

# REPORT ON MACHINERY.

Huddersfield 10798.

No. 4529.

Date of writing Report

19

When handed in at Local Office

2-3-

1920 Port of

MANCHESTER

Received at London Office

1920

No. in Survey held at HUDDERSFIELD

Reg. Book.

Date, First Survey 5. May 1919

Last Survey 18. Feb. 1920

on the DOUBLE REDUCTION GEAR for STEAM TURBINES 'N.I.' VESSEL

(Number of Visits 8.)

Tons { Gross  
Net

Master  
TURBINES

Built at

By whom built

When built

Engines made at W. HARTLEPOOL

By whom made RICHARDSONS WESTGARTH & CO. N° 191

when made

1920.

Boilers made at HUDDERSFIELD

By whom made

when made

Registered Horse Power

Owners

Port belonging to

Shaft Horse Power at Full Power 2900

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

## TURBINE ENGINES, &c.—Description of Engines

No. of Turbines

Diameter of Rotor Shaft Journals, H.P.

L.P.

Diameter of Pinion Shaft 1<sup>st</sup> 4<sup>1</sup>/<sub>2</sub>" 2<sup>nd</sup> 9"

Diameter of Journals 1<sup>st</sup> 4<sup>1</sup>/<sub>2</sub>" 2<sup>nd</sup> 9"

Distance between Centres of Bearings 1<sup>st</sup> 27" 2<sup>nd</sup> 46<sup>1</sup>/<sub>2</sub>"

Diameter of Pitch Circle 1<sup>st</sup> 6.302" 2<sup>nd</sup> 13.379"

Diameter of Wheel Shaft 1<sup>st</sup> 9" 2<sup>nd</sup> 14<sup>3</sup>/<sub>4</sub>"

Distance between Centres of Bearings 1<sup>st</sup> 26" 2<sup>nd</sup> 45<sup>1</sup>/<sub>2</sub>"

Diameter of Pitch Circle of Wheel 1<sup>st</sup> 49.656" 2<sup>nd</sup> 76.765"

Width of Face 1<sup>st</sup> 18" 2<sup>nd</sup> 33<sup>1</sup>/<sub>2</sub>"

No. of Screw Shafts

Diameter of same

as per rule

as fitted

Diameter of Propeller

Diameter of Tunnel Shaft

as per rule

as fitted

Pitch of Propeller

No. of Blades

State whether Moveable

Total Surface

Diameter of Rotor Drum, H.P.

L.P.

astern

Thickness at Bottom of Groove, H.P.

L.P.

Astern

Revs. per Minute at Full Power, Turbine

Propeller

## PARTICULARS OF BLADING.

H.P.

L.P.

ASTERN.

ST EXPANSION	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.
1 <sup>st</sup>									
2 <sup>nd</sup>									
3 <sup>rd</sup>									
4 <sup>th</sup>									
5 <sup>th</sup>									
6 <sup>th</sup>									
7 <sup>th</sup>									
8 <sup>th</sup>									
9 <sup>th</sup>									
10 <sup>th</sup>									

No. and size of Feed pumps

No. and size of Bilge pumps

No. and size of Bilge suction in Engine Room

In Holds, &c.

No. of Bilge Injections

sizes

Connected to condenser, or to circulating pump

Is a separate Donkey Suction fitted in Engine Room & size

Are all the bilge suction pipes fitted with roses

Are the roses in Engine room always accessible

Are all connections with the sea direct on the skin of the ship

Are they Valves or Cocks

Are 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 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

Are all pipes 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

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

Is the Screw Shaft Tunnel watertight

Is it fitted with a watertight door

worked from

## BOILERS, &c.—(Letter for record)

Manufacturers of Steel

Total Heating Surface of Boilers

Is Forced Draft fitted

No. and Description of Boilers

Working Pressure

Tested by hydraulic pressure to

Date of test

No. of Certificate

Can each boiler be worked separately

Area of fire grate in each boiler

No. and Description of Safety Valves to

No. of boiler

Area of each valve

Pressure to which they are adjusted

Are they fitted with easing gear

Smallest distance between boilers or uptakes and bunkers or woodwork

Mean dia. of boilers

Length

Material of shell plates

Thickness

Range of tensile strength

Are the shell plates welded or flanged

Descrip. of riveting: cir. seams

No. of seams

Diameter of rivet holes in long. seams

Pitch of rivets

Lap of plates or width of butt straps

Percentages of strength of longitudinal joint

plates

Working pressure of shell by rules

Size of manhole in shell

No. of compensating ring

No. and Description of Furnaces in each Boiler

Material

Outside diameter

Length of plain part

Thickness of plates

Description of longitudinal joint

No. of strengthening rings

Working pressure of furnace by the rules

Combustion chamber plates: Material

Thickness: Sides

Back

Top

Bottom

No. of stays to ditto: Sides

Back

Top

If stays are fitted with nuts or riveted heads

Working pressure by rules

Material of stays

Diameter at smallest part

Area supported by each stay

Working pressure by rules

End plates in steam space

Material

Thickness

Pitch of stays

How are stays secured

Working pressure by rules

Material of stays

Diameter at smallest part

Area supported by each stay

Working pressure by rules

Material of Front plates at bottom

Thickness

Material of Lower back plate

Thickness

Greatest pitch of stays

Working pressure of plate by rules

Diameter of tubes

Pitch of tubes

Material of tube plates

Thickness: Front

Back

Mean pitch of stays

Distance across wide water spaces

Working pressures by rules

Girders to Chamber tops: Material

Depth and

Thickness of girder at centre

Length as per rule

Distance apart

Number and pitch of stays in each

Working pressure by rules

Steam dome: description of joint to shell

% 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

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SUPERHEATER. Type \_\_\_\_\_ Date of Approval of Plan \_\_\_\_\_ Tested by Hydraulic Pressure to \_\_\_\_\_

Date of Test \_\_\_\_\_ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler \_\_\_\_\_

Diameter of Safety Valve \_\_\_\_\_ Pressure to which each is adjusted \_\_\_\_\_ Is Easing Gear fitted \_\_\_\_\_

IS A DONKEY BOILER FITTED? \_\_\_\_\_ If so, is a report now forwarded? \_\_\_\_\_

SPARE GEAR. State the articles supplied:— for D.R. GEAR

Two bearing bushes each for Slow Speed wheel shaft, Slow Speed pinion shaft, high speed wheel shaft and high speed pinion shaft. Set of wear down gauges. While installing fixtures for bearings, Overhauling gear. Assorted bolts, studs and nuts for bearings and cases.

The foregoing is a correct description.

DAVID BROWN & SONS, (HUDDLE) LTD.

Manufacturer.

Director.

Dates of Survey while building  
During progress of work in shops --  
During erection on board vessel ---  
Total No. of visits

from 5<sup>th</sup> May 1919 to 18<sup>th</sup> February 1920 8 visits.

Is the approved plan of main boiler forwarded herewith

" " " donkey " " "

Dates of Examination of principal parts—Casings Rotors Blading Gearing

Rotor shaft Thrust shaft Tunnel shafts Screw shaft Propeller

Stern tube Steam pipes tested Engine and boiler seatings Engines holding down bolts

Completion of pumping arrangements Boilers fired Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers

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

HIGHSPEED Material and tensile strength of Pinion shafts NICKEL CHROME STEEL 46.4 ton per sq. in. Identification Mark on Do. 40+41

FORGED Material of Wheel shaft MILD STEEL Identification Mark on Do. 286 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 Test pressure.

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 Section 49 of the Rules been complied with

Is this machinery a duplicate of a previous case? Yes. If so, state name of vessel N.I. Standard.

General Remarks (State quality of workmanship, opinions as to class, &c.

This double reduction gear has been built under survey and the materials tested in accordance with the Rules of this Society. The materials and workmanship so far as could be seen and sound and good and eligible in my opinion to be classed with record of L.M.C. This gear is to be fitted to steam turbines building by Messrs. Richardson West of West Hartlepool.

mark on coupling of slow speed shaft.

LLOYDS  
N<sup>o</sup> 110  
22-1-20

The amount of Entry Fee ... £

Special ... £ 24-4-3

Donkey Boiler Fee ... £

Travelling Expenses (if any) £

When applied for,

22.9.1920

When received,

19/10/20

from London.

A. Campbell

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. SEP. 21 1920

Assigned



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