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Chris Haslego
President
Cheresources, Inc.

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1422 Goswick Ridge Road
Midlothian VA 23114

Fax: 561-658-6489
Email: support@cheresources.com

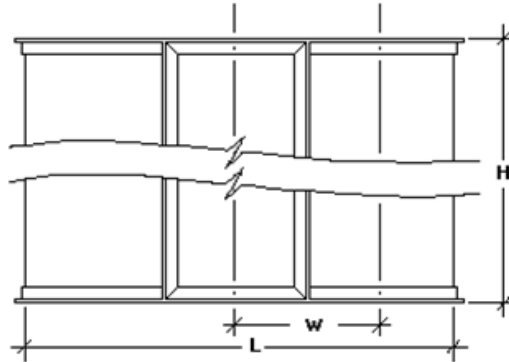
*Content Based
Chemical Engineering*

MAP - Stress & Deflection - Rectangular Plate, with Stiffeners

SERVICE:

----- **Plate** -----

- Longest Side : in. (L)
- Shortest Side : in. (H)
- Ratio of H/L :
- Ratio of H/L : Factor, α
- Ratio of H/L : Factor, β
- Plate Thickness : in.
- Corrosion Allowance : in.
- Actual Thickness : in. (t)
- Allowable Stress : psi (S)



----- **Panel** -----

- Panel Width : in. (w)
- Section Modulus of Stiffeners : in.³ (Z)

----- **MAP Calculation** -----

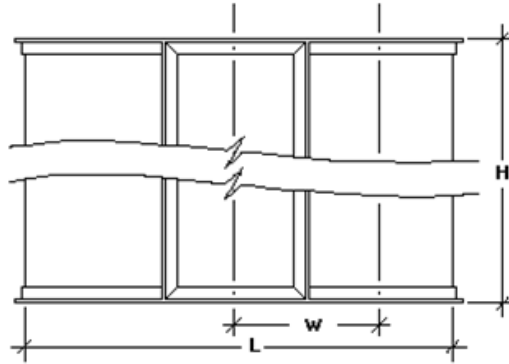
$$MAP := \left(\frac{Z}{0.0642 w \cdot H^2} \right) \cdot S = \quad \text{psi}$$

MAP - Stress & Deflection - Rectangular Plate, with Stiffeners

SERVICE:

----- **Plate** -----

- Longest Side : mm (L)
- Shortest Side : mm (H)
- Ratio of H/L :
- Ratio of H/L : Factor, α
- Ratio of H/L : Factor, β
- Plate Thickness : mm
- Corrosion Allowance : mm
- Actual Thickness : mm (t)
- Allowable Stress : kPa (S)



----- **Panel** -----

- Panel Width : mm (w)
- Section Modulus of Stiffeners : mm³ (Z)

----- **MAP Calculation** -----

$$MAP := \left(\frac{Z}{0.0642 w \cdot H^2} \right) \cdot S = \quad \text{kPa}$$

MAP/MAV - Stress & Deflection - Rectangular Plate, full edge support

BASIS : This program is for internal and external pressure on a Rectangular Plate when the Section Modulus of the stiffeners is known. Options allow calculation for the top, side and bottom plates of a vessel. The MAV calculation subtracts the dead load of the plate (W/A) from the top segment.

NOTE : Always begin a new case by retrieving the original file. Direct entry of data in cells that originally contain table lookups could cause functions to be lost and/or incorrect calculations. Cells that require data entry are colored **RED**; calculated values are black.

REFERENCES :

- 1) *A method for designing rectangular storage tanks.* - Kanti K. Mahajan
Chemical Engineering - March 28, 1977
- 2) *Pressure Vessel Handbook - 11th Edition*
- 3) *Manual of Steel Construction - Allowable Stress Design - A.I.S.C. 9th Edition*

◇-◇-◇-◇-◇ ProcSafety May 2011, by Mark Roote ◇-◇-◇-◇-◇

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procsafety@rooteshome.com