

Cable Jacket Diameter Calculator

Calculate nominal and tolerance-adjusted cable outside diameter and circular area from conductor diameter and concentric layer thicknesses.

Generated October 10, 2026

<https://www.elecatrrix.com/wire-raceway-ampacity/cable-jacket-diameter-calculator/>

Inputs

Input	Value	Unit
Conductor diameter	0.4	in
Insulation thickness	0.08	in
Shield or tape thickness	0.02	in
Jacket thickness	0.06	in
Diameter tolerance allowance	5	%

Results

Result	Value	Unit
Nominal outside diameter	0.72	in
Maximum planning diameter	0.756	in
Nominal cross-sectional area	0.4072	sq in
Maximum planning cross-sectional area	0.4489	sq in
Single-side layer build	0.16	in

Calculation details

Detail	Value	Unit
Calculation basis	Entered layer thicknesses are doubled around the conductor diameter, then circular area is calculated.	
Cable review boundary	Geometry estimate only; manufacturer cable data, listing, pulling limits, and raceway fill review remain external.	

Formulas

$$t_{\text{layer}} = t_{\text{insulation}} + t_{\text{shield/tape}} + t_{\text{jacket}}$$

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$$D_{\text{nominal}} = D_{\text{conductor}} + 2t_{\text{layer}}$$

$$D_{\text{planning}} = D_{\text{nominal}} \times (1 + \text{fracT_}\%100)$$

$$A = \pi((D/2))^2$$

Warnings and limitations

This geometry worksheet uses entered layer thicknesses. It does not replace manufacturer cable data, listing information, pulling limits, bend radius, or raceway fill review.