

# Technical

## CALCULATING HORSEPOWER INCLINE/DECLINE - SLIDER BED



### BELT CONVEYORS (INCLINE OR DECLINE)

**+ Product (Total Live Load)**  
**+ Belt Weight (See Belt Weights Chart)**  
**+ Drive Weight (250#)**  
**= Subtotal**  
**x .30 Friction Factor**  
**= Subtotal**  
**+ (Actual Live Load on Incline Portion of Conv. x Sine of Incline--See Sines Chart)**  
**= Subtotal**  
**x 1.25 (25% Contingency Factor)**  
**= Effective Belt Pull**  
**x Speed of Conveyor**  
**÷ 33,000 Horsepower Factor**  
**÷ .95 Chain Reductions**  
**÷ .85 GRE / Reducer Losses**  
**= Horsepower**

SINES			
DEGREE	SINE	DEGREE	SINE
5°	.08715	21°	.35837
10°	.17365	22°	.37461
11°	.19081	23°	.39073
12°	.20791	24°	.40674
13°	.22495	25°	.42262
14°	.24192	26°	.43837
15°	.25882	27°	.45399
16°	.27364	28°	.46947
17°	.29237	29°	.48481
18°	.30902	30°	.50000
19°	.32557	35°	.57358
20°	.34202	40°	.64279

BELT WEIGHTS								
BELT WIDTH	6"	12"	18"	24"	30"	36"	42"	48"
BELT	BELT WEIGHTS (lbs.) PER FOOT OF BELTING (Not Conveyor)							
PVC-120 (CxFS)	.51	1.02	1.53	2.04	2.55	3.06	3.57	4.08
PVC-120 (FSxFS)	.24	.48	.72	.96	1.20	1.44	1.68	1.92
PVC RUFF TOP	.45	.90	1.35	1.80	2.25	2.70	3.15	3.60
NOTE: <b>PVC-150 (CxFS) is .241 #/ft. with 2-1/4" belt width.</b>								