

## REPORT ON BOILERS.

No. 4003.

MAR 28 1938

Received at London Office

Date of writing Report 23<sup>rd</sup> March 1938 When handed in at Local Office 23. 3. 1938. Port of BREMEN

No. in Survey held at VEGESACK

Date, First Survey 31<sup>st</sup> Aug 1937 Last Survey 5<sup>th</sup> March 1938

on the SINGLE SCREW MOTOR TANKER

INVERLEE

(Number of Visits 13 ) Gross 9158  
Tons Net 5496

Master Built at VEGESACK By whom built BREMER VULKAN Yard No. 748 When built 1938

Engines made at VEGESACK By whom made BREMER VULKAN Engine No. 484/471 When made 1938

Boilers made at VEGESACK By whom made BREMER VULKAN Boiler No. 819/20 When made 1938

Nominal Horse Power 1001 Owners THE INVER TANKERS LTD. Port belonging to DUBLIN

## MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Mem. Deutsche Röhrenwerke AG. Werk Thyssen, Mülheim (Ruhr) (Letter for Record 5 ✓)

Total Heating Surface of Boilers 2 x 145 m<sup>2</sup> Is forced draught fitted yes Coal or Oil fired firedNo. and Description of Boilers Two cylindrical multitubular Donkey Boilers, Working Pressure 180 lbs/14.65 kg/cm<sup>2</sup>

Tested by hydraulic pressure to 320 lbs Date of test 7. 1. 38 No. of Certificate 202-203 Can each boiler be worked separately yes

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler 2 spring loaded Safety Valves

Area of each set of valves per boiler {per Rule 6445 mm<sup>2</sup> Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yes  
as fitted 2 x 70 f = 7696 f

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

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

Smallest distance between shell of boiler and tank top plating situated in between deck Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 3500 Z Length 3500 Z Shell plates: Material P.M. Steel Tensile strength 47-53 kg/cm<sup>2</sup>Thickness 23 Z Are the shell plates welded or flanged flanged Description of riveting: circ. seams {end 95.5 Z  
inter. 175. ZLong. seams double butt straps Diameter of rivet holes in {circ. seams 29 Z  
long. seams 26 Z Pitch of rivets {plate 85 %  
rivets 55 %Percentage of strength of circ. end seams {plate 85 %  
rivets 55 % Percentage of strength of circ. intermediate seam {plate 85 %  
rivets 55 %Percentage of strength of longitudinal joint {plate 85 %  
rivets 96 %  
combined 88 % Working pressure of shell by Rules 13.4 kg/cm<sup>2</sup>Thickness of butt straps {outer 23 Z  
inner 23 Z No. and Description of Furnaces in each Boiler 2 Morrison FurnacesMaterial P.M. Steel Tensile strength 42-47 kg/cm<sup>2</sup> Smallest outside diameter 1076 ZLength of plain part {top 13 Z  
bottom 13 Z Thickness of plates {crown 13 Z  
bottom 13 Z Description of longitudinal joint weldedDimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 12.6 kg/cm<sup>2</sup>End plates in steam space: Material P.M. Steel Tensile strength 41-47 kg/cm<sup>2</sup> Thickness 22 Z Pitch of stays 410 x 350 ZHow are stays secured nuts from inside outside, washers from outside Working pressure by Rules 12.8 kg/cm<sup>2</sup>Tube plates: Material {front P.M. Steel Tensile strength 41-47 kg/cm<sup>2</sup> Thickness 22 Z  
back P.M. SteelMean pitch of stay tubes in nests 190 x 285 Z Pitch across wide water spaces 350 Z Working pressure {front 14 kg/cm<sup>2</sup>  
back 22Girders to combustion chamber tops: Material P.M. Steel Tensile strength 47-53 kg/cm<sup>2</sup> Depth and thickness of girder

at centre 220 Z, 2 x 14 Z Length as per Rule 750 Z Distance apart 210 Z No. and pitch of stays

in each 2 of 210 Z Working pressure by Rules 14.2 kg/cm<sup>2</sup> Combustion chamber plates: Material P.M. SteelTensile strength 41-47 kg/cm<sup>2</sup> Thickness: Sides 16 Z Back 15 Z Top 16 Z Bottom 22 Z

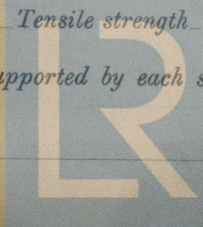
Pitch of stays to ditto: Sides 300 x 210 Z Back 210 x 195 Z Top 210 x 210 Z Are stays fitted with nuts or riveted over fitted with nuts

Working pressure by Rules 17.4 kg/cm<sup>2</sup> Front plate at bottom: Material P.M. Steel Tensile strength 41-47 kg/cm<sup>2</sup>Thickness 22 Z Lower back plate: Material P.M. Steel Tensile strength 41-47 kg/cm<sup>2</sup> Thickness 22 Z

Pitch of stays at wide water space 350 Z Are stays fitted with nuts or riveted over fitted with nuts

Working Pressure 17 kg/cm<sup>2</sup> Main stays: Material P.M. Steel Tensile strength 44-55 kg/cm<sup>2</sup>

Diameter {At body of stay, 60 Z No. of threads per inch 6 Area supported by each stay 350 x 410 Z

Working pressure by Rules 15 kg/cm<sup>2</sup> Screw stays: Material P.M. Steel Tensile strength 41-47 kg/cm<sup>2</sup>Diameter {At turned off part, 35 Z No. of threads per inch 9 Area supported by each stay 210 x 200 Z  
Over threads 39 ZLloyd's Register  
18180-0015



Working pressure by Rules  $14.5 \text{ kg/cm}^2$  Are the stays drilled at the outer ends ☒ Margin stays: Diameter { At turned off part, 44. 41. 38. 2  
Over threads 48. 45. 42. 2  
No. of threads per inch 9 Area supported by each stay  $195 \times 280 \text{ Z}$  Working pressure by Rules  $13.2 \text{ kg/cm}^2$   
Tubes: Material P.M. Steel External diameter { Plain 63.5/2 Thickness { 3.75/2 No. of threads per inch 9  
Stay 63.5/2  
Pitch of tubes  $95 \times 95 \text{ Z}$  Working pressure by Rules  $16 \text{ kg/cm}^2$  Manhole compensation: Size of opening  
shell plate  $300 \times 400 \text{ Z}$  Section of compensating ring  $175 \times 25 \text{ Z}$  No. of rivets and diameter of rivet holes 32 girth of 29 Z  
Outer row rivet pitch at ends 125 Z Depth of flange if manhole flanged - Steam Dome: Material P.M. Steel  
Tensile strength 41-47  $\text{kg/cm}^2$  Thickness of shell 14 Z Description of longitudinal joint butt welded with inside skin  
Diameter of rivet holes 23 Z Pitch of rivets 75 Z Percentage of strength of joint { Plate 69%  
Rivets 35 + 50% for weld  
Internal diameter 800 Z Working pressure by Rules  $19 \text{ kg/cm}^2$  Thickness of crown 17 Z No. and diameter  
stays none Inner radius of crown 640 Z Working pressure by Rules  $26 \text{ kg/cm}^2$   
How connected to shell by a flange collar Size of doubling plate under dome none Diameter of rivet holes and pitch  
of rivets in outer row in dome connection to shell 29 Z dia by 199 Z pitch

Type of Superheater none Manufacturers of { Tubes  
Steel forgings  
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 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 per  
Rules Pressure to which the safety valves are adjusted Hydraulic test pressure  
tubes forgings and castings and after assembly in place Are drain cocks  
valves fitted to free the superheater from water where necessary

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

The foregoing is a correct description,

**Bremer Vulkan**  
Schiffbau und Maschinenfabrik

Manufacture

Dates of Survey { During progress of work in shops - - 1937. 31/8. 8/9. 30/9. 3/10. 8/10. 16/12. 24/12. 7/1  
while building { During erection on board vessel - - 1938. 1/2. 4/2. 13/2. 3/3. 5/3  
Are the approved plans of boiler and superheater forwarded herewith 4. 12. 36  
(If not state date of approval.)  
Total No. of visits 13

Is this Boiler a duplicate of a previous case ☒ no If so, state Vessel's name and Report No.

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) These Donkey Boilers have been built under Special Survey in accordance with the approved plan, the Permitary's letter, and in conformity with the requirements of the Rules. The materials used in the construction are made at works recognised by the Committee and tested as required by the Rules. Materials and workmanship are of good quality. These boilers are eligible in my opinion to be recorded in the Loc. Reg. Book with: Donkey Boiler pressure 180 lbs.

Marks for identification:

No 202 & 203
LYOYD'S TEST
320 lbs
WP 180 "
A.C. 7. 1. 38.

Thickness of adjoining washers

Port Boiler: port valve 17.7 Z Harb. valve 19.1  
Harb " - - 18.6 Z - - 13.5 SPA

Survey Fee ... RM 416.00 } When applied for, 19. 3. 1938  
Travelling Expenses (if any) £ - : } When received, 4. 4. 1938

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

Committee's Minute TUE 5 APR 1938

Assigned

*See Bmn J.C. 2003*



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Foundation