

Useful Tables

Belt Width (in)	Material Carried (lbf/ft <sup>3</sup> )		
	30 to 74	75 to 129	130 to 200
	Estimated Average Belt Weight (lbf/ft)		
18	3.5	4.0	4.5
24	4.5	5.5	6.0
30	6.0	7.0	8.0
36	9.0	10.0	12.0
42	11.0	12.0	14.0
48	14.0	15.0	17.0
54	16.0	17.0	19.0
60	18.0	20.0	22.0
72	21.0	24.0	26.0
84	25.0	30.0	33.0
96	30.0	35.0	38.0

1. Steel cable belts - increase the above values by 50%.  
 2. Actual belt weights vary with different constructions, manufacturers, cover gages, etc. Use the above values for estimating. Obtain actual values from the belt manufacturer whenever possible.

Some troughing idlers are designed to operate with a small degree of tilt in the direction of belt travel, to aid in belt training. This tilt results in a slight increase in sliding friction that must be considered in the horsepower formula.

Values of  $K_x$  can be calculated from the equation:

**Figure C.2**  
Equation for Values of  $K_x$  (5<sup>th</sup> Edition Ref. (3))

$$K_x = 0.00068 \times (W_b + W_m) + \frac{A_i}{S_i} \text{ lbf tension per ft of belt length}$$

Where:

$A_i$  = Dimensionless factor from Table F.3

$S_i$  (ft) = Idler spacing

$W_b$  (lbf/ft) = Belt weight per running ft.

$W_m$  (lbf/ft) = Bulk material conveyed, weight per running ft.

← Should Read Table C.3

$A_i$	Roll Diameter (in)	CEMA Idler Class
1.5	6	C6 D6
1.8	5	B5 C5 D5
2.3	4	B4 C4
2.4	7	E7
2.8	6	E6
0.0	For Regenerative Conveyors	

The  $A_i$  values tabulated above are averages and include frictional resistance to rotation for both the carrying and return idlers. Return idlers are based on single roll type. If two roll V return idlers are used, increase  $A_i$  value by 5%. In the case of long conveyors or very high belt speed (over 1,000 fpm) refer to CEMA member companies for more specific values of  $A_i$ .