

REPORT ON BOILERS.

No. 225 C.

Received at London Office

30 JAN 1928

Date of writing Report

Jan 26 1928

When handed in at Local Office

Jan 28 1928

Port of Helsingborg

No. in Survey held at Helsingborg Date, First Survey July 23 1926 Last Survey Jan. 23 1928

No. of Boats on the Single Screw Steel Steamer "NEVA"

(Number of Visits 31) Gross 1456.63 Tons Net 796.08

Builder Built at Helsingborg By whom built Hbg. Varfs & Sockers A.-B. Yard No. 46 When built 1928

Engines made at Helsingborg By whom made Hbg. Varfs & Sockers A.-B. Engine No. 22 When made 1928

Boilers made at Helsingborg By whom made Hbg. Varfs & Sockers A.-B. Boiler No. 113/114 When made 1928

Nominal Horse Power 145 Owners Aktiebolaget Transmarin Port belonging to Helsingborg.

MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Mannesmann Rohren Werke Akt. Schultz Knaul, Dückingen (Letter for Record S. ✓)

Total Heating Surface of Boilers 2337 2390 sq feet Is forced draught fitted No ✓ Coal or Oil fired Coal. ✓

No. and Description of Boilers 2 Multitubular. ✓ Working Pressure 200 lbs = 14 kg

Tested by hydraulic pressure to 350 lbs Date of test June 10 1927 No. of Certificate 445 Can each boiler be worked separately Yes ✓

Area of Firegrate in each Boiler 34 sq ft No. and Description of safety valves to each boiler 2 Direct spring loaded. ✓

Area of each set of valves per boiler per Rule 4400 mm² as fitted 4926 " Pressure to which they are adjusted 205 lbs Are they fitted with easing gear Yes ✓

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No donkey boiler ✓

Smallest distance between boilers or uptakes and bunkers 250 mm below cyl. shell & bunkers Is oil fuel carried in the double bottom under boilers No ✓

Smallest distance between shell of boiler and tank top plating 540 mm Is the bottom of the boiler insulated Yes ✓

Largest internal dia. of boilers 3200 mm Length 3050 mm Shell plates: Material Steel Tensile strength 45.6-49 kg/cm²

Thickness 25 mm Are the shell plates welded or flanged None ✓ Description of riveting: circ. seams 85 mm inter. zigzag double ✓

Long. seams 200 mm Diameter of rivet holes in circ. seams 28 mm long. seams 28 " Pitch of rivets 188 mm

Percentage of strength of circ. end seams plate 67 % rivets 47 % Percentage of strength of circ. intermediate seam plate rivets

Percentage of strength of longitudinal joint plate 81.5 % rivets 96.8 % combined 89.7 % Working pressure of shell by Rules 14.7 kg/cm²

Thickness of butt straps outer 19 mm inner 22 mm No. and Description of Furnaces in each Boiler 2 Corrugated. ✓

Material Steel Tensile strength 43.6-43.7 kg/cm² Smallest outside diameter 875 mm

Length of plain part top bottom Thickness of plates 12.5 mm Description of longitudinal joint Welded. ✓

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 14.4 kg/cm²End plates in steam space: Material Steel Tensile strength 42.5-43.7 kg/cm² Thickness 23 mm Pitch of stays 450 x 895 mmHow are stays secured Passing through plates Washer & nut combined Working pressure by Rules 16.1 kg/cm²Tube plates: Material front back Tensile strength 42.3-43.1 kg/cm² Thickness 26 mm 23.5 mmMean pitch of stay tubes in nests 300 mm Pitch across wide water spaces 359 mm Working pressure front 16.3 kg/cm² back 15.7 " "Girders to combustion chamber tops: Material Steel Tensile strength 48.9 kg/cm² Depth and thickness of girder

at centre 2 x 18 x 165 mm Length as per Rule 573 mm Distance apart 234 mm No. and pitch of stays

in each 2-140 mm Working pressure by Rules 15.5 kg/cm² Combustion chamber plates: Material SteelTensile strength 43.2-45.2 kg/cm² Thickness: Sides 16.5 mm Back 18.5 mm Top 16.5 mm Bottom 17 mm

Pitch of stays to ditto: Sides 185.5 x 160 mm Back 198 x 182 mm Top 234 x 140 mm Are stays fitted with nuts or riveted over Riveted over ✓

Working pressure by Rules 14.8 kg/cm² Front plate at bottom: Material Steel Tensile strength 42.3-43.1 kg/cm²Thickness 26 mm Lower back plate: Material Steel Tensile strength 43.5-43.7 kg/cm² Thickness 23 mm

Pitch of stays at wide water space 359 x 198 mm Are stays fitted with nuts or riveted over See approved plan ✓

Working Pressure 17.9 kg/cm² Main stays: Material Steel Tensile strength 46.9 kg/cm²Diameter At body of stay, or Over threads 65 mm No. of threads per inch 6 Area supported by each stay 450 x 295 mm²Working pressure by Rules 17.1 kg/cm² Screw stays: Material Steel Tensile strength 41.0-42.5 kg/cm²Diameter At turned off part, or Over threads 38 mm No. of threads per inch 9 Area supported by each stay 182 x 198 mm²

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Working pressure by Rules 15.4 kg/cm^2 Are the stays drilled at the outer ends *No* ✓ Margin stays: Diameter { At turned off part, or Over threads 50 mm ✓
 No. of threads per inch 9 Area supported by each stay $359 \times 198 \text{ mm}^2$ Working pressure by Rules 15.4 kg/cm^2
Tubes: Material *Steel* ✓ External diameter { Plain 83 mm ✓ Stay 83 mm ✓ Thickness { 4.1 mm ✓ 9 mm ✓ No. of threads per inch 9 ✓
 Pitch of tubes $108 \times 109 \text{ mm}$ ✓ Working pressure by Rules 16 kg/cm^2 Manhole compensation: Size of opening in shell plate $ae. 500 \times 390$ ✓ Section of compensating ring $25 \times 500 \text{ mm}^2$ ✓ No. of rivets and diameter of rivet holes $36 - 28 \text{ mm}$ ✓
 Outer row rivet pitch at ends 177 mm ✓ Depth of flange if manhole flanged $45 - 105 \text{ mm}$ ✓ **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 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 *Schmidts* ✓ Manufacturers of { Tubes *Mitteldeutsche Stahlwerke A. G. Riesa* ✓ Steel castings *Schichau, F. Elbing, Germany* ✓
 Number of elements 2×48 Material of tubes *Steel* ✓ Internal diameter and thickness of tubes $17 \text{ mm} \times 2.3 \text{ mm}$ ✓
 Material of headers *Cast steel* Tensile strength *✓* Thickness 20 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 1134 mm^2 Are the safety valves fitted with easing gear *Yes* ✓ Working pressure as per Rules *Pipes* 38 kg/cm^2 ✓ Pressure to which the safety valves are adjusted 210 lbs/sq. in. ✓ Hydraulic test pressure *tubes* 50 kg/cm^2 ✓, castings 50 kg/cm^2 ✓ and after assembly in place 50 kg/cm^2 ✓ Are drain cocks or valves fitted to free the superheater from water where necessary *Yes* ✓

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

The foregoing is a correct description,
Helsingborgs Varvs- & Svetsnings Aktiebolag
D. H. Helsingborg Manufacturer
 as built

Dates of Survey { During progress of work in shops - - 1926: 23/7, 2-6-12-18/8, 1-2-7-27/9, 14-27/10, 1-11, 18/11
 1927: 31/5, 7-10/6, 12/11, 6-13-16-24/12
 while building { During erection on board vessel - - 1927: 7/10, 5-21-29/11, 1-3-6-16-22/12
 1928: 3-5-11-12-23/1
 Are the approved plans of boiler and superheater forwarded herewith *Yes* (If not state date of approval.) Approved plan retained in London. Date 25.8.26
 Total No. of visits 31

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers have been built under special survey in accordance with the approved plan and instructions and all the Rule requirements have been complied with. The workmanship is good. The materials are good. (Opinion as to class see Rpt. 4).*

Marks on Superheater headers:-

Nº 3 and Nº 4
Lloyd's Test 50 kg/cm^2
W. P. 14 - " -
A.S. 16.12.27

Marks on boilers:-

Nº 4 and Nº 5
Lloyd's Test 350 lbs
W. P. 200 "
A.S. 10.6.1927

Survey Fee *See Rpt. 4.* £ : : When applied for, *✓* 192
 Travelling Expenses (if any) £ : : When received, *✓* 192

A. Lindén
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUES. 7 FEB 1928*
 Assigned *See Rpt. attached*