

16575 Iron

Port

Dundee June

1876

Details of Main Boilers of the Steam Ship

"Penguin" 905.87 tons

Diameter 13' 0" outside Length 9' 6"

Thickness of shell plates $\frac{15}{16}$ inches

Description of riveting of longitudinal joints Double of circumferential joints Double

Pitch of rivets ditto $4\frac{1}{2}$ " ditto $4\frac{1}{2}$ "Diameter of rivets ditto $1\frac{3}{32}$ " ditto $1\frac{3}{32}$ "Lap of plating ditto 9" double butt ditto $4\frac{3}{4}$ " lap

No. Size of manholes in circular shell 18" x 13"

How compensated for by angle iron $3\frac{1}{2} \times 4 \times \frac{3}{4}$ riveted on

Number of furnaces in boiler Three

Diameter of furnaces 3' 3" front 2' 9" Back end Length of furnaces 6' 6 $\frac{1}{2}$ "Thickness of furnace plates $\frac{3}{8}$ inches

Description of joint of furnaces Welded

Whether strengthened with rings Flanged in center Greatest length between rings —

Thickness of combustion chamber plating $\frac{7}{16}$ inchesDiameter of screw stays to ditto $1\frac{3}{32}$ bottom & thread pitch of stays 7" V. $9\frac{3}{4}$ " HorizontalEnd plates, thickness $\frac{9}{16}$ inchesDiameter of longitudinal stays to end plates $2\frac{3}{16}$ pitch of ditto 17" x 15"

How stays are secured through end plates with nuts & washers both sides

Diameter of tubes $3\frac{1}{2}$ outside in pitch of tubes $4\frac{3}{4} \times 4\frac{3}{4}$ Thickness of tube plates $\frac{5}{8}$ inchesStayed by Tube stays with nuts pitch of stays $14\frac{1}{4} \times 14\frac{1}{4}$

Description of steam receiver Horizontal dombo

Diameter of ditto 4' 9" length of ditto 9' 9"

Thickness of plating of ditto $\frac{7}{16}$ inches ends $\frac{1}{16}$ inchesEnds, how stayed by longitudinal bolt stays $1\frac{1}{16}$ in going throughends with nuts & washers both sides of plates Pitch of do $16\frac{1}{2}$ Working pressure of shell $\frac{51520 \times 1.87 \times 75}{154 \times 6.5} = 72 \text{ lbs}$ do do Furnaces $\frac{89600 \times .136}{6.54 \times 36} = 51.7"$ do do end plates $\frac{100 \times 255}{17 \times 15} = 31\frac{1}{2}$ ends strengtheneddo do screw stays $\frac{100 \times 49}{7 \times 9.75} = 71.7"$

Bolt stays 4479 lbs per sq inch. screw stays 4770 lbs per sq inch

John Stanock

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Foundation

IRON 467-0107