

A-Train No Nose Cones - 4.47"

<b>Base Model</b>			
	Run 1	Run 2	Average
Inverter Frequency (Hz)	Drag Force (N)	Drag Force (N)	Drag Force (N)
12.5	0.370	0.335	0.353
15.0	0.550	0.517	0.534
17.5	0.809	0.769	0.789
20.0	1.093	1.099	1.096
22.5	1.445	1.435	1.440
25.0	1.827	1.810	1.819
27.5	2.281	2.274	2.278
30.0	2.801	2.727	2.764

<b>Hopper Bins</b>			
	Run 1	Run 2	Average
Inverter Frequency (Hz)	Drag Force (N)	Drag Force (N)	Drag Force (N)
12.5	0.344	0.297	0.321
15.0	0.499	0.437	0.468
17.5	0.721	0.622	0.672
20.0	1.159	0.832	0.996
22.5	1.463	1.11	1.287
25.0	1.871	1.475	1.673
27.5	2.306	1.885	2.096
30.0	2.800	2.360	2.580

A-Train Nose Cones - 4.47"

<b>Base Model</b>			
	Run 1	Run 2	Average
Inverter Frequency (Hz)	Drag Force (N)	Drag Force (N)	Drag Force (N)
12.5	N/A	N/A	#DIV/0!
15.0	N/A	N/A	#DIV/0!
17.5	N/A	N/A	#DIV/0!
20.0	N/A	N/A	#DIV/0!
22.5	N/A	N/A	#DIV/0!
25.0	N/A	N/A	#DIV/0!
27.5	N/A	N/A	#DIV/0!
30.0	N/A	N/A	#DIV/0!

<b>Hopper Bins</b>			
	Run 1	Run 2	Average
Inverter Frequency (Hz)	Drag Force (N)	Drag Force (N)	Drag Force (N)
12.5	0.307	0.291	0.299
15.0	0.454	0.422	0.438
17.5	0.650	0.571	0.611
20.0	0.934	0.774	0.854
22.5	1.250	1.089	1.170
25.0	1.535	1.376	1.456
27.5	1.875	1.815	1.845
30.0	2.365	2.157	2.261

A-Train No Nose Cones - 5.26"

<b>Base Model</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	N/A	N/A	#DIV/0!
15.0	N/A	N/A	#DIV/0!
17.5	N/A	N/A	#DIV/0!
20.0	N/A	N/A	#DIV/0!
22.5	N/A	N/A	#DIV/0!
25.0	N/A	N/A	#DIV/0!
27.5	N/A	N/A	#DIV/0!
30.0	N/A	N/A	#DIV/0!

<b>Hopper Bins</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	0.121	0.187	0.154
15.0	0.380	0.272	0.326
17.5	0.668	0.527	0.598
20.0	1.015	0.852	0.934
22.5	1.391	1.209	1.300
25.0	1.772	1.591	1.682
27.5	2.223	2.048	2.136
30.0	2.674	2.475	2.575

A-Train Nose Cones - 5.26"

<b>Base Model</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	N/A	N/A	#DIV/0!
15.0	N/A	N/A	#DIV/0!
17.5	N/A	N/A	#DIV/0!
20.0	N/A	N/A	#DIV/0!
22.5	N/A	N/A	#DIV/0!
25.0	N/A	N/A	#DIV/0!
27.5	N/A	N/A	#DIV/0!
30.0	N/A	N/A	#DIV/0!

<b>Hopper Bins</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	0.199	0.154	0.177
15.0	0.274	0.406	0.340
17.5	0.421	0.480	0.451
20.0	0.650	0.613	0.632
22.5	1.115	0.774	0.945
25.0	1.297	0.972	1.135
27.5	1.650	1.174	1.412
30.0	2.047	1.595	1.821

A-Train No Nose Cones - 6.67"

<b>Base Model</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	N/A	N/A	#DIV/0!
15.0	N/A	N/A	#DIV/0!
17.5	N/A	N/A	#DIV/0!
20.0	N/A	N/A	#DIV/0!
22.5	N/A	N/A	#DIV/0!
25.0	N/A	N/A	#DIV/0!
27.5	N/A	N/A	#DIV/0!
30.0	N/A	N/A	#DIV/0!

<b>Hopper Bins</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	0.336	0.123	0.230
15.0	0.474	0.234	0.354
17.5	0.806	0.435	0.621
20.0	1.128	0.765	0.947
22.5	1.468	1.086	1.277
25.0	1.834	1.468	1.651
27.5	2.236	1.895	2.066
30.0	2.753	2.389	2.571

A-Train Nose Cones - 6.67"

<b>Base Model</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	N/A	N/A	#DIV/0!
15.0	N/A	N/A	#DIV/0!
17.5	N/A	N/A	#DIV/0!
20.0	N/A	N/A	#DIV/0!
22.5	N/A	N/A	#DIV/0!
25.0	N/A	N/A	#DIV/0!
27.5	N/A	N/A	#DIV/0!
30.0	N/A	N/A	#DIV/0!

<b>Hopper Bins</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	0.237	0.200	0.219
15.0	0.328	0.265	0.297
17.5	0.484	0.386	0.435
20.0	0.774	0.620	0.697
22.5	1.187	1.007	1.097
25.0	1.487	1.324	1.406
27.5	1.848	1.634	1.741
30.0	2.328	2.167	2.248

A-Train No Nose Cones - 7.45"

<b>Base Model</b>			
	Run 1	Run 2	Average
Inverter Frequency (Hz)	Drag Force (N)	Drag Force (N)	Drag Force (N)
12.5	N/A	N/A	#DIV/0!
15.0	N/A	N/A	#DIV/0!
17.5	N/A	N/A	#DIV/0!
20.0	N/A	N/A	#DIV/0!
22.5	N/A	N/A	#DIV/0!
25.0	N/A	N/A	#DIV/0!
27.5	N/A	N/A	#DIV/0!
30.0	N/A	N/A	#DIV/0!

<b>Hopper Bins</b>			
	Run 1-1	Run 2-1	Average-1
Inverter Frequency (Hz)	Drag Force (N)	Drag Force (N)	Drag Force (N)
12.5	0.188	0.223	0.206
15.0	0.305	0.320	0.313
17.5	0.398	0.442	0.420
20.0	0.700	0.649	0.675
22.5	1.068	1.010	1.039
25.0	1.428	1.380	1.404
27.5	1.878	1.818	1.848
30.0	2.343	2.303	2.323

	Run 1-2	Run 2-2	Average-2
Inverter Frequency (Hz)	Drag Force (N)	Drag Force (N)	Drag Force (N)
12.5	0.312	0.208	0.260
15.0	0.490	0.312	0.401
17.5	0.702	0.536	0.619
20.0	0.980	0.866	0.923
22.5	1.346	1.212	1.279
25.0	1.762	1.586	1.674
27.5	2.191	2.016	2.104
30.0	2.626	2.470	2.548

A-Train Nose Cones - 7.45"

<b>Base Model</b>			
	Run 1	Run 2	Average
Inverter Frequency (Hz)	Drag Force (N)	Drag Force (N)	Drag Force (N)
12.5	N/A	N/A	#DIV/0!
15.0	N/A	N/A	#DIV/0!
17.5	N/A	N/A	#DIV/0!
20.0	N/A	N/A	#DIV/0!
22.5	N/A	N/A	#DIV/0!
25.0	N/A	N/A	#DIV/0!
27.5	N/A	N/A	#DIV/0!
30.0	N/A	N/A	#DIV/0!

<b>Hopper Bins</b>			
	Run 1-1	Run 2-1	Average-1
Inverter Frequency (Hz)	Drag Force (N)	Drag Force (N)	Drag Force (N)
12.5	0.180	0.195	0.188
15.0	0.375	0.262	0.319
17.5	0.812	0.370	0.591
20.0	0.879	0.639	0.759
22.5	1.268	0.975	1.122
25.0	1.678	1.340	1.509
27.5	2.014	1.699	1.857
30.0	2.470	2.154	2.312

	Run 1-2	Run 2-2	Average-2
Inverter Frequency (Hz)	Drag Force (N)	Drag Force (N)	Drag Force (N)
12.5	0.244	0.111	0.178
15.0	0.502	0.244	0.373
17.5	0.815	0.482	0.649
20.0	1.039	0.753	0.896
22.5	1.352	1.115	1.234
25.0	1.678	1.395	1.537
27.5	2.057	1.808	1.933
30.0	2.485	2.222	2.354

A-Train No Nose Cones - 9.02"

<b>Base Model</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	N/A	N/A	#DIV/0!
15.0	N/A	N/A	#DIV/0!
17.5	N/A	N/A	#DIV/0!
20.0	N/A	N/A	#DIV/0!
22.5	N/A	N/A	#DIV/0!
25.0	N/A	N/A	#DIV/0!
27.5	N/A	N/A	#DIV/0!
30.0	N/A	N/A	#DIV/0!

<b>Hopper Bins</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	0.335	0.283	0.309
15.0	0.513	0.435	0.474
17.5	0.794	0.639	0.717
20.0	1.121	0.889	1.005
22.5	1.498	1.147	1.323
25.0	1.920	1.540	1.730
27.5	2.378	1.975	2.177
30.0	2.892	2.512	2.702

A-Train Nose Cones - 9.02"

<b>Base Model</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	N/A	N/A	#DIV/0!
15.0	N/A	N/A	#DIV/0!
17.5	N/A	N/A	#DIV/0!
20.0	N/A	N/A	#DIV/0!
22.5	N/A	N/A	#DIV/0!
25.0	N/A	N/A	#DIV/0!
27.5	N/A	N/A	#DIV/0!
30.0	N/A	N/A	#DIV/0!

<b>Hopper Bins</b>			
	<b>Run 1</b>	<b>Run 2</b>	<b>Average</b>
<b>Inverter Frequency (Hz)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>	<b>Drag Force (N)</b>
12.5	0.275	0.259	0.267
15.0	0.414	0.406	0.410
17.5	0.604	0.544	0.574
20.0	0.932	0.764	0.848
22.5	1.165	1.002	1.084
25.0	1.478	1.298	1.388
27.5	2.024	1.585	1.805
30.0	2.315	1.947	2.131