

# REPORT ON BOILERS.

No. 7845.

Received at London Office -6 DEC 1928

of writing Report 26. November 1928 When handed in at Local Office 192

Port of Copenhagen

Survey held at Elsinore and Odense

Date, First Survey 5. September 1928 Last Survey 15. November 1928

52 on the Hel Tæn. Motor Vessel CAROLINE MÆRSK.

(Number of Visits 10) Gross 7690.95 Tons Net 4712.67

ter Built at Odense

By whom built Odense Skibskonstruktør

Yard No. 30 When built 1928

ines made at Copenhagen

By whom made H. Burmeister & Wain's Maskin- og Værktøjsfabrik

Engine No. 1474 When made 1928

ers made at Elsinore

By whom made H. Hering's Maskin- og Værktøjsfabrik

Boiler No. 735 When made 1928

inal Horse Power for Feb 1947

Owners 2. Svendborg and 2. af 1912

Port belonging to Fredericia

## MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

PLATES: Willbroun's Bergbau und Eisenhütten Gew. of Wilkowitz

FURNACES: Shaw, Siggell & Co. Ltd. Birmingham

Manufacturers of Steel St. George's Works of George's Works of George's Works

al Heating Surface of Boilers 2 x 1310.58 sq. ft. = 2621.16 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.

ted by hydraulic pressure to 320 lbs/sq. in. Date of test 27.9.28 No. of Certificate 496-497 Can each boiler be worked separately yes

a of Firegrate in each Boiler 1008 sq. ft. No. and Description of safety valves to each boiler 2 off directly spring loaded

a of each set of valves per boiler 14 1/4 sq. ft. Pressure to which they are adjusted 180 lbs/sq. in. Are they fitted with easing gear yes

ase of donkey boilers, state whether steam from main boilers can enter the donkey boiler No main boiler fitted

allest distance between boilers or uptakes and bunkers or woodwork No bunkers or woodwork Is oil fuel carried in the double bottom under boilers yes

allest distance between shell of boiler and tank top plating No boiler is fitted on

argest internal dia. of boilers 11'-6" Length 11'-3" Is the bottom of the boiler insulated yes

ickness 1" Are the shell plates welded or flanged No Description of riveting: circ. seams end lap joint, double

g. seams double riveting Diameter of rivet holes in 1 1/8" Pitch of rivets 5 1/16" x 1 1/2"

centage of strength of circ. end seams 66.66% Percentage of strength of circ. intermediate seam 48.2%

centage of strength of longitudinal joint 83.24% Working pressure of shell by Rules 184.24 lbs per sq. in.

ickness of butt straps 15 1/16" No. and Description of Furnaces in each Boiler 2 off corrugated Wright's type

aterial Stainless Steel Tensile strength 26,4-27.1 Tons per sq. in. Smallest outside diameter 3'-2 9/16"

ngth of plain part 15 1/16" Thickness of plates 1/2" + 1/32" Description of longitudinal joint Yes

ensions of stiffening rings on furnace or c.c. bottom Yes Working pressure of furnace by Rules 199.16 lbs per sq. in.

d plates in steam space: Material Stainless Steel Tensile strength 44.6-44.5 kg/mm<sup>2</sup> Thickness 1 1/8" Pitch of stay 14 1/2" x 19 1/2"

are stays secured Screwed into both plates, nuts in and outside Working pressure by Rules 199.15 lbs per sq. in.

be plates: Material Stainless Steel Tensile strength 43.3-43.5 kg/mm<sup>2</sup> Thickness 7/8"

in pitch of stay tubes in nests 13 1/2" x 9" Pitch across wide water spaces 14 1/2" Working pressure 216.8 lbs/sq. in.

ders to combustion chamber tops: Material Stainless Steel Tensile strength 44.3-46.4 kg/mm<sup>2</sup> Depth and thickness of girder 216.8 lbs/sq. in.

centre 6 3/4" - 8 1/2" - 2 3/4" - 1 1/2" Length as per Rule 27 7/16" Distance apart 8 1/6" - 10 7/16" No. and pitch of stays 2 off 8 5/8"

each 2 off 8 5/8" Working pressure by Rules 196.6 lbs/sq. in. Combustion chamber plates: Material Stainless Steel

nsile strength 44.6-46.0 kg/mm<sup>2</sup> Thickness: Sides 3/4" Back 1/16" Top 3/4" Bottom 3/4"

ch of stays to ditto: Sides 7 1/8" x 9 1/4" Back 6 7/8" x 7 1/2" Top 8 7/8" x 8 1/6" - 10 1/4" Are stays fitted with nuts or riveted over Nuts in and outside

orking pressure by Rules TOP: 185-212 lbs/sq. in. Front plate at bottom: Material Stainless Steel Tensile strength 43.3-43.5 kg/mm<sup>2</sup>

ickness 1" Lower back plate: Material Stainless Steel Tensile strength 42.6-45.6 kg/mm<sup>2</sup> Thickness 1 1/8" + 1/16" doubling

ch of stays at wide water space d = 21 3/4" Are stays fitted with nuts or riveted over Nuts in and outside

orking Pressure 190.4 lbs/sq. in. Main stays: Material Stainless Steel Tensile strength 46.8 kg/mm<sup>2</sup>

meter At body of stay, 2 3/4" BOTTOM 2 3/4" No. of threads per inch 6 Area supported by each stay 282.75 sq. in.

orking pressure by Rules 195 lbs/sq. in. Screw stays: Material Stainless Steel Tensile strength 44.6-46.8 kg/mm<sup>2</sup>

meter At turned off part, 1 1/2" SIDES 1 1/2" BACK 1 3/8" No. of threads per inch 9 Area supported by each stay SIDES: 87 sq. in. BACK: 49 sq. in.



SIDES - 18 1/2 lbs

Working pressure by Rules *204 1/2 lbs* Are the stays drilled at the outer ends *No* Margin stays: Diameter { At turned off part, *1 7/8"* or Over threads. *1 7/8"*

No. of threads per inch *9* Area supported by each stay *72 9 1/2"* Working pressure by Rules *294 lbs 1/2"*

Tubes: Material *Steel* External diameter { Plain *3 1/4"* Stay *3 1/4"* Thickness { *5/16 - 3/8"* No. of threads per inch *9*

Pitch of tubes *4 1/2" x 4 1/2"* Working pressure by Rules *180 lbs 1/2"* Manhole compensation: Size of opening

shell plate *19 1/2" x 15 1/2"* Section of compensating ring *Flanged* No. of rivets and diameter of rivet holes *36 off 1 1/8"*

Outer row rivet pitch at ends *6 3/4"* Depth of flange if manhole flanged *3 3/4"* 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

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

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

Rules Pressure to which the safety valves are adjusted Hydraulic test pressure

tubes, castings and after assembly in place Are drain cocks or valves fit

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, **ACTIESELSKABET**

**HELSEINGORS JERNSKIBS- OG MASKINBYGGERI** Manufacturer

Dates of Survey { During progress of work in shops - - - 1928: *5/9 18/9 21/9 27/9 6/10* Are the approved plans of boiler and superheater forwarded herewith *yes*

while building { During erection on board vessel - - - 1928: *3/10 11/11 14/11 15/11* (If not state date of approval.)

Total No. of visits *10*

**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 8<sup>th</sup> December 1927.*

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

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

*The boilers are fitted for oil firing and two J. Samuel White & Co oil fuel burning units with filters and heaters complete have been fitted for this purpose.*

*The boilers are fed by means of a duplex double acting feed pump 8" x 6" x 10" and 2 feed injectors.*

*Recommend the vessel to have notation of 2 DB - 180 lbs*

Survey Fee ...	17 £ 9 4/4 = <i>317.95</i>	When applied for, <i>13/11</i>	1928.
Travelling Expenses (if any) £	<i>50.00</i>	When received, <i>19/11</i>	1928.

*Christoffer M. Clausen*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **TUE. 11 DEC 1928**

Assigned *2 S.B. 180 lbs*