

W682-0266

Shipbuilder

Amended design for boilers intended for  
Short Bros

No. 307

Engineer J. Dickinson

Plan No. 565

WORKING PRESSURE 180 lbs.

TENSILE RANGE

Shell

Stays

LBS.

= 28

tons

32

tons

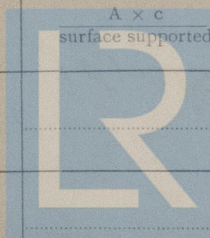
24.

-

32

LBS.

% Plate.	$\frac{P-d}{P}$	$= \frac{10 - 1\frac{9}{16}}{10} = 84.37$	Back Bottom with doubling.	$\frac{c \times (t + \frac{t}{2})^2}{\frac{1}{2}(P^2 + P^2)}$	$= \checkmark$	
% Rivets.	$\frac{a \times \text{No.} \times 1.75 \times 85}{P \times t}$	$= \frac{1\frac{9}{16} \times 5 \times 1.75 \times 85}{10 \times 1\frac{9}{16}} = 91.5$	Girders.	$\frac{c \times d^2 \times t}{(L-P \times \text{dis. apart} \times L)}$	$= \frac{9900 \times 8^2 \times 2\frac{1}{2}}{35\frac{5}{16} - 9\frac{1}{2}} \times 9 \times 35\frac{5}{16}$	200
Shell.	$\frac{c(t-2)\%}{D}$	$= \frac{2(25-2)84.37 \times 28}{27 \times 198} = 213$	Plain Furnaces. Adamson Rump	$\frac{50(300T-L)}{L \times D}$	$= \frac{50(300 \times \frac{4}{16} - 27\frac{5}{8})}{+9\frac{1}{2}}$	180
Front and Back Tops.	$\frac{c \times t^2}{\frac{1}{2}(P^2 + P^2)}$	$= \frac{185 \times 19\frac{1}{2}^2}{\frac{1}{2}(16\frac{3}{4}^2 + 17\frac{1}{2}^2)} = 240$	Do. where length exceeds 120 times plate.	$\frac{1,075,200 \times T^2}{L \times D}$		
Front Tube Plate.	$\frac{c \times t^2}{P^2}$	$= \frac{150 \times 14\frac{1}{2}^2}{13\frac{7}{8}^2} = 180.5$	Patent.			
Front Tube Plate with doubling.	$\frac{c \times (t + \frac{t}{2})^2}{P^2}$		Main Stays	$\frac{c \times a}{\text{surface supported}}$	$= \frac{10000 \times 6.1}{16\frac{3}{4} \times 14\frac{1}{2}}$	208
Back Tube Plate.	$\frac{c \times t^2}{P^2}$	$= \frac{140 \times 14\frac{1}{2}^2}{12} = 205$	17" Screw Stays.	$\frac{c \times a}{\text{surface supported}}$	$= \frac{9000 \times 2.855}{9\frac{1}{2} \times 11\frac{1}{8}}$	200
Compress Tube Plate.	$\frac{c(D-d) \times t}{W \times D}$	$= \frac{1600(4\frac{1}{2} - 2.93)}{36\frac{7}{8} \times 4\frac{1}{2}} = 220$	13" Screw Stays.	$\frac{c \times a}{\text{surface supported}}$	$= \frac{9000 \times 2.03}{9\frac{1}{2} \times 9}$	214
C. Chbr. Plate Sides.	$\frac{c \times t^2}{\frac{1}{2}(P^2 + P^2)}$	$= \frac{135 \times 11^2}{\frac{1}{2}(9\frac{3}{8}^2 + 9\frac{1}{8}^2)} = 191$	15" Screw Stays.	$\frac{c \times a}{\text{surface supported}}$		
C. Chbr. Plate Top.	$\frac{c \times t^2}{\frac{1}{2}(P^2 + P^2)}$	$= \frac{135 \times 11^2}{\frac{1}{2}(9\frac{1}{2}^2 + 9^2)} = 191$	Stay Tubes.	$\frac{A \times c}{\text{surface supported}}$		
C. Chbr. Plate Backs.	$\frac{c \times t^2}{\frac{1}{2}(P^2 + P^2)}$	$= \frac{135 \times 11^2}{\frac{1}{2}(9\frac{1}{2}^2 + 9^2)} = 191$				
Back Bottom.	$\frac{c \times t^2}{\frac{1}{2}(P^2 + P^2)}$	$= \frac{135 \times 14^2}{\frac{1}{2}(13\frac{1}{4}^2 + 9\frac{1}{2}^2)} = 200$				



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