

Cable Reel Capacity Calculator

Estimates cable length, remaining reel capacity, and winding layers from reel geometry, cable outside diameter, packing factor, and existing cable length.

Generated October 10, 2026

<https://www.elecatrix.com/wire-raceway-ampacity/cable-reel-capacity-calculator/>

Inputs

Input	Value	Unit
Reel flange diameter	48	in
Reel core diameter	12	in
Reel traverse width	24	in
Cable outside diameter	1	in
Packing factor	85	%
Current cable on reel	1000	ft
Reel and cable note	Record reel model, cable construction, bend radius, and winding method separately.	

Results

Result	Value	Unit
Estimated reel capacity	3672	ft
Estimated remaining capacity	2672	ft
Estimated layer count	36	layers
Used capacity	27.2331	%

Calculation details

Detail	Value	Unit
Calculation basis	Capacity uses the reel annulus volume, traverse width, entered packing factor, and cable cross-sectional area. It is a geometry estimate, not a certified reel rating.	

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Reel boundary

Verify reel manufacturer limits, cable bend radius, flange clearance, winding method, handling, tare weight, and product data separately. No reel certification or safe handling result is made.

Formulas

$$V_{\text{annulus}} = (\pi/4)(D_{\text{flange}}^2 - D_{\text{core}}^2)W$$

$$V_{\text{usable}} = V_{\text{annulus}} \times (P/100)$$

$$A_{\text{cable}} = (\pi/4)d^2$$

$$L_{\text{capacity,ft}} = \frac{V_{\text{usable}}}{A_{\text{cable}}} \times 12$$

$$L_{\text{remaining}} = \max(L_{\text{capacity,ft}} - L_{\text{current}}, 0)$$

$$N_{\text{layers}} = \frac{D_{\text{flange}} - D_{\text{core}}}{d}$$

Warnings and limitations

This is a reel logistics estimate. It does not certify reel capacity, cable bend radius, flange clearance, winding tension, tare weight, transport, or safe handling.