

REPORT ON MACHINERY.

No. 430

Received at London Office

THU. 5 - FEB. 1920

Date of writing Report 10th Feb 1918 When handed in at Local Office

Port of Bremen.

No. in Survey held at Bremen
Reg. Book.

Date, First Survey 15th July 1918 Last Survey 15th Feb 1918

on the STEEL SC SR "SONNENFELS"

(Number of Visits 29)

Gross 5848

Net 3661

Master Built at Bremen By whom built Apt. Yur. Weser

When built 1914-15

Engines made at Bremen By whom made Apt. Yur. Weser

when made 1914-15

Boilers made at Bremen By whom made Apt. Yur. Weser

when made 1914-15

Registered Horse Power 520 Owners Deutsche Dampfsch. Ges. Hansa Port belonging to Bremen

Nom. Horse Power as per Section 28 520 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 28 3/4, 46 3/8, 25 9/16 Length of Stroke 53 15/16 Revs. per minute 65 Dia. of Screw shaft as per rule 16 7/32 Material of screw shaft as fitted 16 7/32

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 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 yes Length of stern bush 76"

Dia. of Tunnel shaft as per rule 14 3/4 Dia. of Crank shaft journals as per rule 15 17/32 Dia. of Crank pin 15 9/16 Size of Crank webs 10 1/4 Dia. of thrust shaft under collars 15 9/16 Dia. of screw 19 3/16 Pitch of Screw 19 - 8 1/16 No. of Blades 4 State whether moveable yes Total surface 102.3 sq'

No. of Feed pumps 2 Diameter of ditto 3 5/16 Stroke 27 7/16 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 4 5/16 Stroke 27 7/16 Can one be overhauled while the other is at work yes

No. of Donkey Engines 3 Sizes of Pumps 11 13/16 x 8 1/16, 13 3/4 x 15 3/4, 7 1/2 x 4 3/4 No. and size of Suctions connected to both Bilge and Donkey pumps 5 7/8

In Engine Room 4, 3 9/16" dia In Holds, &c. 2 in each hold 3 9/16" dia, 1 in

tunnel 3 9/16" dia

No. of Bilge Injections 1 sizes 2 7/8 Connected to condensers or to circulating pump yes Is a separate Donkey Suction fitted in Engine room & size yes 3 9/16" dia

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 yes

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 both

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 pipes How are they protected by wooden casings

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

Dates of examination of completion of fitting of Sea Connections 13/11/14 of Stern Tube 13/11/14 Screw shaft and Propeller 13/11/14

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from upper deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Friedrich Krupp, Lum. Gust. & Co. Essen

Total Heating Surface of Boilers 6950 Is Forced Draft fitted yes No. and Description of Boilers 3 cylindrical multitubular

Working Pressure 192 lbs Tested by hydraulic pressure to 263 lbs Date of test 21, 22, 23/9/14 No. of Certificate 84, 85, 86

Can each boiler be worked separately yes Area of fire grate in each boiler 49.5 sq' No. and Description of Safety Valves to each boiler 2 spring loaded Area of each valve 12.2 sq' Pressure to which they are adjusted 192 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 20" Mean dia. of boilers 174" Length 150" Material of shell plates 7 lb. steel

Thickness 13" Range of tensile strength 28-33 tons Are the shell plates welded or flanged flanged Descrip. of riveting: cir. seams double butt long. seams quadruple Diameter of rivet holes in long. seams 1.04" Pitch of rivets 10" Lap of plates or width of butt strap 23-25"

Per centages of strength of longitudinal joint rivets 111.5 Working pressure of shell by rules 207 lbs Size of manhole in shell 41.8 x 15.8" plate 87

Size of compensating ring 41.2 x 36.5 No. and Description of Furnaces in each boiler 3 Morrison Material 7 lb. steel Outside diameter 43.2"

Length of plain part top 61 Thickness of plates crown 61 Description of longitudinal joint welded No. of strengthening rings bottom 61

Working pressure of furnace by the rules 193 lbs Combustion chamber plates: Material steel Thickness: Sides 67 Back 67 Top 67 Bottom 82

Pitch of stays to ditto: Sides 8.3 x 7.1 Back 7.7 x 7.65 Top 8.3 x 7.9 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 234 lbs

Material of stays steel Diameter at smallest part 1.51, 1.55 Area supported by each stay 66.50 Working pressure by rules 217 lbs End plates in steam space: Material steel Thickness 1.08 Pitch of stays 15.7 x 14.6 How are stays secured double nuts Working pressure by rules 240 lbs Material of stays steel

Diameter at smallest part 1.57 Area supported by each stay 229.0 Working pressure by rules 220 lbs Material of Front plates at bottom steel

Thickness 1.06 Material of Lower back plate steel Thickness .94 Greatest pitch of stays 15.3 x 7.5 Working pressure of plate by rules 216 lbs

Diameter of tubes 3" Pitch of tubes 4.1" Material of tube plates steel Thickness: Front 1.06 Back .90 Mean pitch of stays 10.5"

Pitch across wide water spaces 19" Working pressures by rules 206 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9.25 x 1.58 Length as per rule 34.6 Distance apart 7.9" Number and pitch of stays in each 3-8.3"

Working pressure by rules 199 lbs Superheater or Steam chest; how connected to boiler SCHMIDT'S PATENT Can the superheater be shut off and the boiler worked separately yes Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet holes — Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness —

If stiffened with rings — Distance between rings — Working pressure by rules — End plates: Thickness — How stayed —

Working pressure of end plates — Area of safety valves to superheater — Are they fitted with easing gear yes

VERTICAL DONKEY BOILER— Manufacturers of Steel

No.	Description			
Made at	By whom made	When made	Where fixed	
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment
If fitted with easing gear	If steam from main boilers can enter the donkey boiler		Dia. of donkey boiler	Length
Material of shell plates	Thickness	Range of tensile strength	Descrip. of riveting long. seams	
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating	Per centage of strength of joint
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates	Description of joint
Working pressure of furnace by rules	Thickness of furnace crown plates	Radius of do.	Stayed by	
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey	

SPARE GEAR. State the articles supplied: *1/3 crank shaft, 1 propeller shaft, 1 propeller blade, 2 crosshead brasses, 2 crank pin brasses, 2 crank pin & crosshead brass bolts & nuts, 2 main bearing bolts, 2 sets of coupling bolts, 1 slide valve rod, 1 set of piston rings, 1 eccentric strap complete, 1 piston rod for air pump, 1 piston & piston rod for circulating pump, 1 complete set of links, 1 set of valves for air, feed and bilge pumps, 1 set of safety valve springs, 2 10% of condenser tubes, 10% of bolts for cylinders & slide valve covers & pistons, a quantity of assorted bolts & nuts, iron of various sizes.*

The foregoing is a correct description, ✓

Manufacturer.

Dates of Survey while building: During progress of work in shops -- *1913 July 25, Nov 7, 1914 - Jan 9, 32, March 3, 4, May 14, 19, June 5, 9, July 23, Aug 17, 22, 31, Sept 4, 8, 11, 15, 21, 22, 30, Oct 10, 14, 23, 25, Nov 16.*
 During erection on board vessel --- *1914 Nov 19, 24, 30, Dec 14, 28. 1915 - Jan 2, 9, 15, 18, 25, 30, Feb 10, 15.*
 Total No. of visits *39.*

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

Dates of Examination of principal parts—Cylinders *7/9/14, 10/10/14* Slides *22/1/14* Covers *27/1/14* Pistons *27/1/14* Rods *27/1/14*
 Connecting rods *27/1/14* Crank shaft *23/7/14* Thrust shaft *9/6/14* Tunnel shafts *17/8/14* Screw shafts *5/6/14, 13/10/14* Propeller *14/5/14*
 Stern tube *22/8/14, 13/11/14* Steam pipes tested *19/11/14* Engine and boiler seatings *8/9/14* Engines holding down bolts *22/8/14*
 Completion of pumping arrangements *13/1/15* Boilers fixed *19/1/14* Engines tried under steam *15/2/15*
 Main boiler safety valves adjusted *25/1, 30/1, 10/2/15* Thickness of adjusting washers *STARBOARD .33" CENTRE .28" PORT .29" DONKEY BOILER .34"*
 Material of Crank shaft *Steel* Identification Mark on Do. *881-12-13* Material of Thrust shaft *Steel* Identification Mark on Do. *4806*
 Material of Tunnel shafts *Steel* Identification Marks on Do. *663-64-65-66/67, 69* Material of Screw shafts *Steel* Identification Marks on Do. *No 14, W. S. 6, 13, No 3128, 12, 3, 13*
 Material of Steam Pipes *Steel* Test pressure *576 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c.)
These Engine and Boilers have been manufactured in accordance with the approved plans, the Secretary's letters and otherwise in conformity with the Rules.
The material and workmanship are good.
They are eligible in my opinion to be classed in the Society's Register Book with the notation of LMC 2, 15.

It is submitted that this vessel is eligible for THE RECORD. *L.M.C. 2-15. F.D.*

YJS
9/2/20

The amount of Entry Fee .. *£27*
 Special .. *£1 9 6*
 Donkey Boiler Fee .. *£1 4 0*
 Travelling Expenses (if any) £ .. *28*

When applied for, .. 19 ..
 When received, .. *2/8/20* ..

TUE. AUG. 31 1920

Y. H. C. HAMM
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
 Assigned *no action*
 FRI. 17 DEC. 1920

