Steel Reinforcement Bar (Rebar) Weight, d²/162

Mass of steel reinforcement bars per metre and in total from the diameter, length and number of bars, by the exact formula and by the site rule d²/162.

Method: Mass of a round bar ρπd²/4; site rule d²/162 (d in mm)

Input parameters

Unit system: SI

Parameter	Value	Unit
Bar diameter	12.000	mm
Length of one bar	12.000	m
Number of bars	100.00	
Density of steel	7,850.0	kg/m³

Calculated results

Parameter	Value	Unit
Mass per metre ρ π d² / 4	0.88781	kg/m
Mass per metre by the site rule d²/162	0.88889	kg/m
Mass of one bar	10.654	kg
Total mass	1,065.4	kg

Notes for this case

• d²/162 (d in mm, kg/m) is ρπd²/4 for steel at 7850 kg/m³ with the divisor 162.2 rounded to 162, so it reads about 0.1 % high. It is fixed to 7850 kg/m³ and does not follow the density entered. Order quantities still need lap, bend and wastage allowances.

Formula and method

$$w = \rho \frac{\pi d^2}{4}, \quad w_{162} = \frac{d_{mm}^2}{162} \ \mathrm{kg/m}$$

$$m = w\, L\, n$$

Variables

d	Bar diameter	m
L	Length of one bar	m
n	Number of bars	-
ρ	Density of steel	kg/m³
w	Mass per metre ρ π d² / 4	kg/m
w_{162}	Mass per metre by the site rule d²/162	kg/m
m_1	Mass of one bar	kg
m	Total mass	kg

Method and standards

Mass of a round bar of steel at 7850 kg/m³.

Assumptions and limits

- Nominal diameter.
- The site rule d²/162 is fixed to steel at 7850 kg/m³; if you enter another density only the exact result w follows it.

References

• Mass of a round bar ρπd²/4; site rule d²/162 (d in mm)

Report details

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Method last reviewed	12 November 2026
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Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/civil/concrete/rebar-weight

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.