

# Cable Length

## Don't Cut Yourself Short!

### CALCULATIONS FOR ORDERING OR CUTTING

$$\text{Cable Length} = \mathbf{1} + \mathbf{2} + \mathbf{3}$$

**1** **EXTRA CABLE AT REEL**, shown in TABLE 1 or TABLE 2 on the facing page, is **REQUIRED** for internal connections and one safety wrap. The safety wrap is wound onto the reel.

**2** **ACTIVE CABLE** is the amount of cable you will require to cover the Active Travel distance. **THIS CABLE IS WOUND ONTO THE REEL.** See "Selecting".

**3** **OVERHANG** means any extra cable you require beyond Active Travel. **THIS CABLE MUST NOT BE WOUND ONTO THE REEL.** The reel is not designed to wind or lift the weight of this extra cable.

**REMINDER: Cable Length is NEVER equal to Active Travel or Total Travel.**

**NOTE:**  
**IF GLEASON SUPPLIES THE CABLE**, correct cable length, rounded up to the nearest foot, is automatically calculated **based on your input.**  
  
**IF YOU ARE CUTTING YOUR OWN CABLE**, please follow our calculation method shown on this page.

Reels in this catalog are calculated to handle factors **1** and **2** ONLY. If you have any **OVERHANG** (factor **3**), we will be happy to make specific reel model calculations for you.

### EXAMPLES

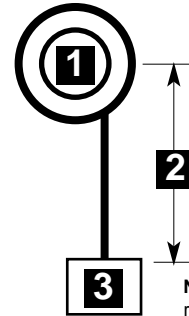
#### Lift

A reel is needed for lifting 10C #14 cable. Active Travel is 40.0 ft. [Lift Selection Chart](#) shows Model No. S16801-103-9-1.

- Refer to Table 1 (right). Plotting a 9 inch diameter drum and slip ring assembly **103** specifies that this reel requires five extra feet of cable at the reel.
- Active Cable is equal to the 40.0 ft. of Active Travel.
- No overhang is required.

$$\begin{array}{r} \mathbf{1} = 5.0 \\ \mathbf{2} = 40.0 \\ \mathbf{3} = 0 \\ \hline 45.0 \end{array}$$

Therefore:  
**CUT 45 FT.**



**NOTE:** If reel and cable will be required to lift (support) an added weight of any kind, this must be considered. Consult factory

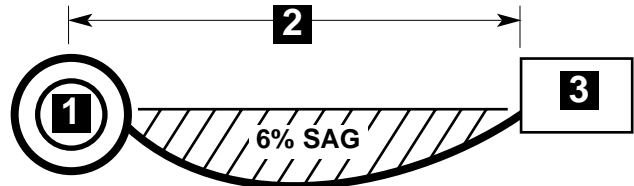
#### Stretch

A reel is needed for stretching 10C #14 cable in one direction. Active Travel is 40.0 ft. [Stretch Selection Chart](#) shows Model No. S16801-103-9-1.

- Refer to Table 1 (right). Plotting a 9 inch diameter drum and slip ring assembly **103** specifies that this reel requires five extra feet of cable at the reel.
- Because of the 6% sag, Active Cable is *greater than* the 40.0 ft. of Active Travel.  
 Active Cable = Active Travel x 1.01  
 Active Cable = 40.0 x 1.01  
 Active Cable = 40.4 ft.
- Overhang of 3.5 feet is required.

$$\begin{array}{r} \mathbf{1} = 5.0 \\ \mathbf{2} = 40.4 \\ \mathbf{3} = 3.5 \\ \hline 48.9 \end{array}$$

Therefore:  
**CUT 49 FT.**



**NOTE:** Gleason S-Reel springs maintain sag at 6%. For greater sag factors, please consult us.

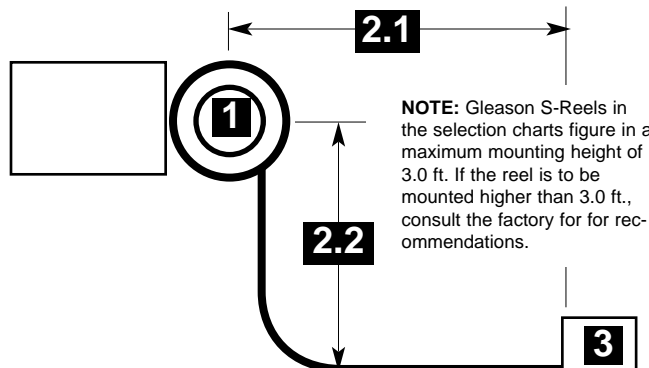
#### Retrieve

A reel is needed for retrieving 10C #14 cable. Active Travel is 40.0 ft. and reel is mounted 2.5 ft. above the ground (lift height). [Retrieve Selection Chart](#) shows Model No. S16621-103-9-5.

- Refer to Table 1 (right). Plotting a 9 inch diameter drum and slip ring assembly **103** specifies that this reel requires five extra feet of cable at the reel.
- Because of **LIFT HEIGHT**, Active Cable is *greater than* the 40.0 ft. of Active Travel.  
 2.1 Active Travel = 40.0 ft.  
 2.2 Lift Height = 2.5 ft.  
 2.0 Active Cable = 40.0 + 2.5 = 42.5 ft.
- Overhang of 3.5 feet is required.

$$\begin{array}{r} \mathbf{1} = 5.0 \\ \mathbf{2} = 42.5 \\ \mathbf{3} = 3.5 \\ \hline 51.0 \end{array}$$

Therefore:  
**CUT 51 FT.**



**NOTE:** Gleason S-Reels in the selection charts figure in a maximum mounting height of 3.0 ft. If the reel is to be mounted higher than 3.0 ft., consult the factory for for recommendations.

**TABLE 1**

**Series "S"**

"EXTRA CABLE AT REEL" for Series "S" reels includes one safety wrap around the drum, cable through the shaft and cable connections to the slip ring leads.

When you have selected a reel model, the model number will indicate drum diameter and slip ring assembly code.

Using the lift example from the facing page:

Reel Model No.: **S16801 - 103 - 9 - 1**

Drum Dia.	EXTRA CABLE AT REEL (FEET)							
	4	5	5	5	6	6	6	5
8	4	5	5	5	6	6	6	5
9	5	5	5	6	6	6	7	5
10	5	5	6	6	6	7	7	5
11	5	6	6	6	7	7	7	6
12	6	6	6	7	7	7	8	6
13	6	6	7	7	7	8	8	6
14	6	7	7	7	8	8	8	7
15	7	7	7	8	8	8	9	7
16	7	7	8	8	8	9	9	7
17	7	8	8	8	9	9	9	8
18	8	8	8	9	9	9	10	8
19	8	8	9	9	9	10	10	8
20	8	9	9	9	10	10	10	9
21	9	9	9	10	10	10	11	9
22	9	9	10	10	10	11	11	9
23	9	10	10	10	11	11	11	10
24	10	10	10	11	11	11	12	10
23	63	103	203	243	303	363	27	412
33	83	123					37	220
43		143					47	320
		163					212	420
		312						

**TABLE 2**

**Series "WB"**

MODEL No.	EXTRA CABLE AT REEL (FT)
WB-60-25	Active Cable Length (ft) x 0.23 + 5
WB-75-25	Active Cable Length (ft) x 0.15 + 5
WB-100-60	Active Cable Length (ft) x 0.23 + 5
WB-100-100-60	Active Cable Length (ft) x 0.20 + 5

"EXTRA" CABLE AT REEL" for Series "WB" reels includes one safety wrap around the active cable drum, inactive cable to compensate for rotation of active drum and cable through the shaft. **EXAMPLE:** Model No. WB-60-25 with an active travel of 40.0 ft. will need (40 x 0.23) + 5 feet of cable, rounded up. 40 x 0.23 = 9.2; 9.2 + 5 = 14.2; 14.2 rounded up = 15 feet **EXTRA** cable required.

**SLIP RING ASSEMBLY**

**Type SO Cable—600 Volt**

16 AWG			14 AWG			12 AWG			10 AWG		
No. Cond.	Dia. In.	Weight lb/ft	No. Cond.	Dia. In.	Weight lb/ft	No. Cond.	Dia. In.	Weight lb/ft	No. Cond.	Dia. In.	Weight lb/ft
2	0.374	0.094	2	0.512	0.158	2	0.586	0.204	2	0.638	0.250
3	0.393	0.110	3	0.538	0.184	3	0.616	0.244	3	0.671	0.310
4	0.427	0.144	4	0.584	0.224	4	0.668	0.282	4	0.730	0.371
5	0.510	0.156	5	0.665	0.260	5	0.725	0.322	5	0.796	0.425
6	0.565	0.178	6	0.710	0.302	6	0.805	0.380	6	0.883	0.485
7	0.605	0.202	7	0.710	0.329	7	0.865	0.435	7	0.982	0.593
8	0.645	0.222	8	0.770	0.373	8	0.920	0.475	8	1.052	0.650
9	0.720	0.268	9	0.820	0.414	9	1.020	0.550	9	1.127	0.725
10	0.720	0.278	10	0.885	0.434	10	1.020	0.581	10	1.127	0.760
12	0.740	0.305	12	0.905	0.481	12	1.050	0.645	12	1.153	0.850
14	0.775	0.348	14	1.000	0.556	14	1.105	0.743	14	1.287	1.118
16	0.825	0.386	16	1.050	0.657	16	1.160	0.840	20	1.455	1.400
18	0.860	0.430	18	1.110	0.715	18	1.227	0.925			
20	0.900	0.466	20	1.150	0.785	20	1.287	1.005			
22	0.940	0.503	22	1.210	0.857	22	1.370	1.140			
24	1.015	0.564	24	1.320	0.920	24	1.443	1.225			
26	1.015	0.604	26	1.350	0.986						
28	1.070	0.654	28	1.370	1.098						
30	1.070	0.677	30	1.390	1.138						
32	1.120	0.714									
34	1.155	0.807									
36	1.155	0.820									

**Type W Cable—600 Volt**

AWG Size	No. Cond.	Dia. In.	Weight lb/ft
8	2	0.788	0.328
	3	0.894	0.470
	4	0.966	0.583
6	2	0.872	0.425
	3	0.983	0.614
	4	1.068	0.769
4	2	1.040	0.780
	3	1.068	0.797
	4	1.166	1.019
2	2	1.177	0.888
	3	1.244	1.152
	4	1.326	1.429
1	2	1.365	1.090
	3	1.413	1.491
	4	1.548	1.877
1/0	2	1.454	1.386
	3	1.539	1.805
	4	1.686	2.309

**Type G-GC Cable—600 Volt**

AWG Size	No. Cond.	Dia. In.	Weight lb/ft
8	3	0.915	0.661
6	3	1.000	0.792
4	3	1.120	1.088
2	3	1.250	1.436
1	3	1.440	1.856

**Type SO Shielded Cable—600 Volt**

AWG Size	No. Cond.	Dia. In.	Weight lb/ft
18	4	0.422	0.122
16	4	0.447	0.165
14	4	0.605	0.257

Whenever possible, refer to specific manufacturer's information regarding cable. If this information is not available, these charts are composites and may be used as guides to typical cable sizes and weights.

Refer to National Electric Code for ampere ratings and other details.