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REPORT ON BOILERS.

No. 847

Received at London Office 17 SEP 1928

Date of writing Report 13-9-1928 When handed in at Local Office 15-9-1928 Port of *Malmö*

No. in Book 368 Survey held at *Malmö* Date, First Survey *29th April, 1928* Last Survey *3rd Sept, 1928*

on the *Steel Twin Screw 1/2 "POLLUX"* (Number of Visits *29*) Gross *8741.23* Tons Net *7874.40*

Built at *Malmö* By whom built *Hockums M. V. Aktief.* Yard No. *156* When built *1928*
 Engines made at *Malmö* By whom made *Hockums M. V. Aktief.* Engine No. *17 & 18* When made *1928*
 Boilers made at *Malmö* By whom made *Hockums M. V. Aktief.* Boiler No. *883/4* When made *1928*
 Nominal Horse Power *584* Owners *Trelleborgs Angf. Nya Aktief.* Port belonging to *Trelleborg*

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel *Witkowitzer Bergbau- & Eisenhütte Genverkschaft, Witkowitz* (Letter for Record *S.*)

Total Heating Surface of Boilers *2 x 1092.50 = 2185.0* Is forced draught fitted *Yes* Coal or Oil fired *Oil*

No. and Description of Boilers *Two multitubular* Working Pressure *12 kg/cm²*

Tested by hydraulic pressure to *21.5 kg/cm²* Date of test *6-7-28* No. of Certificate *52 & 53* Can each boiler be worked separately *Yes*

Area of Firegrate in each Boiler *6624 mm²* No. and Description of safety valves to each boiler *Two, direct springloaded.* Pressure to which they are adjusted *12.3 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 *Steam cannot enter the vertical donkey boiler.*

Smallest distance between boilers or uptakes *daily oil tanks 1200 mm.* Is oil fuel carried in the double bottom under boilers *Yes*

Smallest distance between shell of boiler and tank top plating *Boilers fixed on a platform at after end of motor-room.* Is the bottom of the boiler insulated *Yes*

Largest internal dia. of boilers *3600 mm.* Length *3260 mm.* Shell plates: Material *Steel* Tensile strength *44.5-47.6 kg/mm²*

Thickness *24 mm.* Are the shell plates welded or flanged *None* Description of riveting: circ. seams *zigzag top* inter. *73.5 mm.*

Long. seams *Double buttstraps* Diameter of rivet holes in circ. seams *25 mm.* Pitch of rivets *178* long. seams *25*

Percentage of strength of circ. end seams plate *66%* rivets *47%* Percentage of strength of circ. intermediate seam plate *86%* rivets *86%* combined *89%*

Percentage of strength of longitudinal joint plate *86%* rivets *86%* combined *89%* Working pressure of shell by Rules *12.4 kg/cm²*

Thickness of butt straps outer *22 mm.* inner *22* No. and Description of Furnaces in each Boiler *Two corrugated.*

Material *Steel* Tensile strength *41.5-42.7 kg/mm²* Smallest outside diameter *1078 mm.*

Length of plain part top *14 mm.* bottom *14 mm.* Description of longitudinal joint *welded*

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules *13.3 kg/cm²*

End plates in steam space: Material *Steel* Tensile strength *41.6-46.7 kg/mm²* Thickness *25 mm.* Pitch of stays *412 x 375 mm.*

How are stays secured *Double nuts* Working pressure by Rules *13 kg/cm²*

Tube plates: Material front *Steel* back *"* Tensile strength front *43.7-46.7 kg/mm²* back *41.9-44.7* Thickness front *25 mm.* back *21*

Mean pitch of stay tubes in nests *216 x 210 mm.* Pitch across wide water spaces *356 mm.* Working pressure front *12.8 kg/cm²* back *12.5*

Girders to combustion chamber tops: Material *Steel* Tensile strength *45-48 kg/mm²* Depth and thickness of girder

at centre *170 (2 x 20) mm.* Length as per Rule *682 mm.* Distance apart *205 mm.* No. and pitch of stays

in each *2-200* Working pressure by Rules *13 kg/cm²* Combustion chamber plates: Material *Steel*

Tensile strength *41.7-46.4 kg/mm²* Thickness: Sides *17 mm.* Back *17.5 mm.* Top *17 mm.* Bottom *18 mm.*

Pitch of stays to ditto: Sides *190 x 200 mm.* Back *195 x 208 mm.* Top *200 x 205 mm.* Are stays fitted with nuts or riveted over *Both*

Working pressure by Rules *12.2 kg/cm²* Front plate at bottom: Material *Steel* Tensile strength *43.7-46.7 kg/mm²*

Thickness *25 mm.* Lower back plate: Material *Steel* Tensile strength *41.6-44.9 kg/mm²* Thickness *25 mm.*

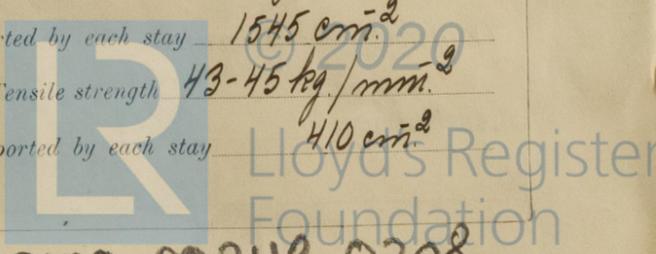
Pitch of stays at wide water space *340 x 195 mm.* Are stays fitted with nuts or riveted over *Nuts*

Working Pressure *13.6 kg/cm²* Main stays: Material *Steel* Tensile strength *44-50 kg/mm²*

Diameter At body of stay, *63 mm.* No. of threads per inch *6* Area supported by each stay *1545 cm²*

Over threads *70* Working pressure by Rules *14.5 kg/cm²* Screw stays: Material *Steel* Tensile strength *43-45 kg/mm²*

Diameter At turned off part, *34 mm.* No. of threads per inch *9* Area supported by each stay *410 cm²*



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Working pressure by Rules 13.7 kg/cm^2 Are the stays drilled at the outer ends *No* Margin stays: Diameter { At turned off part, 37 mm or Over threads 41.3

No. of threads per inch 9 Area supported by each stay 534.3 cm^2 Working pressure by Rules 12.9 kg/cm^2

Tubes: Material *Steel* External diameter { Plain $3"$ Stay $3"$ Thickness { 3.66 mm 2.94 No. of threads per inch 9

Pitch of tubes $105 \times 108 \text{ mm}$ Working pressure by Rules 13.5 kg/cm^2 Manhole compensation: Size of opening in shell plate $390 \times 490 \text{ mm}$ Section of compensating ring 14200 mm^2 No. of rivets and diameter of rivet holes $42 - 25 \text{ mm}$

Outer row rivet pitch at ends 159 mm Depth of flange if manhole flanged 85 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

How connected to shell Inner radius of crown Working pressure by Rules

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 and the boiler be worked separately

Area of each safety valve Is a safety valve fitted to every part of the superheater which can be shut off from the boiler

Rules Are the safety valves fitted with easing gear Working pressure as per tubes

Pressure to which the safety valves are adjusted Hydraulic test pressure

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,
KOCKUMS MEKANISKA VERKSTADS
ARTIE BOLAG Manufacturer

Dates of Survey while building { During progress of work in shops - $23/4, 24/4, 2/5, 5/5, 14/5, 16/5, 18/5, 23/5, 25/5, 30/5, 31/5, 1/6, 6/6, 7/6, 11/6$ Are the approved plans of boiler and superheater forwarded herewith *1-6-27* (If not state date of approval.)

{ During erection on board vessel - $10/8, 13/8, 15/8, 17/8, 19/8, 22/8, 30/8, 31/8 - 1928$ Total No. of visits 29

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers have been built under special survey in accordance with the Rules and the approved plan.*

The materials used in the construction of the boilers has been tested as per Rule.

The workmanship is good.

The oil fuel burning installation is a single as steam is not required for any essential use at sea.

Two feed pumps, each $150 \times 100 \times 150 \text{ mm}$ dbl. are fitted.

Survey Fee *See Rpt 4.b.* £ : : } When applied for, 192

Travelling Expenses (if any) £ : : } When received, 192

Adunden
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 28 SEP 1928*

Assigned *See Rpt. attached*

