



Steam Pressure = 11 kg/cm.²
Water test = 20 kg/cm.²

Engl. Lloyd's Rules.

Material tests Tensile strength.
Shell plates Min. 44 kg/cm.²
Plate-plates, furnaces and combustion-chambers 41
Stays 44
Rivets and stay bolts 41

All stay bolts are screwed through plates.
Stay bolts in back plate marked \odot are 1 3/8" and 1 1/4" diam. outside on threads, fitted with nuts inside and outside.
Stay bolts in back plate marked \ominus are 1 3/8" diam. outside on threads, fitted with nuts inside and riveted over on the outside.
Stay bolts in side plates are 1 3/8" diam. outside on threads, fitted with nuts inside and riveted over on the outside.
Stay bolts between the combustion chambers are fitted with nuts at both plates.

All stay tubes are fitted with nuts at the front plate.

Shell.

$$t = \frac{(t-1.6) \times 44 \times 80}{192 \times 343.6} = 22.2 \text{ mm.}$$

$$t' = \frac{134-2.6}{134} = 80.3\%$$

$$t'' = \frac{100 \times 36 \times 531 \times 3 \times 1.625}{44 \times 134 \times 22.5} = 81\%$$

$$t''' = \frac{100 \times (134-52)}{34} + \frac{100 \times 36 \times 531 \times 1.625}{44 \times 134 \times 22.5} = 88\%$$

Max pitch = 144 mm.

Outer strap

$$t_o = \frac{5(134-26) \times 22.5}{8(134-52)} \quad t = 18.5 \text{ mm.}$$

Inner strap

$$t_n = \frac{5(134-26) \times 22.5 \times 3}{8(134-52)} \quad t = 21.5 \text{ mm.}$$

Top of front- and back plates

$$t = \frac{7200(t-0.8)^2 \times 0.15 \times 1.625}{420 \times 420} \quad t = 23.2 \text{ mm.}$$

Front plate between the nests of tubes

$$t = \frac{11-11.11 \times (t-0.8)^2}{384 \times 106} \quad t = 22.1 \text{ mm.}$$

Front plate at the furnaces

$$t = \frac{11 - (t-0.8)^2 (5180+7500)}{520 \times 2} \quad t = 22.2 \text{ mm.}$$

Front plate in the nests of tubes

$$t = \frac{11 - (t-0.8)^2 \times 3530}{303} \quad t = 17.7 \text{ mm.}$$

Back plate between the stay bolts

$$t = \frac{11 - (t-0.8)^2 \times 4100}{382 \times 201} \quad t = 16.3 \text{ mm.}$$

Back plate between the stay bolts (in the centre of the back plate)

$$t = \frac{11 - (t-0.8)^2 \times 6200}{382 \times 201} \quad t = 19.0$$

Back plate in the bottom where the plate is stiffened by a strip.

$$t = \frac{11 - (t-0.8)^2 + 0.85 \times 14 \times (7200+7500)}{480 \times 2} = 13.8 \text{ mm.}$$

Furnaces

$$t = \frac{11 - 104400(t-0.8)^2}{(1517+610) \times 43} \quad t = 13.9 \text{ mm.}$$

Back plates and side plates of the combustion chambers

$$t = \frac{11 - (t-0.8)^2 \times 54400}{200 \times 201} \quad t = 13.6 \text{ mm.}$$

Tube plates in the combustion chambers in the nest of tubes

$$t = \frac{11 - (t-0.8)^2 \times 2740}{303} \quad t = 29.0 \text{ mm.}$$

Tube plates in the combustion chambers at the furnaces

$$t = \frac{11 - (t-0.8)^2 (3740+6300)}{420 \times 420} \quad t = 16.8 \text{ mm.}$$

Stay bolts between the combustion chambers, between the combustion chamber and the shell and between the combustion chamber and the back plate

$$d = \frac{11 - (d-6.8)^2 \times 580}{200 \times 201} \quad d_{\text{max}} = 34.4 \text{ mm } 1 3/8"$$

Stay bolts between the combustion chambers and the back plate

$$d = \frac{11 - (d-6.8)^2 \times 580}{200 \times 258} \quad d = 40.1 \text{ mm } 1 1/2"$$

Stay bolts between the combustion chambers and the back plate

$$d = \frac{11 - (d-6.8)^2 \times 580}{200 \times 258} \quad d = 38.1 \text{ mm } 1 5/8"$$

Stay tubes in the nests of the tubes

$$\text{Pressure on one stay tube marked SS} = 11(32 \times 20.7 - 4.5 \frac{11 \times 76.3}{4}) = 8200 \text{ kg.}$$

$$\text{Area of stay tube measured under the threads} = \frac{8200}{5.19} = 1556 \text{ mm}^2; \frac{11(72.5 \times X^2)}{4} = 1556; X = 57.3 \text{ mm}; 72.5 - 57.3 = 7.6 \text{ mm.}$$

$$\text{Pressure on one stay tube marked S} = 11(31.5 \times 25.0 - 4.5 \frac{11 \times 76.3}{4}) = 6400 \text{ kg.}$$

$$\text{Area of stay tube measured under the threads} = \frac{6400}{5.27} = 1215 \text{ mm}^2; \frac{11(72.5 \times X^2)}{4} = 1215; X = 60.9; 72.5 - 60.9 = 5.6 \text{ mm.}$$

Heating surface of boiler = 165 m²

(sgd) ja
12-7-27
W.B.H.

3105P KasparBaku I	
DATE: 12-7-27	REVISION: 1
TILL FOREMAL: Steam boiler.	
REFERENCE: SKALA: 1/10 1/5	
DRAWN: 4.6.27	
CHECKED: 4.8.27	
APPROVED: 4.8.27	
A.B. LINDHOLMEN - MOTALA MOTALA VERKSTAD	
PACK NO.	

NOW
NORSK TANK

85 Nike

Boiler

Gen Box 865



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Foundation