

REPORT ON BOILERS.

No. 7854.

Received at London Office 31 DEC 1928

of writing Report 5 December 1928 When handed in at Local Office

192 Port of Copenhagen

Survey held at Copenhagen

Date, First Survey 4th April 1928 Last Survey 2nd December 1928

on the Steel Twin Screw Motor Vessel SANDAR

(Number of Visits 35.) Gross 7038 1/3 Tons Net 4549 01.

Built at Copenhagen By whom built Masking & Skibbyggeri Yard No. 549 When built 1928
 Engines made at Copenhagen By whom made Masking & Skibbyggeri Engine No. 1457 When made 1928
 Boilers made at Copenhagen By whom made Masking & Skibbyggeri Boiler No. 1818 When made 1928
 Indicated Horse Power for Sea 133.3 Owners Vinter Rederiskabselskab (H. Vinter) Port belonging to Sandefjord

LONGITUDINAL BOILERS MAIN, AUXILIARY, OR DONKEY.

PLATES: Messrs. Mannesmann & Co. Ltd. of London

LONGITUDINAL STAYS & SCREW STAYS: Messrs. Phoenix & Co. Ltd. of Glasgow and Messrs. Brown & Co. Ltd. of Glasgow

Heating Surface of Boilers 2 x 1000 sq ft = 2000 sq ft Is forced draught fitted Yes Coal or Oil fired Oil
 and Description of Boilers 2 off single ended, return multitubular Working Pressure 180 lbs/sq in

Tested by hydraulic pressure to 320 lbs/sq in Date of test 27.9.28 No. of Certificate 494-495 Can each boiler be worked separately Yes
 of Firegrate in each Boiler No. and Description of safety valves to each boiler 2 off directly spring loaded
 of each set of valves per boiler per Rule 770 lb Pressure to which they are adjusted 180 lbs/sq in Are they fitted with easing gear Yes
 of donkey boilers, state whether steam from main boilers can enter the donkey boiler No main boiler fitted

Test distance between boilers or uptakes and bunkers or woodwork No bunkers or woodwork Is oil fuel carried in the double bottom under boilers No
 Test distance between shell of boiler and tank top plating platform Is the bottom of the boiler insulated Yes
 Test internal dia. of boilers 10' 3" Length 10' 7 3/8" Shell plates: Material Siemens-Martin Steel Tensile strength 47.6-50.0 kg/mm²
 Thickness 7/8" Are the shell plates welded or flanged No Description of riveting: circ. seams end lap joint inter. double riveting
 Diameter of rivet holes in circ. seams 1 1/8" long. seams 1 5/16" Pitch of rivets 3 3/8" 6 7/8"
 Percentage of strength of circ. end seams plate 66.7% rivets 55.0% Percentage of strength of circ. intermediate seam plate rivets
 Percentage of strength of longitudinal joint plate 86.4% rivets 88.35% combined 90.37% Working pressure of shell by Rules 185.9 lbs/sq in

Test of butt straps outer 7/8" inner 7/8" No. and Description of Furnaces in each Boiler 2 off corrugated Morrison's section
 Material Siemens-Martin Steel Tensile strength 29.8-30.0 Tons per sq in Smallest outside diameter 2'-11"
 Thickness of plates crown 1/2" bottom 1/2" Description of longitudinal joint

Stays of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 205.7 lbs per sq in
 Plates in steam space: Material Siemens-Martin Steel Tensile strength 43.2-44.8 kg/mm² Thickness 15/16" Pitch of stays 15" x 12"
 Are stays secured Screwed into both plates, nut in and outside Working pressure by Rules 218.8 lbs/sq in

Plates: Material front Siemens-Martin Steel Tensile strength 44.3-44.8 kg/mm² Thickness 15/16"
 back Siemens-Martin Steel Tensile strength 42.5 kg/mm² Thickness 3/4"
 Pitch of stay tubes in nests 7" x 10 1/2" Pitch across wide water spaces 14" Working pressure front 178.5 lbs/sq in back 262.5 lbs/sq in
 Stays to combustion chamber tops: Material Cast steel Tensile strength 28.1 kg/mm² Depth and thickness of girder 7 1/4" - 1" Length as per Rule 25 1/2" Distance apart 7 1/2" No. and pitch of stays 2 off - 8"

Working pressure by Rules 186.6 lbs/sq in Combustion chamber plates: Material Siemens-Martin Steel
 Tensile strength 42.8-44.3 kg/mm² Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 3/4"
 Stays to ditto: Sides 8" x 7 1/2" Back 7 3/4" x 7" Top 8" x 7 1/2" Are stays fitted with nuts or riveted over outside - outside row: Nut in and outside

Working pressure by Rules BACK 248.2 lbs/sq in Front plate at bottom: Material Siemens-Martin Steel Tensile strength 44.3-44.8 kg/mm²
 Lower back plate: Material Siemens-Martin Steel Tensile strength 43.2-44.6 kg/mm² Thickness 15/16"
 Stays at wide water space d = 16" Are stays fitted with nuts or riveted over Screwed into both plates, nut in and outside

Pressure 361 lbs/sq in Main stays: Material Siemens-Martin Steel Tensile strength 45.0-46.6 kg/mm²
 At body of stay, 2 1/2" Bottom 2" No. of threads per inch 11" Area supported by each stay 180 sq in
 Over threads 2 3/4" - 2 1/2" 2 1/4" - 2" pressure by Rules 246.24 lbs/sq in Screw stays: Material Siemens-Martin Steel Tensile strength 42.6-43.7 kg/mm²
 At turned off part, 1 1/2" No. of threads per inch 11" Area supported by each stay 60 sq in

Working pressure by Rules *209 lb/sq in* Are the stays drilled at the outer ends *No* Margin stays: Diameter { At turned off part, *1 3/4"* or Over threads *1 3/4"*
No. of threads per inch *11* Area supported by each stay *72.38 sq in* Working pressure by Rules *250.8 lb/sq in*
Tubes: Material *Steel* External diameter { Plain *2 1/2"* Stay *2 1/2"* Thickness { *5/16"* No. of threads per inch *11*
Pitch of tubes *3 1/2" x 3 1/2"* Working pressure by Rules *230 lb/sq in* Manhole compensation: Size of opening
shell plate *16" x 20"* Section of compensating ring *Flanged* No. of rivets and diameter of rivet holes *62 of 1 5/16"*
Outer row rivet pitch at ends *5"* Depth of flange if manhole flanged *3 3/8"* Steam Dome: Material
Tensile strength Thickness of shell Description of longitudinal joint
Diameter of rivet holes Pitch of rivets Percentage of strength of joint { Plate Rivets
Internal diameter Working pressure by Rules Thickness of crown No. and diameter
stays Inner radius of crown Working pressure by Rules
How connected to shell Size of doubling plate under dome Diameter of rivet holes and pitch
of rivets in outer row in dome connection to shell

Type of Superheater Manufacturers of { Tubes Steel castings
Number of elements Material of tubes Internal diameter and thickness of tubes
Material of headers Tensile strength Thickness Can the superheater be shut off at
the boiler be worked separately Is a safety valve fitted to every part of the superheater which can be shut off from the boiler
Area of each safety valve Are the safety valves fitted with easing gear Working pressure as per
Rules Pressure to which the safety valves are adjusted Hydraulic test pressure
tubes, castings and after assembly in place Are drain cocks or valves fitted
to free the superheater from water where necessary

Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with *Yes*

The foregoing is a correct description,

Manufactured by

Dates of Survey { During progress of *1928: 4/14, 16/14, 19/14, 18/15, 24/15, 29/15, 7/16, 12/16, 6/17* Are the approved plans of boiler and superheater forwarded herewith *yes*
work in shops - *20/7, 23/8, 28/8, 3/9, 7/9, 13/9, 27/9* (If not state date of approval.)
while building { During erection on *1928: 16/10, 20/10, 22/10, 23/10, 30/10, 1/11, 3/11, 7/11, 13/11* Total No. of visits *35*
board vessel - *16/11, 19/11, 25/11, 26/11, 1/12, 2/12*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

These boilers have been built under Special Survey in accordance with the Rules, the approved plan, and the requirements contained in the Secretary's letter E dated 21st November 1927.

The material has been tested as required by the Rules as per certificate produced and the workmanship is of good description throughout.

The boilers have been fitted on board the above named vessel and completed to our entire satisfaction.

Oil fuel burning arrangement has been installed in accordance with the requirements of the Rules, and the plan approved as per the Secretary's letter E dated 5/7 for the Motor Vessel "Christian", Messrs Burmeister & Wain's Yard No 548.

Two vertical duplex pumps 6 1/2" x 4" x 6" (Workington system) have been fitted for feed water purpose to the donkey boiler.

Survey Fee *£242.61* When applied for, *28.12* 192 *28*
Travelling Expenses (if any) £ : : When received, *24.1* 192 *9*

A. F. J. J. J. *S. J. J.*
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute

Assigned

See Report attached

20 JAN 1929



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