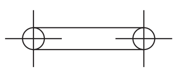
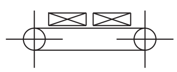
Calculation of Required Belt Pull (Force)

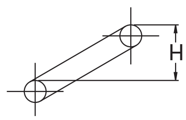
F = Belt Pull [lbs] = $F = F_0 + F_1 + F_2 + F_3$
The belt pull for each motorized pulley is given in the tables of the range of standard
products. Note that available belt pull varies with nominal belt speed for each power.

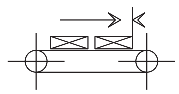
P_n	=	Belt weight per linear foot	[lb/ft]
P_{pr}	=	Weight of rotating parts of the belt conveyor per foot length (carrying and return section)	[lb/ft]
P_{m1}	=	Weight in lbs of the conveyed product on the load section, for each foot of length of the belt conveyor	[lb/ft]
P_{m2}	=	Weight in lbs of the conveyed product on the return section, for each foot of length of the belt conveyor	[lb/ft]
C_1	=	Coefficient of friction between product and belt carrying side	
C_2	=	Coefficient of friction between belt carrying side and slider bed	
C_3	=	Coefficient of friction between return belt and product	
C_4	=	Coefficient of friction between return belt side and slider bed	
L	=	Length of the conveyor in feet	[ft]
H	=	Height difference in conveyor	[ft]
F_0 to F_3	=	Forces (belt pull) required to move conveyor, as defined below.	[lb]

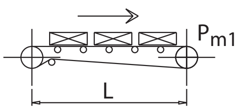
Calculation of Required Belt Pull (Force)

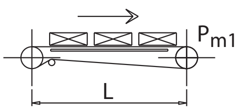


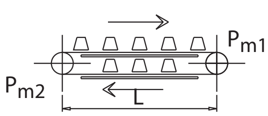












Conveying system	Force without load	Force to convey materials horizontally	Force to convey materials on incline	Accumulation
Roller bed conveyor	$F_0 = 0.04 \cdot L \cdot (2P_n + P_{pr})$	$F_1 = 0.04 \cdot L \cdot P_{m1}$	$F_2 = H \cdot P_{m1}$	$F_3 = L \cdot P_{m1} \cdot C_1$
Slider bed conveyor	$F_0 = 1.1 \cdot L \cdot P_n \cdot C_2$	$F_1 = 1.1 \cdot L \cdot P_{m1} \cdot C_2$	$F_2 = H \cdot P_{m1}$	$F_3 = L \cdot P_{m1} \cdot C_1$
Double slider bed conveyor	$F_0 = L \cdot P_n \cdot (C_2 + C_4)$	$F_1 = L \cdot (P_{m1} \cdot C_2 + P_{m2} \cdot C_4)$	$F_2 = H \cdot (P_{m1} - P_{m2})$	$F_3 = L \cdot (P_{m1} \cdot C_1 + P_{m2} \cdot C_3)$