

REPORT ON BOILERS.

No. 22061

Received at London Office 12 OCT 1936

of writing Report 8th Oct. 1936 When handed in at Local Office 10 Port of Hamburg
 To. in Survey held at Hamburg Date, First Survey 16th March 1936 Last Survey 22 September 1936
 on the Steel Se. "Norlys" (Number of Visits 11) Tons {Gross 9892 Net 5901
 Built at Hamburg By whom built Deutsche Werft A.G. Yard No. 187 When built 1936
 Engines made at Augsburg By whom made Maschinenf. Augsb. Nurnb. Engine No. 691/110 When made 1936
 Boilers made at Hamburg By whom made Deutsche Werft A. G. Boiler No. 562/63 Waite H. 570 When made 1936
 Indicated Horse Power 7167 Owners Johan Rasmussen & Co. Port belonging to Panama City

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Messrs. Röchelwerke Georgsmarienhütte

Manufacturers of Steel Messrs. Gussstahlfabrikation A.G. Walzwerk Oberhausen (Ahlb.) (Letter for Record S.)

Heating Surface of Boilers 145 m² each Is forced draught fitted ✓ Coal or Oil fired Oil fired.

Description of Boilers 2; Two furnace single ended multitub. Donk. Boiler Working Pressure 12 Kgs/cm²

Tested by hydraulic pressure to 21.5 Date of test 22 Apr. 36 No. of Certificate 615/16 Can each boiler be worked separately yes

No. and Description of safety valves to each boiler each: Two spring loaded safety valves

Pressure to which they are adjusted 12 Kgs/cm² Are they fitted with easing gear yes

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

Least distance between boilers or uptakes and bunkers or woodwork 756 mm Is oil fuel carried in the double bottom under boilers Tween deck.

Least distance between shell of boiler and tank top plating 450 " Is the bottom of the boiler insulated yes

Greatest internal dia. of boilers 3400 mm Length 3294 mm Shell plates: Material S.M. Steel Tensile strength 47/53 Kgs/mm²

Thickness 22 mm Are the shell plates welded or flanged double butt strapped Description of riveting: circ. seams {end 2 row zig-zag

circ. seams double butt strapped Diameter of rivet holes in {circ. seams 29 mm Pitch of rivets {inter. 96 mm.

Percentage of strength of circ. end seams {plate 69.8 % rivets 55.0 % Percentage of strength of circ. intermediate seam {plate ✓ rivets ✓

Percentage of strength of longitudinal joint {plate 84.8 % rivets 104.3 % combined 89.8 % Working pressure of shell by Rules 12.9 Kgs/cm²

Thickness of butt straps {outer 22 mm inner 22 mm No. and Description of Furnaces in each Boiler each boiler, 2 Morison Furnaces

Material S.M. Steel Tensile strength 41/47 Kgs/mm² Smallest outside diameter 1026 mm

Thickness of plain part {top 316 mm bottom 316 mm Thickness of plates {crown 12 mm bottom 12 mm Description of longitudinal joint Watergas welded

Dimensions of stiffening rings on furnace on c.e. bottom ✓ Working pressure of furnace by Rules 14.8 Kgs/cm²

Stays in steam space: Material S.M. Steel Tensile strength 41/47 Kgs/mm² Thickness 22 mm Pitch of stays 390 x 380 mm

Are stays secured and nuts in and outside Working pressure by Rules 15.4 Kgs/cm²

Front plates: Material {front S.M. Steel back S.M. Steel Tensile strength {front 41/47 Kgs/mm² back 41/47 Kgs/mm² Thickness {front 22 mm back 22 mm

Pitch of stay tubes in nests 208; 1312 Pitch across wide water spaces 360 mm Working pressure {front 12.9 Kgs/cm² back 19.2 "

Stays to combustion chamber tops: Material S.M. Steel Tensile strength 47/53 Kgs/mm² Depth and thickness of girder

Centre 140 x 2 x 14 Length as per Rule 609 mm Distance apart 220 mm No. and pitch of stays

each 2; 180 x 220 Working pressure by Rules 14 Kgs/cm² Combustion chamber plates: Material S.M. Steel

Tensile strength 41/47 Kgs/mm² Thickness: Sides 16 mm Back 19 mm Top 16 mm Bottom 22 mm

Stays to ditto: Sides 190 x 200 Back 190 x 210 Top 220 x 180 Are stays fitted with nuts or riveted over margin stays, screwed with nuts and washers

Working pressure by Rules 14.4; 14.8; 15.4 Front plate at bottom: Material S.M. Steel Tensile strength 41/47 Kgs/mm²

Thickness 22 mm Lower back plate: Material S.M. Steel Tensile strength 41/47 Kgs/mm² Thickness 22 mm

Stays at wide water space 500 mm Are stays fitted with nuts or riveted over doubling plate, screwed nuts washers in and outside

Working Pressure 13.2 Kgs Main stays: Material S.M. Steel Tensile strength 41/47 Kgs/mm²

At body of stay, 62.6 mm No. of threads per inch 6 Area supported by each stay 390 x 380 = 148200 mm²

Over threads 68.0 " Working pressure by Rules 14.8 Kgs/cm² Screw stays: Material S.M. Steel Tensile strength 41/47 Kgs/mm²

At turned off part, 35.4; 41.4; 47.4 No. of threads per inch 9 Area supported by each stay 140 x 210 = 39400 mm²

Over threads 39.0; 45.0; 51.0

Working pressure by Rules 15 kg/cm² Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 41.4; 47.4
Over threads 45.0; 51.0
No. of threads per inch 9 Area supported by each stay 40000 mm² Working pressure by Rules 21.2 kg/cm²; 28.4 kg/cm²
Tubes: Material S.M. Steel External diameter { Plain 76.0 mm Thickness { 3.75 mm No. of threads per inch 9
Stay 76.0 mm Thickness { 8.00 mm
Pitch of tubes 104 x 104 mm Working pressure by Rules 13.5 kg/cm²; 21.0 kg/cm² Manhole compensation: Size of opening in
shell plate 300 x 400 mm Section of compensating ring 25 x 450 mm No. of rivets and diameter of rivet holes 32; 29 mm
Outer row rivet pitch at ends 125 Depth of flange if manhole flanged ✓ Steam Dome: Material S.M. Steel
Tensile strength 41/47 kg/mm Thickness of shell 14 mm Description of longitudinal joint welded + inner butt strapped
Diameter of rivet holes 23 mm Pitch of rivets 74 mm Percentage of strength of joint { Plate } 50%
Rivets
Internal diameter 800 mm Working pressure by Rules 18 kg/cm² Thickness of crown 17.7 No. and diameter of
stays ✓ Inner radius of crown 800 mm Working pressure by Rules 17.7 kg/cm²
How connected to shell pressed flange Size of doubling plate under dome ✓ Diameter of rivet holes and pitch
of rivets in outer row in dome connection to shell 29 mm; 199 mm

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 ✓ 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 ✓, 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 22 inclusive for boilers been complied with yes

The foregoing is a correct description,
DEUTSCHE WERFT
AKTIENGESELLSCHAFT Manufacturer.
Dates of Survey { During progress of 10/3/36; 17/3/36; 25/3/36; 20/4/36; 22/4/36; 7/5/36 Are the approved plans of boiler and superheater forwarded herewith 28/9/35
while building { During erection on 11/8/36; 17/8/36; 4/9/36; 14/9/36; 22/9/36 Total No. of visits 11
board vessel ✓ (If not state date of approval.)

Is this Boiler a duplicate of a previous case yes If so, state Vessel's name and Report No. M.S. Marina HambRg 21702
M.S. Thorsheimer " 21733

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These Donkey Boilers have been
constructed under special survey in accordance with the approved plans,
the Secretary's Letters and in conformity with the requirements of the Rules.
The material used in the construction are made at works recognized
by the Committee and tested by the Society's Surveyors. Material and work-
manship are of good quality. These Donkey Boilers are eligible in my
opinion to be noted in the Register Book with the notation of:-
+ D.B. Pressure 170 lbs.

Port- Starb. side
Port D.B. : 25.8 mm : 26.6 mm
Thickness of washers:
Starb. D.B. : 29.9 mm : 28.7 mm

Survey Fee Per 4.16.00 When applied for, 7/10/ 19 36
Travelling Expenses (if any) £ : : When received, 21.11. 19 36

McMurrer
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 16 OCT 1936

Assigned See F.E. mch report