

REPORT ON BOILERS.

No. 7781

Received at London Office

7 - AUG 1928

2577 1928 When handed in at Local Office 1928 Port of Copenhagen
 Survey held at Aarhus & Nakskov Date, First Survey 3/8 1927 Last Survey 14/7 1928
 on the Twin S. Motor vessel "HILDA KNUDSEN" (Number of Visits 20) Tons { Gross 9777.78 Net 5481.66
 Built at Nakskov By whom built Nakskov Skibsværft Yard No. 32 When built 1927-8
 Engines made at Copenhagen By whom made Büchtemeister & Wain Engine No. 1386-7 When made 1927-8
 Boilers made at Aarhus By whom made Fricks Boilers No. 524-5 When made 1927-8
 Indicated Horse Power 690 Owners Knut Knudsen Port belonging to Slægesund

MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel HELL & STAYS: MEISSRS. WITKOWITZ BERGBAU- & EISENHÜTTEN GEW. (Letter for Record 3)
 Heating Surface of Boilers 2 x 1367 = 2734 sq. ft. Is forced draught fitted yes Coal or Oil fired oil
 and Description of Boilers 2 off, single ended, Cornish type Working Pressure 150 lbs.
 tested by hydraulic pressure to 275 lbs. Date of test 21/2 28 No. of Certificates 483-4 Can each boiler be worked separately yes
 of Firegrate in each Boiler ✓ No. and Description of safety valves to each boiler 2 off, direct spring loaded
 of each set of valves per boiler { per Rule 2.40-80 cm² as fitted 88.5 cm² Pressure to which they are adjusted 150 lbs. Are they fitted with easing gear yes
 use of donkey boilers, state whether steam from main boilers can enter the donkey boiler no main boiler
 least distance between boilers or uptakes and bunkers or woodwork 30" Is oil fuel carried in the double bottom under boilers yes
 least distance between shell of boiler and tank top plating 22" Is the bottom of the boiler insulated yes
 least internal dia. of boilers 3607 mm = 142" Length 3400 mm Shell plates: Material S.M. steel Tensile strength 44.7-47.6 kg/mm²
 thickness 21.5 mm Are the shell plates welded or flanged no Description of riveting: circ. seams { end 2 8/16 lap inter. ✓
 seams 3 6/16 28/16 butt shape Diameter of rivet holes in { circ. seams 25 mm long. seams 25 mm Pitch of rivets { 82 mm 160 mm
 percentage of strength of circ. end seams { plate 69.5 rivets 46.6 Percentage of strength of circ. intermediate seam { plate ✓ rivets ✓
 percentage of strength of longitudinal joint { plate 84.4 rivets 112 combined 91 Working pressure of shell by Rules 153 lbs per sq. in.
 thickness of butt straps { outer 21.5 mm inner 21.5 mm No. and Description of Furnaces in each Boiler 2 off, corrugated, Morrison's type
 material S.M. steel Tensile strength 28.9-29.2 ts Smallest outside diameter 1000 mm = 39.3"
 thickness of plain part { top ✓ bottom ✓ Thickness of plates { crown 9/16" bottom ✓ Description of longitudinal joint lap welded
 divisions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 207 lbs.
 plates in steam space: Material S.M. steel Tensile strength 26.03 ts Thickness 25.4 mm = 1" Pitch of stays 400-350 mm
 are stays secured secured into end plates, riveted washers & nuts outside Working pressure by Rules 301 lbs.
 plates: Material { front S.M. steel back S.M. steel Tensile strength { 26.03 ts Thickness { 25.4 mm = 1" 24 mm = 15/16"
 pitch of stay tubes in nests 236 mm = 9.3" Pitch across wide water spaces 370 mm = 14.55" Working pressure { front 214 lbs. back 263 lbs.
 distance to combustion chamber tops: Material S.M. steel Tensile strength 27.7 ts = 43.6 kg/mm² Depth and thickness of girder
 width 90 x 18 mm Length as per Rule 608 mm = 23.9" Distance apart 205 mm No. and pitch of stays
 thickness 2 7/16 180 mm Working pressure by Rules 20 kg/cm² = 284 lbs. Combustion chamber plates: Material S.M. steel
 tensile strength 27.0 ts Thickness: Sides 18 mm Back 18 mm Top 18 mm Bottom 18 mm
 of stays to ditto: Sides 200 x 200 mm Back 194 x 222 mm Top 205 x 180 mm Are stays fitted with nuts or riveted over BACK-SIDES: riveted over
 working pressure by Rules TOP: 13.3 kg = 189 lbs. TOP: 21.5 kg = 205 lbs. BACK: 12.26 kg = 174 lbs. Front plate at bottom: Material S.M. steel Tensile strength 26.03 ts
 thickness 1" Lower back plate: Material S.M. steel Tensile strength 26.03 ts Thickness 24 mm = 15/16"
 of stays at wide water space 600 mm 388 x 222 Are stays fitted with nuts or riveted over secured this plate, riveted over
 working pressure 17.6 kg/cm² Main stays: Material S.M. steel Tensile strength 45.7 kg/mm²
 at body of stay, 64 mm No. of threads per inch 6 Area supported by each stay 400-350 = 140000 mm²
 over threads 70 mm Screw stays: Material S.M. steel Tensile strength 43.7 kg/mm²
 working pressure by Rules 18.6 kg/cm² No. of threads per inch 9 Area supported by each stay 194 x 222 = 43068 mm²
 at turned off part, 38 mm ✓
 over threads 43 mm ✓

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Working pressure by Rules 17.7 kg/cm^2 Are the stays drilled at the outer ends *yes*. Margin stays: Diameter { At turned off part. 3 mm or 48 mm Over threads }
No. of threads per inch 9 Area supported by each stay $282 \times 222 = 62604 \text{ mm}^2$ Working pressure by Rules 15.75 kg/cm^2
Tubes: Material *Steel* External diameter { Plain 89 mm Stay 87 mm Thickness { 4 mm 8 mm No. of threads per inch 9
Pitch of tubes $118 \times 118 \text{ mm}$ Working pressure by Rules 15 kg/cm^2 Manhole compensation: Size of opening
shell plate $16\frac{1}{2} \times 20\frac{1}{2} \text{ mm}$ Section of compensating ring $28\frac{1}{2} \times 32\frac{1}{2} \times 1\frac{1}{8} \text{ mm}$ No. of rivets and diameter of rivet holes $38 \frac{1}{4} 1\frac{1}{4} \text{ mm}$
Outer row rivet pitch at ends 9 mm Depth of flange if manhole flanged 3 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
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 or
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 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,
A/s. FRICHS
Butcher Manufacture

Dates of Survey { During progress of work in shops - $3/8, 28/8, 6/9, 19/10, 25/10, 8/12, 22/12, 1927$ Are the approved plans of boiler and superheater forwarded herewith *yes*.
while building { During erection on board vessel - $27/4, 16/5, 22/5, 11/6, 18/6, 27/6, 11/7, 14/7, 1928$ (If not state date of approval.)
Total No. of visits 20

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These donkey boilers have been built under Special Survey and in accordance with the Rules, the approved plan, and the requirements contained in the Surveyor's letter of dated 8/9 27.

The material for the boilers has been made at recognized works and has - according to the certificate produced - been tested and examined as required by the Rules and found good, and the workmanship is of good description throughout.

The donkey boilers and a duplex Samuel White & Co Oil fuel burning arrangement with filters & heaters complete have been fitted on board the vessel under our supervision and to our satisfaction, and 2 feed pumps, T. P. Hall & Sons Ltd, $8 \times 6 \times 1$ inches, have been fitted to feed the boilers.

Recommend the vessel to have notation of 2 DB 150 lbs. in the Register Book.

Survey Fee ... $£1/-. 332.00$ When applied for, $28/3$ 1928
Travelling Expenses (if any) $£4. 243.50$ When received, $25/4$ 1928

Committee's Minute

TUES. 14 AUG 1928

Assigned

See P. 2 apt. attached

Engineer Surveyor to Lloyd's Register of Shipping



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