

Technical

CALCULATING HORSEPOWER INCLINE/DECLINE - ROLLER BED



ROLLER BED BELT CONVEYORS (INCLINE OR DECLINE)

- + Product (Total Live Load)
- + Belt Weight (see below)
- + Roller Weight (see below)
- + 250 Drive Weight
- = Subtotal
- x .05 Friction Factor
- = Subtotal
- + (Actual Live Load on Incline Portion of Conv. x Incline Sine-See Sine 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: PVC-150 (CxFS) is .241 #/ft. with 2-1/4" belt width.								

ROLLER WEIGHTS									
BF	7"	11"	13"	15"	17"	19"	21"	23"	25"
MODEL	ROLLER WEIGHTS (lbs.)								
196S	1.6	2.2	2.5	2.7	2.9	3.3	3.6	3.8	4.1
196G	1.6	2.3	2.6	2.8	3.0	3.4	3.7	3.9	4.3
192S	2.3	3.4	3.8	4.5	5.2	5.6	6.0	6.6	7.2
199S	2.6	4.0	4.5	5.3	6.1	6.6	7.1	7.8	8.5
254S	2.1	3.0	3.4	3.9	4.4	4.8	5.2	5.7	6.2
251S	4.2	5.6	6.4	7.1	7.8	8.5	9.2	9.9	10.7
297S	4.6	6.7	7.6	8.7	9.8	10.8	11.8	12.3	13.8
3509S	6.5	8.8	9.9	11.0	12.1	13.3	14.4	15.6	16.7
3530S	11.2	15.9	18.3	20.6	23.0	25.3	27.6	30.0	32.3

ROLLER WEIGHTS									
BF	27"	31"	33"	35"	37"	39"	43"	47"	51"
MODEL	ROLLER WEIGHTS (lbs.)								
196S	4.4	4.9	5.2	5.5	5.8	6.1	6.7	7.3	7.8
196G	4.6	5.1	5.4	5.7	6.0	6.3	7.0	7.6	8.1
192S	7.7	8.8	9.4	9.9	10.6	11.0	12.1	13.2	14.3
199S	9.2	10.5	11.2	11.8	12.6	13.1	14.5	15.8	17.1
254S	6.6	7.5	8.4	9.3	9.8	10.2	11.3	12.3	13.3
251S	11.4	12.8	13.5	14.3	15.0	15.7	17.1	18.6	20.0
297S	13.8	16.9	17.9	19.0	20.0	21.0	23.0	25.1	27.2
3509S	17.8	20.1	21.2	22.3	23.5	24.6	26.9	29.1	31.4
3530S	34.7	39.4	41.8	44.1	46.4	48.8	53.5	58.2	62.8

