

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

16168

*mi-Rhodope*  
*27278*  
*28700*

Ship's Name <b>BENLOER</b>	Official Number <b>143602.</b>	Nationality and Port of Registry <b>BRITISH LEITH</b>	Gross Tonnage <b>5161.</b>	Date of Build <b>1919.</b>	Port of Survey <b>MIDDLESBROUGH.</b>
Moulded Dimensions: Length <b>399.5</b> Breadth <b>52.0</b> Depth <b>31.0</b>					Date of Survey <b>Nov. 37.</b>
Moulded displacement at moulded draught = 85 per cent. of moulded depth <b>12061</b> tons					Surveyor's Signature <i>Capt. B. Seaver.</i>
Coefficient of fineness for use with Tables <b>.771</b>					Particulars of Classification <b>100 A.1 class Contemplated.</b>

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth ... <b>31.0</b>	(a) Where D is greater than Table depth (D-Table depth) R = $(31.04 - 26.63) \times 4.41 = +13.23$	Moulded Breadth (B) <b>52.0</b>
Stringer plate ... <b>.04</b>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R =	Standard Round of Beam = $\frac{B \times 12}{50} = 12.48$
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$ ✓	If restricted by superstructures	Ship's Round of Beam $13 \frac{1}{2} = 13.00$
Depth for Freeboard (D) = <b>31.04</b>		Difference <b>.52</b>
		Restricted to
		Correction = $\frac{\text{Diff}^2}{4} \times (1 - \frac{S_1}{L}) = \frac{.52^2}{4} \times 4992 = -.06$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<b>49.0</b>	<b>49.00</b>	<b>8.17</b>	-	<b>49.00</b>
"  overhang ...	<b>.50</b>	<b>.25</b>	<b>8.17</b>		<b>.25</b>
R.Q.D. enclosed ...					
"  overhang ...	<b>109.80</b>	<b>109.80</b>	<b>2.95</b>	-	<b>109.80</b>
Bridge enclosed... <i>equivalent</i>	<b>119.80</b>	<b>109.80</b>	<b>2.0</b>	-	<b>109.80</b>
"  overhang aft ...	<b>2.50</b>	<b>1.87</b>	<b>2.0</b>		<b>1.87</b>
"  overhang forward	<b>.25</b>	<b>.15</b>	<b>8.17</b>		<b>.15</b>
F'cle enclosed ...	<b>38.50</b>	<b>39.00</b>	<b>8.17</b>	-	<b>38.50</b>
"  overhang ...	<b>.50</b>	<b>.50</b>	<b>8.17</b>		<b>.50</b>
Trunk aft ...					
"  forward ...					
Tonnage opening aft ...					
"  forward					
<b>Total ...</b>	<b>201.08</b>	<b>200.07</b>			<b>200.07</b>

Standard Height of Superstructure **7.495**  
 " " R.Q.D. ✓  
 Deduction for complete superstructure **41.965**  
 Percentage covered  $\frac{S}{L} = 50.34$   
 $\frac{S_1}{L} = 50.08$   
 $\frac{E}{L} = 50.08$   
 Percentage from Table, Line A. ✓  
 (corrected for absence of forecastle (if required))  
 Percentage from Table, Line B. **36.08**  
 (corrected for absence of forecastle (if required)) ✓  
 Interpolation for bridge less than 2L (if required)  
 Deduction = **41.965 x 36.08 = -15.14**

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<b>49.95</b>	1		<b>49.95</b>	<b>69.0</b>	<b>60.00</b>	1		<b>60.00</b>
1/4 L from A.P. ...	<b>22.23</b>	4		<b>88.92</b>	<b>26.0</b>	<b>26.46</b>	4		<b>105.84</b>
1/2 L " ...	<b>5.49</b>	2		<b>10.98</b>	<b>6.5</b>	<b>6.61</b>	2		<b>13.22</b>
Amidships ...		4			<b>0</b>		4		
3/4 L from F.P. ...	<b>10.99</b>	2		<b>21.98</b>	<b>13.0</b>	<b>13.72</b>	2		<b>27.44</b>
1/4 L " ...	<b>44.45</b>	4		<b>177.80</b>	<b>52.0</b>	<b>54.90</b>	4		<b>219.60</b>
F.P. ...	<b>99.90</b>	1		<b>99.90</b>	<b>120.0</b>	<b>120.00</b>	1		<b>120.00</b>
<b>Total ...</b>				<b>449.53</b>					<b>546.10</b>

Mean actual sheer aft = *Even.*  
 Mean standard sheer aft

Mean actual sheer forward = *Even.*  
 Mean standard sheer forward

Length of enclosed superstructure forward of amidships = **7.11**

" " aft of " = **7.11**

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( \frac{.75 - \frac{S}{2L}}{.75} \right) = \frac{96.57}{18} \left( \frac{.75 - .2517}{.75} \right) = -2.67$   
 If limited on account of midship superstructure. **4983** If limited to maximum allowance of 1 1/2 ins. per 100 ft. ✓

Deduction for Tropical Freeboard.  
 Addition for Winter and Winter North Atlantic Freeboard.

Et.  
 Depth to Freeboard Deck = **31.04**  
 Summer freeboard = **5.96**  
 Moulded draught (d) = **25.08**

Deduction for Tropical freeboard and addition for Winter freeboard =  $\frac{d}{4}$  inches = **6.27 = 6 1/4**  
 Addition for Winter North Atlantic Freeboard (if required) = ✓

Deduction for Fresh Water.

Displacement in salt water at summer load water line  
 $\Delta = 11330$   
 Tons per inch immersion at summer load water line  
 $T = 41.1$   
 Deduction =  $\frac{\Delta}{40T}$  inches = **6.89**  
**= 7**

TABULAR FREEBOARD *corrected for Flush Deck (if required)*

Correction for coefficient

$\frac{.771 + .68}{1.36} = \frac{1.451}{1.36} =$

	+	-
Depth Correction ...	<b>13.23</b>	
Deduction for superstructures ...		<b>15.14</b>
Sheer correction ...		<b>2.67</b>
Round of Beam correction ...		<b>.06</b>
Correction for Thickness of Deck amidships ...		
Other corrections, scantlings, etc. ...		
	<b>13.23</b>	<b>17.87</b>

Summer Freeboard = **71.49**

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~Wood~~, Steel, Deck

Tropical Fresh Water Line above Centre of Disc ...	<b>13 1/4</b>	Tropical Fresh Water Freeboard ...	<b>5 11/2</b>
Fresh Water Line " " ...	<b>7</b>	Fresh Water " " ...	<b>4 10 1/4</b>
Tropical Line " " ...	<b>6 1/4</b>	Tropical " " ...	<b>5 4 1/2</b>
Winter Line below " " ...	<b>6 1/4</b>	Winter " " ...	<b>5 5 1/4</b>
Winter North Atlantic Line " " ...		Winter North Atlantic " " ...	<b>6 5 3/4</b>

26 NOV 1937

Lloyd's Register  
 SHIPPING FORM  
 FOUNDERS DEPT  
 RECEIVED

*Renalder.*

A new form should be prepared if any alterations that affect the freeboard have been made. If no such alterations have been made, the Surveyor should endorse the form on this side with his signature and the date.

Bridge.  
Mean  $\frac{8.67 \times 3.92}{51.2} = .66$   
 $\frac{18.5 \times 4.25}{51.2} = 1.54$   
 $\frac{1.54}{2.20}$   
112.00  
 $\frac{2.20}{109.80}$  equivalent meters  
overhang aft =  $\frac{.29}{2.20}$   
 $\frac{.29}{2.49}$

Trade of ship.....

Names of sister ships.....

Builder's name and yard number

*Irving S.B. & D.D.C. Hartlepool No 601.*

Owners

*Ben Line Steamers W. Thomson & Co.*

Fee £

*W*



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Foundation