

### GREENLEE CABLE PULL TENSION ESTIMATOR

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Total Wt. per Ft. of Cables (lb) =	Coefficient of Friction=		Initial Cable Tension =						
	1st Leg	2nd Leg	3rd Leg	4th Leg	5th Leg	6th Leg	7th Leg	8th Leg	9th Leg
Length to Next Bend (ft)									
Vertical Rise(+) or Drop (-)									
Bend Angle at end of leg									
Force									

See Sheet 2 for example

See Sheet 3 for 600v copper cable weights per ft.

This is an easy to use tool to give an approximation of the pull force that will be required to install electrical cable into a conduit. There are many unknown factors involved that prohibit giving exact results. Most notable amongst these is the coefficient of friction. Lubrication, surface texture, and lay of the cable are never uniform along the length of a conduit run. Comparing the known forces of pulls against the estimated force should give you a guide as to a good coefficient of friction to use for similar future pulls. In lieu of this, the table on the right has some suggested starting points for coefficient of friction of well-lubricated cable. If lubricant is not used, triple the values in the table.

Data is entered by “Legs”. Each Leg is a straight run of conduit followed by a bend, except for the last Leg, which would typically have no bend. In the “Length to Next Bend” box, enter the length of the straight run from the start or from the previous Leg to the next Leg or end of the run. If the Leg changes elevation, enter how much in the “Vertical Rise or Drop” box. Use a negative value if the cable will descend. If the Leg ends in a bend, enter the degrees of bend in the “Bend Angle” box. Repeat these steps with all the legs until done.

Enter the total cable weight and a coefficient of friction in the respective boxes. You can use Sheet 3 to automatically enter the cable weight. If there is a known drag on the cable before it enters the conduit, that force can be entered in the Initial Cable Tension box. The estimated pull force will be displayed at the bottom of each leg column.

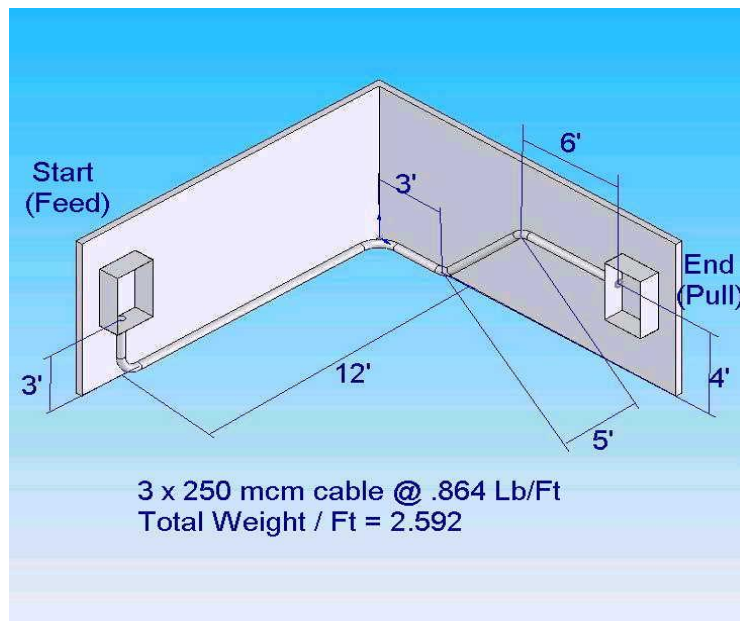
Duct Material	Cable Insulation
PVC, PE, Concrete	XLPE, PE, Neo., Nylon
PVC, PE, Concrete	PVC
Steel	XLPE, PE, Neo., Nylon
Steel	PVC
Steel	Pb

Weight Correction Factor is 1.000



Coef. of Friction	
1	0.15-0.20
	0.30-0.40
1	0.25-0.35
	0.30-0.40
	0.20-0.25

Total Wt. per ft. of Cable (lb) =	2.592	Coefficient of Friction=	0.3	Initial Cable Tension =	0				
	1st Leg	2nd Leg	3rd Leg	4th Leg	5th Leg	6th Leg	7th Leg	8th Leg	9th Leg
Length to Next Bend (ft)	3	12	3	5	6				
Vertical Rise(+) or Drop (-)	-3			4					
Bend Angle at End of Leg	90	90	45	45					
Force	-4.9	7.2	12.0	31.3	36.0				



10th Leg

### Typical THHN and THWN 600 volt copper cable weight per foot

Wire Size	Wt/Ft.	Number Used	Quantity wt.
14 Ga.	.017		0
12 Ga.	.025		0
10 Ga.	.040		0
8 Ga.	.065		0
6 ga.	.098		0
4 Ga.	.157		0
3 Ga.	.195		0
2 Ga.	.240		0
1 Ga.	.305		0
1/0	.378		0
2/0	.470		0
3/0	.585		0
4/0	.730		0
250 mcm	.864		0
300 mcm	1.028		0
350 mcm	1.192		0
400 mcm	1.365		0
500 mcm	1.678		0
600mcm	2.023		0
750 mcm	2.508		0
1000mcm	3.230		0

**Total Weight per Foot = 0**

Conduit I.D. =

**JAMMING IS NOT PROBABLE**

◀ If a weight value is displayed  
does not need to be entered

Enter the number of each cable size to be used. (i.e. 3x350mcm and 1x4/0).  
Enter the inside diameter of the conduit being used.

ayed here, it  
d on sheet 1.

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