

# B. W. SINCLAIR, INC.

BULK MATERIAL HANDLING

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## TYPE 100 BUCKET ELEVATOR DATA SHEET

### CENTRIFUGAL DISCHARGE WITH STEEL CHAIN

Bulletin 300.002

Standard Type 100 elevators include head shaft machinery, pillow block roller bearings, discharge spout, casing, chain, "AA" style buckets, boot terminal and screw take-ups with ball bearings. Capacities are based on buckets filled to 75% of theoretical capacity and are proportional to the weight and volume of the material carried and the chain speed. Horsepower information is based on buckets filled to 100% theoretical capacity. Fluffy or lightweight materials may require slower chain speeds, and wet or sticky materials may need different buckets.

### CAPACITY DATA

Model	Max. Lump Size		Buckets		Chain	Cu. Ft. Hr.	CAPACITY* TPH			
	% of Lumps		Size	Ctrs.	Speed FPM		Material Weight, Lbs. / Cu. Ft.			
	10%	100%					35	50	75	100
101	2-1/2	1/2	6 x 4	13	225	280	4.9	7.0	10.5	14.0
103	3	3/4	8 x 5	16	230	540	9.5	13.5	20.2	27.0
105	3	3/4	8 x 5	16	260	610	10.7	15.2	22.9	30.5
107	3-1/2	1	10 x 6	16	230	940	16.4	23.5	35.2	47.0
109	3-1/2	1	10 x 6	18	268	960	16.9	24.0	36.0	48.0
111	4	1-1/4	12 x 7	18	268	1540	26.9	38.5	57.7	77.0
113	4	1-1/4	12 x 7	18	306	1740	30.4	43.5	65.2	87.0
116	4	1-1/4	14 x 7	18	268	1850	32.4	46.2	69.4	92.5
119	4	1-1/4	14 x 7	18	306	2110	36.9	52.7	79.1	105.5
122	4-1/2	1-1/2	16 x 8	18	248	2540	44.4	63.5	95.2	127.0
124	4-1/2	1-1/2	16 x 8	18	306	3120	54.6	78.0	117.0	156.0

\* Based on buckets filled to 75% theoretical capacity

### HORSEPOWER CALCULATION

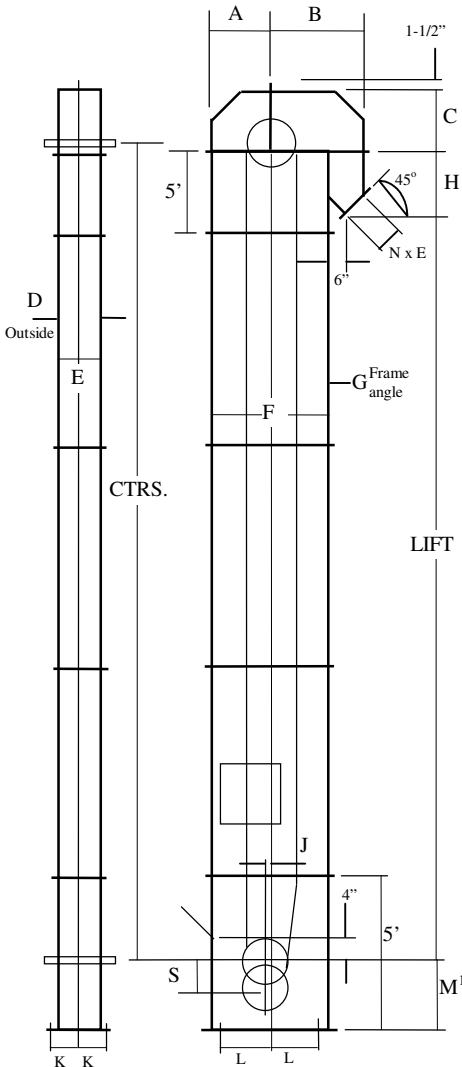
The horsepower required at the head shaft can be calculated with the following equation. The values required in the formula are listed in the following tables:

$$SHP = \frac{THP + (CHP \times C)}{0.85}$$

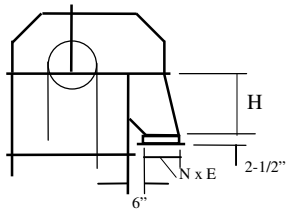
Legend: **SHP** = Horsepower at the head shaft      **CHP** = Horsepower per foot of centers  
**THP** = Terminal horsepower      **C** = Center distance in feet  
**0.85** = Drive efficiency factor, to compensate for power loss in drive train

Model	Material Weight per Cubic Foot								Head Shaft		Boot Shaft	
	35 PCF		50 PCF		75 PCF		100 PCF		Spkt.	RPM	Spkt.	Shaft
	Terminal	Per Ft. Centers	Terminal	Per Ft. Centers	Terminal	Per Ft. Centers	Terminal	Per Ft. Centers	P. D.		P. D.	Dia.
101	.12	.007	.16	.010	.24	.014	.32	.019	20	43	15	1-15/16
103	.20	.013	.27	.019	.41	.028	.56	.037	20-1/2	43	13	1-15/16
105	.30	.015	.43	.021	.64	.031	.86	.041	24-1/4	41	18	1-15/16
107	.40	.022	.57	.032	.85	.047	1.13	.063	20-1/2	43	15-1/2	1-15/16
109	.55	.023	.79	.033	1.18	.049	1.58	.065	25	41	21-1/4	1-15/16
111	.72	.036	1.02	.052	1.53	.078	2.05	.103	25	41	17-1/2	1-15/16
113	1.11	.041	1.81	.059	2.72	.089	3.62	.118	30-3/4	38	23-1/4	2-3/16
116	.88	.044	1.25	.063	2.00	.094	2.5	.125	25	41	17-1/2	2-3/16
119	1.35	.050	1.92	.072	2.88	.107	3.84	.143	30-3/4	38	23-1/4	2-3/16
122	1.10	.060	1.57	.086	2.35	.128	3.14	.171	23	41	15-3/4	2-3/16
124	1.81	.074	2.62	.106	3.93	.158	5.24	.211	30-3/4	38	21-1/4	2-3/16

Note: Values based on buckets filled to 100% theoretical capacity



Anchor bolts:  
 3/4" dia.  
 2" projection



Optional Style 2 Discharge

**Other BWSI Products:**

- Screw conveyors
- Screw feeders
- Belt conveyors
- Flex-wall conveyors
- Diverter valves
- Roller gate valves
- Hoppers & bins
- Engineered systems

Model	A	B	C	D	E	F	G	H
101	17-1/2	30-1/2	19-1/2	13-1/8	9-3/4	35	1-1/2	27-1/4
103	19-1/2	32-1/2	21-1/2	15-1/8	11-3/4	39	1-1/2	29
105	21	36-1/4	24	16-1/8	11-3/4	42	2	30-1/4
107	21	36-1/4	24	18-1/8	13-3/4	42	2	30-1/4
109	24	40-5/8	27-1/2	18-1/8	13-3/4	48	2	33-1/4
111	24	40-5/8	27-1/2	20-1/8	15-3/4	48	2	33-1/4
113	27	45	31	20-1/8	15-3/4	54	2	35-3/4
116	24	40-5/8	27-1/2	22-1/8	17-3/4	48	2	33-1/4
119	27	45	31	22-1/8	17-3/4	54	2	35-3/4
122	24	40-5/8	27-1/2	24-1/8	19-3/4	48	2	33-1/4
124	27	45	31	24-1/8	19-3/4	54	2	35-3/4

Model	J	K	L	M <sup>1</sup>	N	S	Chain	Pitch
101	2-1/2	6-3/4	14-1/2	24-1/2	10	6	S188	2.609"
103	3-3/4	7-3/4	16-1/2	24-1/2	10	6	S102B	4.00"
105	3-1/8	7-3/4	18	29-1/2	13	9	S102B	4.00"
107	2-1/2	8-3/4	18	29-1/2	13	9	S102B	4.00"
109	1-7/8	8-3/4	21	32	15	9	S110	6.00"
111	3-3/4	9-3/4	21	32	15	9	S110	6.00"
113	3-3/4	9-3/4	24	34-1/2	17	9	S110	6.00"
116	3-3/4	10-3/4	21	33	15	9	S110	6.00"
119	3-3/4	10-3/4	24	34-1/2	17	9	S110	6.00"
122	3-5/8	11-3/4	21	32	15	9	S110	6.00"
124	4-3/4	11-3/4	24	34-1/2	17	9	S110	6.00"

Model	Casing Size <sup>2</sup>	Casing Thickness (Ga.)				Weight (-)	
		Hood	Head	Case	Boot	Term <sup>3</sup>	Ctrs <sup>4</sup>
101	9-3/4 x 35	14	12	12	10	686	58
103	11-3/4 x 39	14	12	12	10	801	74
105	11-3/4 x 42	14	12	12	10	887	83
107	13-3/4 x 42	14	12	12	10	964	91
109	13-3/4 x 48	14	12	12	10	1140	92
111	15-3/4 x 48	14	12	12	10	1139	98
113	15-3/4 x 54	14	12	12	10	1451	104
116	17-3/4 x 48	14	12	12	10	1329	102
119	17-3/4 x 54	14	12	12	10	1535	107
122	19-3/4 x 48	14	12	12	10	1454	120
124	19-3/4 x 54	14	12	12	10	1734	120

- Notes:
1. "M" + 4" is the minimum height from material inlet point to bottom
  2. Dimensions are inside the casing enclosure
  3. Term = Weight of each terminal
  4. Ctrs. = Weight of casings, chain, and buckets, per foot of centers

Type 100 Elevators are recommended for the following products ...				Wt.
Material	Abrasion	Corrosion	Flowability	PCF
Asphalt	Low	Low	Moderate	45
Bauxite	High	Low	Moderate	75-85
Bentonite	Moderate	Low	Sluggish	40-60
Cement	Moderate	Low	Moderate	75-85
Clinker	High	Low	Moderate	75-80
Coal	Low	Moderate	Sluggish	50-55
Feldspar	Moderate	Low	Moderate	65-75
Fluorspar	Moderate	Low	Sluggish	80-95
Gravel	Moderate	Low	Moderate	90-95
Gypsum	Moderate	Low	Sluggish	75-95
Ilmenite ore	High	Low	Moderate	140
Lime, pebble	Low	Low	Sluggish	55-60
Limestone	High	Low	Moderate	85-90
Soda ash	Moderate	Low	Moderate	55-65
Sugar	Low	Low	Moderate	50-55
Wheat	Low	Low	Free	40-45