

Wire Pulling Tension Calculator

Estimates conductor weight, pulling tension, sidewall pressure, and tension per conductor from a simplified pull-route model.

Generated October 10, 2026

<https://www.elecatrix.com/wire-raceway-ampacity/wire-pulling-tension-calculator/>

Inputs		
Input	Value	Unit
Conductor count	3	
Conductor weight	50	lb/1000 ft
Pull length	200	ft
Friction coefficient	0.35	
Starting tension	25	lb
Bend radius	24	in
Results		
Result	Value	Unit
Total conductor weight	30	lb
Friction tension component	10.5	lb
Estimated pulling tension	35.5	lb
Bend radius	2	ft
Estimated sidewall pressure	17.75	lb/ft
Tension per conductor	11.8333	lb
Calculation details		
Detail	Value	Unit
Calculation basis	Straight-pull tension estimate equals starting tension plus total conductor weight times the entered friction coefficient. Sidewall pressure divides that tension by bend radius in feet.	

Wire Pulling Tension Calculator

Estimates conductor weight, pulling tension, sidewall pressure, and tension per conductor from a simplified pull-route model.

Generated October 10, 2026

<https://www.elecatrrix.com/wire-raceway-ampacity/wire-pulling-tension-calculator/>

Selection boundary

Pulling estimate only; verify raceway route, bends, lubricant, cable limits, sidewall pressure limits, equipment ratings, and manufacturer guidance.

Formulas

$$W_{total} = N \times w_{1000ft} \times \frac{L_{ft}}{1000}$$

$$T_{friction} = W_{total} \times \mu$$

$$T_{pull} = T_{start} + T_{friction}$$

$$r_{ft} = \frac{r_{in}}{12}$$

$$P_{sidewall} = \frac{T_{pull}}{r_{ft}}$$

$$T_{per\ conductor} = \frac{T_{pull}}{N}$$

Warnings and limitations

This is a wire-pulling planning estimate only. It does not verify cable maximum pulling tension, sidewall pressure limits, raceway condition, lubricant, equipment ratings, or code compliance.