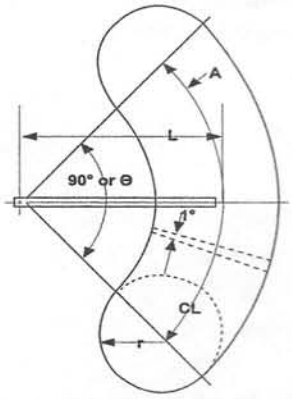
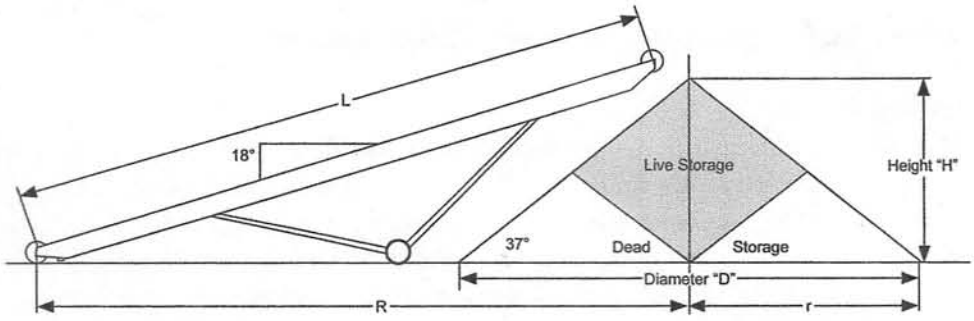
Conveyor Design Information

VOLUMES OF CONICAL AND CIRCULAR SHAPED STOCKPILES





Dimensions In Feet				Conical Pile Volume		Volume for One Degree Arc		90° Stockpile Volume	
L	R	H	r	C.Y.	Tons	C.Y.	Tons	C.Y.	Tons
40	39	14	19	196	265	6.5	8.8	781	1,057
50	48.5	17.5	23	359	485	12.8	17.3	1511	2,042
60	58	20.5	27	580	783	21	28.4	2470	3,339
70	67.5	24.5	32.5	1004	1355	35	47	4154	5,585
80	77	27.5	36.5	1421	1918	50.2	67.8	5939	8,020
90	87.5	30	40	1872	2527	68	91.6	1992	10,771
100	96.5	32.5	43	2331	3145	87.8	118.6	10,233	13,819
110	105.5	35.5	47	2058	4128	114.6	154.7	13,372	18,051
120	115.5	38.5	51	3884	5243	147.6	199.2	17,168	23,171
130	125	41.5	55	4896	6610	185.6	250.5	21,600	29,155
140	134.5	44.5	59	6041	8156	229.6	310	26,705	36,056
150	144	47.5	63	7312	9871	280	378	32,512	43,891

Calculated volumes are in cubic yards.

Tons are base on 100 lbs. per. Cu. Ft. material, conveyor incline 18 stockpile angle of repose 37.
Live storage at center of pile is theoretically 25 % of the total volume

1. Volume of conical pile = V_1

   Where radius of pile (r) and height of pile (h) are known: $V_1 = r^2H\ (.039)$

   Where height of pile (H) and slant length of side of pile (s) are known: $V_1 = H\ (S^2 - H^2)\ (.039)$

   Where slant length of side of pile (s) and angle of repose Ø are known:
   $V_1 = S^3\ (\cos Ø)^2 \sqrt{1 - (\cos Ø)^2}\ (.039)$

   Where height of pile (H) and angle of repose (Ø) are known:
   $V_1 = \frac{H3\ (.039)}{(\tan Ø^2)}$

2. Volume of a 1° arc segment of stockpile = V_2

   a. Where height of pile (H), distance between center line of pile and center line of conveyor pivot (R) are known, and angle of repose Ø is equal to 37° $V_2 = \frac{H^2R}{1160}$

   b. For other angles of repose $V_2 = \frac{H^2R}{(1547)\ (\tan Ø)}$

3. Degrees of arc of stockpile with known arc lengths = Θ.
   Where diameter of stockpile (D) and arc length (A) are known:
   $Θ = \frac{(114.6)\ A}{D}$