

REPORT ON BOILERS.

No. 1861.

Received at London Office 30 DEC 1936

Date of writing Report 22nd Dec. 1936 When handed in at Local Office 19 Port of BREMENNo. in Survey held at WESERMÜNDE
Reg. Book.Date, First Survey 7th Aug 1936 Last Survey 8th Dec. 1936

68529 on the STEEL SC TRAWLER

NORTHERN ISLES

(Number of Visits 11) Gross 655
Tons Net 243

Master Built at WESERMÜNDE By whom built DESCHIMAG, WERK: SEEBECK Yard No. 569 When built 1936

Engines made at WESERMÜNDE By whom made DESCHIMAG, WERK: SEEBECK Engine No. 1536 When made 1936

Boilers made at WESERMÜNDE By whom made DESCHIMAG, WERK: SEEBECK Boiler No. 774 When made 1936

Nominal Horse Power 167 Owners MAC LINE LTD. Port belonging to LONDON

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Mmm. Mannesmann-Röhren-Werke, Akt. Heinrich Heilmann & Co. (Letter for Record 5)

Total Heating Surface of Boilers 250 m² 1691 ft² Is forced draught fitted no Coal or Oil fired coal firedNo. and Description of Boilers One Multitubular Main Boiler Working Pressure 22.8 kg/cm² (16 kg/cm²)

Tested by hydraulic pressure to 39.4 kg Date of test 16.10.36 No. of Certificate 187 Can each boiler be worked separately

Area of Firegrate in each Boiler 6.85 m² No. and Description of safety valves to each boiler 2 spring loaded Safety ValvesArea of each set of valves per boiler {per Rule 8930 cm² as fitted 2 x 5026 cm² Pressure to which they are adjusted 22.8 kg Are they fitted with easing gear yes

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

Smallest distance between boilers or uptakes and bunkers or woodwork 200 mm Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating no tank under boiler Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 4650 mm Length 3375 mm Shell plates: Material f. m. steel Tensile strength 47-54 kg/mm²

Thickness 38 mm Are the shell plates welded or flanged flanged Description of riveting: circ. seams {end Cp. double inter. —

long. seams double butt straps Diameter of rivet holes in {circ. seams 38 mm long. seams 41 mm Pitch of rivets {109 mm 260 mm

Percentage of strength of circ. end seams {plate 60 % rivets 42 % Percentage of strength of circ. intermediate seam {plate — rivets —

Percentage of strength of longitudinal joint {plate 84 % rivets 96 % combined 87 % Working pressure of shell by Rules 16.2 kg/cm²

Thickness of butt straps {outer 29.5 mm inner 32.5 mm No. and Description of Furnaces in each Boiler 3 Morrison furnaces 30%

Material f. m. steel Tensile strength 41-47 kg/mm² Smallest outside diameter 1187 mm

Length of plain part {top — bottom — Thickness of plates {crown 18.5 mm bottom 18.5 mm Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 16.2 kg/cm²End plates in steam space: Material f. m. steel Tensile strength 41-47 kg/mm² Thickness 27 mm Pitch of stays 455 x 380 mmHow are stays secured into inside, into a washer outside Working pressure by Rules 16.3 kg/cm²Tube plates: Material {front f. m. steel back f. m. steel Tensile strength {41-47 kg/mm² Thickness {29 mm 23 mmMean pitch of stay tubes in nests 330 x 220 mm Pitch across wide water spaces 370 mm Working pressure {front 16 kg/cm² back 17.8 kg/cm²Girders to combustion chamber tops: Material f. m. steel Tensile strength 47-54 kg/mm² Depth and thickness of girder

at centre 235 mm 2 x 17 mm Length as per Rule 800 mm Distance apart 190 mm No. and pitch of stays

in each 3 180 mm Working pressure by Rules 17.8 kg/cm² Combustion chamber plates: Material f. m. steelTensile strength 41-47 kg/mm² Thickness: Sides 16 mm Back 16 mm Top 16 mm Bottom 25 mm

Pitch of stays to ditto: Sides 180 x 190 mm Back 180 x 201 mm Top 180 x 190 mm Are stays fitted with nuts or riveted over fitted with nuts

Working pressure by Rules 17.2 kg/cm² Front plate at bottom: Material f. m. steel Tensile strength 41-47 kg/mm²Thickness 29 mm Lower back plate: Material f. m. steel Tensile strength 41-47 kg/mm² Thickness 26 mm

Pitch of stays at wide water space 360 x 180 mm Are stays fitted with nuts or riveted over fitted with nuts

Working Pressure 24 kg/cm² Main stays: Material f. m. steel Tensile strength 44-50 kg/mm²

Diameter {At body of stay 72 mm 56 mm No. of threads per inch 6 Area supported by each stay 455 x 430 mm 360 x 180 mm

Working pressure by Rules 16.2 kg/cm² Screw stays: Material f. m. steel Tensile strength 41-47 kg/mm²

Diameter {At turned off part 39 mm 45 mm No. of threads per inch 9 Area supported by each stay 180 x 201 mm 185 x 280 mm

Working pressure by Rules 16.6, 16.3 $\frac{kg}{cm^2}$ Are the stays drilled at the outer ends *no* Margin stays: Diameter ^{At turned off part,} _{Over threads} $\frac{1}{2}$ 48 $\frac{1}{2}$ 54 $\frac{1}{2}$

No. of threads per inch 9 Area supported by each stay 220 x 220, 280 x 280 $\frac{1}{2}$ Working pressure by Rules 17.5 $\frac{kg}{cm^2}$ 16.5 $\frac{kg}{cm^2}$

Tubes: Material *P.M. Steel* External diameter ^{Plain} 83 $\frac{1}{2}$ ^{Stay} 83 $\frac{1}{2}$ Thickness ^{Plate} 4 $\frac{1}{2}$ ^{Rivets} 8 $\frac{1}{2}$ No. of threads per inch 9

Pitch of tubes 110 x 110 $\frac{1}{2}$ Working pressure by Rules 16 $\frac{kg}{cm^2}$ Manhole compensation: Size of opening in shell plate 300 x 400 $\frac{1}{2}$ Section of compensating ring *full plate under dome* No. of rivets and diameter of rivet holes 24. 38 $\frac{1}{2}$

Outer row rivet pitch at ends 170 $\frac{1}{2}$ Depth of flange if manhole flanged *no* Steam Dome: Material *P.M. Steel*

Tensile strength 41-47 $\frac{kg}{mm^2}$ Thickness of shell 15 $\frac{1}{2}$ Description of longitudinal joint *lap. double riveted*

Diameter of rivet holes 23 $\frac{1}{2}$ Pitch of rivets 87 $\frac{1}{2}$ Percentage of strength of joint ^{Plate} 74 % ^{Rivets} 56 %

Internal diameter 800 $\frac{1}{2}$ Working pressure by Rules 18.6 $\frac{kg}{cm^2}$ Thickness of crown 19 $\frac{1}{2}$ No. and diameter of stays *none* Inner radius of crown 800 $\frac{1}{2}$ Working pressure by Rules 16.7 $\frac{kg}{cm^2}$

How connected to shell *by flanged collar* Size of doubling plate under dome 1450 $\frac{1}{2}$ f x 35 $\frac{1}{2}$ Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell 26 $\frac{1}{2}$ 90 $\frac{1}{2}$

Type of Superheater *Smoke tube (Pfeilrohr)* Manufacturers of

Number of elements 68 Material of tubes *P.M. Steel, namlen* Internal diameter and thickness of tubes 17 $\frac{1}{2}$ 2.5 $\frac{1}{2}$

Material of headers *cast steel* Tensile strength 41-55 $\frac{kg}{mm^2}$ Thickness 18 $\frac{1}{2}$ 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 804 $\frac{1}{2}$ $\frac{1}{2}$ Are the safety valves fitted with easing gear *yes* Working pressure as per Rules 16.5 $\frac{kg}{cm^2}$ Pressure to which the safety valves are adjusted 228 $\frac{1}{2}$ Hydraulic test pressure: tubes 100 $\frac{kg}{cm^2}$ forgings and castings 50 $\frac{kg}{cm^2}$ and after assembly in place 50 $\frac{kg}{cm^2}$ Are drain cocks or valves fitted to free the superheater from water where necessary *yes*

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

Deutsche Schiff- und Maschinenbau Aktiengesellschaft

The foregoing is a correct description,

Manufacturer.

Dates of Survey ^{During progress of work in shops - -} *Aug. 7. 14. 21. 25. Sept 14. 22. Oct 16. 29* Are the approved plans of boiler and superheater forwarded herewith *yes* (If not state date of approval.)

^{During erection on board vessel - -} *Nov 13. 20. Dec. 8* Total No. of visits *11*

Is this Boiler a duplicate of a previous case *yes* If so, state Vessel's name and Report No. *NORTHERN PRIDE*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *This Boiler and Superheater have been built under Special Survey in accordance with the appr. plans, the Secretary's letter, and in conformity with the requirements of the Rules. The materials used in the construction are made at works recognized by the Committee and tested as per Rule. Materials and workmanship are of good quality, and the boiler is eligible in my opinion to be recorded in the Loc. Reg. Book with 228 lbs of pressure.*

Marks on Boiler:

No 187
LLOYD'S TEST
392 lbs
WP 228 "
A.C. 16.10.36

Thickness of adjoining workman:

Port valve 26.2 $\frac{1}{2}$
Head " 25.8 $\frac{1}{2}$
Superh. " 12.2 $\frac{1}{2}$

Survey Fee ... £ : *incl. in Rpt 4* When applied for, 19

Travelling Expenses (if any) £ : : When received, 19

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

Committee's Minute *FRI. JAN 8 1937*

Assigned *See Rm 1861*



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