. WESER** Engine No. **30** When made **1933**

shaft Horse Power at Full Power **3000** Owners **L. SMIT & Co** Port belonging to **ROTTERDAM**

Is Refrigerating Machinery fitted for cargo purposes **—** Is Electric Light fitted **—**

Vessel is intended **SEA GOING TUG**

## STEAM TURBINE ENGINES, &c. — Description of Engines **S.R. GEARING & VULCAN COUPLING**

OIL ENGINES **Direct coupled, single reduction geared** to **1** propelling shafts. No. of primary pinions to each set of reduction gearing **1**

of Turbines **Astern** **2** **double reduction geared**

coupled to { Alternating Current Generator **—** phase **—** periods per second **—** }  
Direct Current Generator **—** } rated **—** Kilowatts **—** Volts at **—** revolutions per minute;

supplying power for driving **—** Propelling Motors, Type **—**

**—** Kilowatts **—** Volts at **—** revolutions per minute. Direct coupled, single or double reduction geared to **—** propelling shafts.

TURBINE LOADING.	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.
EXPANSION												
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shaft Horse Power at each turbine **OIL ENG. H.P. 1580** Revolutions per minute, at full power, of each turbine shaft **H.P. 275**

for shaft diameter at journals **H.P. Pitch Circle Diameter** { 1st pinion **766.37** } 1st reduction wheel **—**  
2nd pinion **—** main wheel **1712.24** } Face { 1st reduction wheel **—**  
main wheel **640** }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion **550** } 1st reduction wheel **—**  
2nd pinion **—** main wheel **550** }

Pinion Shafts, diameter at bearings { 1st **320** } External **1st 320** } diameter at bottom of pinion teeth { 1st **749.852**  
2nd **200** } Internal **2nd —** } 2nd **—** }

Wheel Shafts, diameter at bearings { main **340** } diameter at wheel shroud, { 1st **1635** } Propelling Motor Shaft, diameter at bearings **400** (2007 hole)

Intermediate Shafts, diameter as per rule **—** Thrust Shaft, diameter at collars as per rule **340** Tube Shaft, diameter as per rule **—**  
as fitted **—** as fitted **—** as fitted **—**

Propeller, diameter **—** Pitch **—** No. of Blades **—** State whether Moveable **—** Total Developed Surface **—** square feet.

Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine **—** Can the H.P. or I.P. Turbine exhaust direct to the **—**

Condenser No. of Turbines fitted with astern wheels **—** Feed Pumps { No. and size **—**  
How driven **—**

Pumps connected to the Main Bilge Line { No. and size **—**  
How driven **—**

Ballast Pumps, No. and size **—** Lubricating Oil Pumps, including Spare Pump, No. and size **—**

Two independent means arranged for circulating water through the Oil Cooler **—** Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge **—**

Pumps, No. and size:—In Engine and Boiler Room **—**

Folds, &c. **—**

Water Circulating Pump Direct Bilge Suctions, No. and size **—** Independent Power Pump Direct Suctions to the Engine Room **—**

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes **—**

The Bilge Suctions in the Machinery Space led from easily accessible mud-holes, placed above the level of the working floor, with straight tail pipes to the bilges **—**

All Sea Connections fitted direct on the skin of the ship **—** Are they fitted with Valves or Cocks **—**

Are they fixed sufficiently high on the ship's side to be seen without lifting the stakehold plates **—** Are the Overboard Discharges above or below the deep water line **—**

Are 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 plate **—**

How are they protected **—**

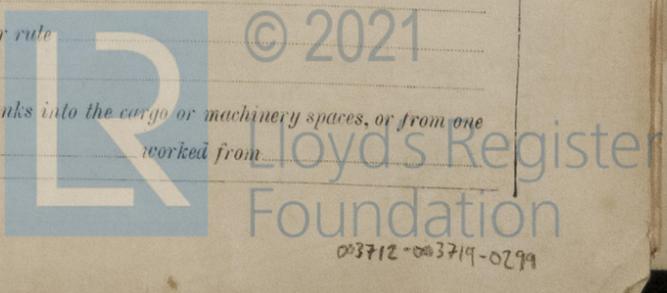
How are they protected **—**

Have they been tested as per rule **—**

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

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 **—**

Department to another **—** Is the Shaft Tunnel watertight **—** Is it fitted with a watertight door **—**



BOILERS, &c. — (Letter for record ✓) Total Heating Surface of Boilers ✓

Is 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? ✓  
{ an Auxiliary }

Plans. Are approved plans forwarded herewith for Shafting *yes* Main Boilers ✓ Auxiliary Boilers ✓ Donkey Boilers ✓  
(If not state date of approval)

Superheaters. ✓ General Pumping Arrangements ✓ Oil Fuel Burning Arrangements ✓

Spare Gear. State the articles supplied:—

*1 set of bearing brasses for each kind of bearings  
1 set of thrust pads for each thrust bearing*

The foregoing is a correct description,

*W. G. Rose*

Manufacturer

Dates of Survey while building { During progress of work in shops -- } *1932 Nov. 8. 28. Dec. 6. 1933 Jan. 6. March 1. 8. 22. 28. April 6. 22. 25. May 5. 12. 13. 15.*  
{ During erection on board vessel --- }  
Total No. of visits *16*

Dates of Examination of principal parts—Casings *6. 4. 33* Rotors ✓ Blading ✓ Gearing *15. 3. 33*

Wheel shaft *6. 1. 33* Thrust shaft *6. 1. 33* PINION Intermediate shafts *1. 3. 33* PRIMARY COUPL. Tube shaft *1. 3. 33* Screw shaft ✓

Propeller ✓ Stern tube ✓ Engine and boiler seatings ✓ Engine holding down bolts ✓

Completion of pumping arrangements ✓ Boilers fixed ✓ Engines tried under steam ✓

Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓

Rotor shaft, Material and tensile strength ✓ Identification Mark ✓

Flexible Pinion Shaft, Material and tensile strength ✓ Identification Mark

Pinion shafts Material and tensile strength *S. M. Special Steel of 66 kg/mm<sup>2</sup>* Identification Mark *K.H. 14317/18. 23.*

PRIMARY 1st Reduction Wheel Shafts Material and tensile strength *S. M. Steel 44-50 kg/mm<sup>2</sup>* Identification Mark *A.C. 270/71. 1.*

2nd THRUFT SHAFT Wheel shaft, Material *S. M. Steel* Identification Mark *A.C. 269. 6. 1. 33* Thrust shaft, Material Identification Mark

Intermediate shafts, Material ✓ Identification Marks ✓ Tube shaft, Material ✓ Identification Marks ✓

Screw shaft, Material ✓ Identification Marks ✓ Steam Pipes, Material ✓ Test pressure ✓

Date of test ✓ 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 the use of oil as fuel been complied with ✓

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo ✓ If so, have the requirements 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. *This Reduction Gear with Vulcan Coupling has been built under Special Survey in accordance with the approved plans and the Secretary letter. The materials used in the construction are made at works recognized by the Committee and tested as required by the Rules. Material & workmanship are of good quality. This machinery has been shipped to Amsterdam*

Certificate (if required) to be sent to (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee ... £ : : When applied for,  
Special ... £ *32 : 0* : *26.5.1933*  
Donkey Boiler Fee ... £ : : When received,  
Travelling Expenses (if any) £ *2 : 0* : *24.6.1933*

*A. Cartman*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 20 OCT 1933**

Assigned *See F.C. Rpt.*