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Simple Connections Formulas

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List of 8 Simple Connections Formulas

Simple Connections

Welded Connections

1) Carbon Content

fx

Open Calculator 

$$C = C_{Eq} - \left(\left(\frac{Mn}{6} \right) + \left(\frac{Cr + Mo + V}{5} \right) + \left(\frac{Ni + Cu}{15} \right) \right)$$

ex

$$14.99667 = 21.68 - \left(\left(\frac{2.5}{6} \right) + \left(\frac{4 + 6 + 3}{5} \right) + \left(\frac{20 + 35}{15} \right) \right)$$

2) Carbon Equivalent of Structural Steel

fx

Open Calculator 

$$C_{Eq} = C + \left(\frac{Mn}{6} \right) + \left(\frac{Cr + Mo + V}{5} \right) + \left(\frac{Ni + Cu}{15} \right)$$

ex

$$21.68333 = 15 + \left(\frac{2.5}{6} \right) + \left(\frac{4 + 6 + 3}{5} \right) + \left(\frac{20 + 35}{15} \right)$$



3) Chromium Content given Carbon Equivalent

fx

Open Calculator 

$$C_{Cr} = \left(C_{Eq} - C - \left(\frac{Mn}{6} \right) - \left(\frac{Ni + Cu}{15} \right) - \left(\frac{Mo + V}{5} \right) \right) \cdot 5$$

ex

$$3.983333 = \left(21.68 - 15 - \left(\frac{2.5}{6} \right) - \left(\frac{20 + 35}{15} \right) - \left(\frac{6 + 3}{5} \right) \right) \cdot 5$$

4) Copper given Carbon Equivalent

fx

Open Calculator 

$$C_{Cu} = \left(C_{Eq} - C - \left(\frac{Mn}{6} \right) - \left(\frac{Cr + Mo + V}{5} \right) - \left(\frac{Ni}{15} \right) \right) \cdot 15$$

ex

$$34.95 = \left(21.68 - 15 - \left(\frac{2.5}{6} \right) - \left(\frac{4 + 6 + 3}{5} \right) - \left(\frac{20}{15} \right) \right) \cdot 15$$

5) Manganese Content

fx

Open Calculator 

$$Mn = \left(C_{Eq} - \left(C + \left(\frac{Cr + Mo + V}{5} \right) + \left(\frac{Ni + Cu}{15} \right) \right) \right) \cdot 6$$

ex

$$2.48 = \left(21.68 - \left(15 + \left(\frac{4 + 6 + 3}{5} \right) + \left(\frac{20 + 35}{15} \right) \right) \right) \cdot 6$$



6) Molybdenum given Carbon Equivalent 

fx

Open Calculator 

$$\text{Mo} = \left(C_{\text{Eq}} - C - \left(\frac{\text{Mn}}{6} \right) - \left(\frac{\text{Ni} + \text{Cu}}{15} \right) - \left(\frac{\text{Cr} + \text{V}}{5} \right) \right) \cdot 5$$

ex

$$5.983333 = \left(21.68 - 15 - \left(\frac{2.5}{6} \right) - \left(\frac{20 + 35}{15} \right) - \left(\frac{4 + 3}{5} \right) \right) \cdot 5$$

7) Nickel Content given Carbon Equivalent 

fx

Open Calculator 

$$\text{Ni} = \left(C_{\text{Eq}} - C - \left(\frac{\text{Mn}}{6} \right) - \left(\frac{\text{Cr} + \text{Mo} + \text{V}}{5} \right) - \left(\frac{\text{Cu}}{15} \right) \right) \cdot 15$$

ex

$$19.95 = \left(21.68 - 15 - \left(\frac{2.5}{6} \right) - \left(\frac{4 + 6 + 3}{5} \right) - \left(\frac{35}{15} \right) \right) \cdot 15$$

8) Vanadium given Carbon Equivalent 

fx

Open Calculator 

$$\text{V} = \left(C_{\text{Eq}} - C - \left(\frac{\text{Mn}}{6} \right) - \left(\frac{\text{Ni} + \text{Cu}}{15} \right) - \left(\frac{\text{Cr} + \text{Mo}}{5} \right) \right) \cdot 5$$

ex

$$2.983333 = \left(21.68 - 15 - \left(\frac{2.5}{6} \right) - \left(\frac{20 + 35}{15} \right) - \left(\frac{4 + 6}{5} \right) \right) \cdot 5$$



Variables Used









- **C** Carbon Content
- **C_{Eq}** Equivalent Carbon
- **Cr** Chromium Content
- **Cu** Copper Content
- **Mn** Manganese Content
- **Mo** Molybdenum Content
- **Ni** Nickel Content
- **V** Vanadium Content



Constants, Functions, Measurements used



Check other formula lists

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- **Base and Bearing Plates Formulas** 
- **Bearing, Stresses, Plate Girders & Ponding Considerations Formulas** 
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