

REPORT ON BOILERS.

No. 5154

Received at London Office SEP 27 1938

Date of writing Report 9th Sept. 1938 When handed in at Local Office 10 Port of Oslo

No. in Reg. Book 88765 Survey held at Fredrikstad Date, First Survey 11th February Last Survey 6th September 1938

on the steel single screw steamer "K.G. MELDAHL" (Number of Visits 19) Gross Tons 3799 Net Tons 2194

Master O. Jakobsen Built at Fredrikstad By whom built Ms Fredrikstad Mek. Verket Ord. No. 289 When built 1938-9

Engines made at Fredrikstad By whom made Ms Fredrikstad Mek. Verket Engine No. 1094 When made 1938

Boilers made at Fredrikstad By whom made Ms Fredrikstad Mek. Verket Boiler No. 1350/51 When made 1938

Nominal Horse Power 353 Owners K. K. Rasmussens Rederi AS Port belonging to Sandefjord

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Vithorve Mines Steel & Ironworks Corp., - Lin. Ang. Statliche Eisen Stahlwerkfabrika for Record E. 107/57

Total Heating Surface of Boilers 512 m² (5510 ft²) Is forced draught fitted Yes Coal or Oil fired Both

No. and Description of Boilers Two cylindrical multitubular, Scotch. Working Pressure 15.5 kg/cm²

Tested by hydraulic pressure to 380 lb/in² Date of test 14-20th June 1938 No. of Certificate 117-118 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 5.61 m² No. and Description of safety valves to each boiler Two, spring loaded, high lift

Area of each set of valves per boiler { per Rule 9460 mm² as fitted 15708 mm² Pressure to which they are adjusted 15.5 kg/cm² Are they fitted with easing gear Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 250 mm. Is oil fuel carried in the double bottom under boilers Yes

Smallest distance between shell of boiler and tank top plating Yes Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 4650 mm. Length 3683 mm. Shell plates: Material S.M. Steel Tensile strength 49-55 kg/mm²

Thickness 35 mm. Are the shell plates welded or flanged Yes Description of riveting: circ. seams { end D.R. inter. —

long. seams stitching; double butt straps Diameter of rivet holes in { circ. seams 36 long. seams 36 Pitch of rivets { 102 mm 235 "

Percentage of strength of circ. end seams { plate 64.7 rivets 42 Percentage of strength of circ. intermediate seam { plate 84.7 rivets 85.2

Percentage of strength of longitudinal joint { plate 84.7 rivets 85.2 combined — Working pressure of shell by Rules 15.52 kg/cm²

Thickness of butt straps { outer 27 inner 30 No. and Description of Furnaces in each Boiler Three, Morrison type, stiffened

Material S.M. Steel Tensile strength 41-47 kg/mm² Smallest outside diameter 1135 mm

Length of plain part { top Yes bottom Yes Thickness of plates { crown 17.5 mm and bottom 17.5 mm Description of longitudinal joint Yes

Dimensions of stiffening rings on furnace or on bottom 75 x 16 mm, E.W. Working pressure of furnace by Rules 15.9 kg/cm²

End plates in steam space: Material S.M. Steel Tensile strength 41-47 kg/mm² Thickness 24.5 Pitch of stays 520 x 480 mm

How are stays secured Double nuts and washers Working pressure by Rules 15.64 kg/cm²

Tube plates: Material { front S.M. Steel back — Tensile strength { 41-47 kg/mm² Thickness { 28 mm. 21.5 "

Mean pitch of stay tubes in nests 330 x 220 mm. Pitch across wide water spaces 355 mm. Working pressure { front 15.86 kg/cm² back 15.52 "

Girders to combustion chamber tops: Material S.M. Steel Tensile strength 49-55 kg/mm² Depth and thickness of girder 260 mm

at centre 235 " Length as per Rule 775 Distance apart 265 x 270 mm. No. and pitch of stays 2 @ 238 mm

Working pressure by Rules 16.05 15.53 kg/cm² Combustion chamber plates: Material S.M. Steel

Tensile strength 41-47 kg/mm² Thickness: Sides 21 mm. Back 19 mm. Top 22 mm. Bottom 21 mm.

Pitch of stays to ditto: Sides 245 x 178 mm. Back 195 x 187 mm. Top 238 x 270 mm. Are stays fitted with nuts or riveted over Riveted over

Working pressure by Rules 16.1-16.33-15.9 kg/cm² Front plate at bottom: Material S.M. Steel Tensile strength 41-47 kg/mm²

Thickness 28 mm. Lower back plate: Material S.M. Steel Tensile strength 41-47 kg/mm² Thickness 25.5 mm.

Pitch of stays at wide water space 355 x 220 167 x 240 mm. Are stays fitted with nuts or riveted over Riveted over

Working Pressure 15.86 16.41 kg/cm² Main stays: Material S.M. Steel Tensile strength 44-55 kg/mm²

Diameter { At body of stay, 3 1/2" x 3 3/8" No. of threads per inch 6 Area supported by each stay 520 x 480 mm²

Working pressure by Rules 15.97 kg/cm² Screw stays: Material S.M. Steel Tensile strength 41-47 kg/mm²

Diameter { At turned off part, 1 1/2 " No. of threads per inch 9 Area supported by each stay 195 x 187 mm²

Working pressure by Rules 15.58 kg/cm^2 Are the stays drilled at the outer ends no Margin stays: Diameter $13/4"$ At turned off part or over threads
No. of threads per inch 9 Area supported by each stay $187 \times 267.5 \text{ mm}$ Working pressure by Rules 16.4 kg/cm^2
Tubes: Material Seamless steel External diameter $31/4"$ Thickness 8 mm No. of threads per inch 9
Pitch of tubes $110 \times 110 \text{ mm}$ Working pressure by Rules 15.6 kg/cm^2 Manhole compensation: Size of opening in shell plate $400 \times 300 \text{ mm}$ Section of compensating ring 775×335 No. of rivets and diameter of rivet holes $42 - 28 \text{ mm}$
Outer row rivet pitch at ends 240 mm Depth of flange if manhole flanged ✓ Steam Dome: Material
Tensile strength Thickness of shell Description of longitudinal joint
Diameter of rivet holes Pitch of rivets Percentage of strength of joint $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right.$
Internal diameter Working pressure by Rules Thickness of crown No. and diameter of 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 Fredrikstad Mek. Verksted Smoke tube Manufacturers of

Tubes Uddeholms Aktiefabrig, Stofors Rörverk, Sweden
Steel forgings
Steel castings Strömme's Verksted
Number of elements 60 Material of tubes Cold drawn steel Internal diameter and thickness of tubes $20 - 2\frac{1}{2} \text{ mm}$
Material of headers cast steel Tensile strength 47.4 kg/mm^2 Thickness $20 - 25 \text{ mm}$ Can the superheater be shut off and the boiler be worked separately yes Is a safety valve fitted to every part of the superheater which can be shut off from the boiler yes
Area of each safety valve 1256 mm^2 Are the safety valves fitted with easing gear yes Working pressure as per Rules 15.5 kg/cm^2 Pressure to which the safety valves are adjusted 15.5 kg/cm^2 Hydraulic test pressure: tubes 150 kg/cm^2 forgings and castings 46.5 kg/cm^2 and after assembly in place see letter E. 14/4/38 Are drain cocks or valves fitted to free the superheater from water where necessary yes

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with yes

The foregoing is a correct description,
pr. FREDRIKSTAD MEK. VERKSTED Manufacturer.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops} - 11/2 - 25/2 - 2/3 - 29/3 - 6/4 - 20/4 - 25/4 - 9/5 \\ \text{while building} - 11/6 - 14/6 - 20/6 - 1/7 - 14/7 \end{array} \right.$ Are the approved plans of boiler and superheater forwarded herewith 10/7/37
(If not state date of approval.) Suppl. 10/4/37
During erection on board vessel - 9/8 - 16/8 - 27/8 - 2/9 - 5/9 - 16/9 - 1938 Total No. of visits 19

Is this Boiler a duplicate of a previous case yes If so, state Vessel's name and Report No. S. S. "VIVA", Rpt. No. 5097

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

These boilers have been constructed in accordance with the approved plan and as amended and in conformity with the Secretary's letters concerning the boilers. The materials were tested by the Norske Veritas Surveyors, but were accepted by the Committee in this case as per Secretary's letter E 11/3-14/4/37. The workmanship is of the best description throughout.

The electric welding where employed has been carried out to our satisfaction by recognized welders using approved electrodes.

On completion the boilers were tested by hydraulic pressure to 380 lb./in^2 and the safety valves of the boilers and superheaters were subsequently adjusted under steam to 15.5 kg/cm^2 (220 lb./in^2).

It is recommended that these boilers be classed as the Society's Register Book.

Survey Fee see ltr. report : When applied for, 23/9 - 1938
Travelling Expenses (if any) Entered on: Rpt. : When received, 19

Guide

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI 30 SEP 1938

Assigned See F.E. Rpt.



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