

PARTICULARS OF BOILERS.

Shipbuilder *Messrs Swan Hunter & Wigham Richardson Ltd*
 Yard No. *735*
 Engineer *Messrs Wallsend Slipway & Engineering Co Ltd*
 Yard No. *601*

Shaft as per Rule.....
 Size of Cyls.....
 Stroke

Total heating surface... *164640*
 Grate Surface, 1 boiler... *DE = 175.44 SE = 87.74*
 Working pressure... *195*
 No. of Boilers... *23 DE 2 SE*
 Descrip. & Material... *Steel cylindrical*
 Diameter... *17'-3"*
 Length... *DE 22'-0" SE 11'-4"*

CALCULATIONS.

SHELL.	Plate	$\frac{P-D}{a \times m}$	$= \frac{9.5937-1.437}{9.5937}$	$= 85.016 \text{ lbs.}$
	Rivet	$\frac{P \times T}{C \times T \times B}$	$= \frac{5 \times 1.623 \times 1.75 \times 85}{9.593 \times 1.328}$	$= 94.8$
		$\frac{D}{C \times (T-2) \times B}$	$= \frac{28.29(21.5-2) 85.016}{207}$	$= 223.5$
		$\frac{D}{89,600 = T^2}$	$=$	$=$
Furnace		$\frac{L \times D}{C \times (T-2)}$	$= \frac{1259(10.5-2)}{49.78}$	$= 216.9$
		$\frac{D}{C \times T}$	$= \frac{8800 \times 1}{48.875}$	$= 180$
		$\frac{D}{C \times T^2}$	$= \frac{145.4 \times 9^2}{61.225}$	$= 192.4 \text{ lbs.}$
	Combs, at sides	$\frac{P}{A \times C}$	$= \frac{1.45 \times 8000}{8.5 \times 7.5}$	$= 190.6 \text{ lbs.}$
Stays, for ditto		$\frac{P^2}{C \times T^2}$	$= \frac{145.4 \times 9^2}{61.13}$	$= 192 \text{ lbs.}$
		$\frac{P}{A \times C}$	$= \frac{1.45 \times 8000}{8.5 \times 7.5}$	$= 190.4 \text{ lbs.}$
		$\frac{P^2}{C \times T^2}$	$= \frac{145.4 \times 9^2}{63.28}$	$= 186 \text{ lbs.}$
	Comb, at tops	$\frac{P^2}{C \times T^2}$	$= \frac{236.9 \times 16.5^2}{319.9}$	$= 201.6 \text{ lbs.}$
Top end plate		$\frac{P}{A \times C}$	$= \frac{5.41 \times 10400 \times 36}{18.5 \times 17.5 \times 28}$	$= 226.7 \text{ lbs.}$
		$\frac{P^2}{C \times T^2}$	$= \frac{135 \times 14.5^2}{123.475}$	$= 230 \text{ lbs.}$
		$\frac{P}{A \times C}$	$=$	$=$
	Back bottom	$\frac{P^2}{C \times T^2}$	$=$	$=$

Stays at water space at back	$\frac{A \times C}{p^2}$	$= \frac{2.03 \times 9000}{10.78 \times 8.14}$	$= 213.5 \text{ lbs.}$
	$\frac{p^2}{140 \times T^2}$	$= \frac{140 \times 12^2}{4.375^2}$	$= 370 \text{ lbs.}$
	$\frac{p^2}{C \times T^2}$	$= \frac{1.45 \times 26 \times 14^2}{13^2}$	$= 181 \text{ lbs.}$
	$\frac{p^2}{C \times (T + \frac{1}{2})^2}$	$=$	$=$
Tube Plate	$\frac{P \times W \times D}{1,600 \times (D-d)}$	$= \frac{(3.75-2.18) 1750 \times 12}{30.76 \times 3.76}$	$= 290 \text{ lbs.}$
	$\frac{A \times C}{p^2}$	$= \frac{2.815 \times 7500}{8.8 \times 7.5 - 14.7}$	$= 450 \text{ lbs.}$
	$\frac{A \times C}{p^2}$	$= \frac{2.815 \times 7500}{10.4 \times 7.5 - 14.7}$	$= 211 \text{ lbs.}$
	$\frac{A \times C}{p^2}$	$= \frac{5.785 \times 7500}{121 - 23}$	$= 443 \text{ lbs.}$
Stay tubes, top row	$\frac{A \times C}{p^2}$	$= \frac{13330 \times 8.75^2 \times 1.323}{(30.1875 - 6.76) 9 \times 30.18}$	$= 210 \text{ lbs.}$
	$\frac{A \times C}{p^2}$	$=$	$=$
	$\frac{A \times C}{p^2}$	$=$	$=$
	$\frac{A \times C}{p^2}$	$=$	$=$
side	$\frac{A \times C}{p^2}$	$=$	$=$
	$\frac{A \times C}{p^2}$	$=$	$=$
	$\frac{A \times C}{p^2}$	$=$	$=$
	$\frac{A \times C}{p^2}$	$=$	$=$
corners	$\frac{A \times C}{p^2}$	$=$	$=$
	$\frac{A \times C}{p^2}$	$=$	$=$
	$\frac{A \times C}{p^2}$	$=$	$=$
	$\frac{A \times C}{p^2}$	$=$	$=$
Girders	$\frac{A \times C}{p^2}$	$=$	$=$
	$\frac{A \times C}{p^2}$	$=$	$=$
	$\frac{A \times C}{p^2}$	$=$	$=$
	$\frac{A \times C}{p^2}$	$=$	$=$

DOMES.

SHELL.	Plate	$\frac{P-D}{a \times m}$	$=$
	Rivet	$\frac{P \times T}{C \times T \times B}$	$=$
		$\frac{D}{C \times (T-2) \times B}$	$=$
		$\frac{D}{89,600 = T^2}$	$=$



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