

Rectangular Tank volume formula

tankvolumecalc.com/formulas/rectangular-tank/

Total volume, exact partial fill, derivation, worked example and a copy-ready fill table.

TOTAL VOLUME

$$V = L \cdot W \cdot H$$

PARTIAL FILL AT LIQUID DEPTH H

$$V(h) = L \cdot W \cdot h$$

Derivation

Linear in depth, like the vertical cylinder: every slice is the same L×W rectangle. The only working hazard is units — 1 US gallon = 231 cubic inches exactly.

Worked example

Take L = 48 in, W = 24 in, H = 30 in. Total capacity: 149.6 gal. At a stick reading of 12 in (40% of the 30 in maximum depth), the filled volume is 59.8 gal — 40% of capacity. Check it live on the calculator.

Fill ratio: % of depth → % of volume (any rectangular tank (linear))

Depth	Volume
5%	5%
10%	10%
15%	15%
20%	20%
25%	25%
30%	30%
35%	35%
40%	40%
45%	45%
50%	50%
55%	55%
60%	60%
65%	65%
70%	70%
75%	75%
80%	80%
85%	85%
90%	90%
95%	95%

Need the full inch-by-inch table for specific dimensions? The dip chart generator prints it as a laminate-ready PDF.

FAQ

Q. What is the formula for a rectangular tank volume?

Total: $V = L \cdot W \cdot H$. Partial fill at depth h: $V(h) = L \cdot W \cdot h$. Derivation and a worked example are above.

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Q. Is the fill-ratio table exact?

Yes — computed by the same engine as our calculators (any rectangular tank (linear)), verified by the automated test suite described on the methodology page.

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Q. Can I use this in a spreadsheet?

Yes — the formulas are closed-form (acos and sqrt only). Copy the 5%-step table for quick interpolation, or implement the formula directly for exact values.

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